Emotional Obstacle in E-learning - The fear of technology

Sanna Juutinen
University of Jyvaskyla

Tanja Huovinen
Statistics Finland

Anicet Yalaho
Niilo Mäki Institute

Abstract

E-learning has its difficulties, but it is still a strongly growing area in education and training. Both public and private organizations use it extensively. Technophobia is a growing problem with continuously increasing technology around us. While more and more teaching is given through different technological equipment, more troubles the people feeling negatively towards them will have.

Frustration and anxiety are known to be part of the computer user's life; almost all of the users at some point feel themselves frustrated. Frustration causes people to withdraw from the frustrating situation and make them not to go through again the frustrating situation. This causes problems in e-learning when students don't want to continue learning in frustrating environment and makes them to be afraid or reluctant towards the computer

1. Introduction

E-learning is here to stay. But not everyone wants to use it. The problems behind the reluctance may lay in fear of the technology that is being used for e-learning purposes. Systems and software used in different e-learning facilities vary, but the one thing they all have in common is the technology. In traditional classroom teacher teaching learning, this technology is not necessarily needed for learning, but in e-learning neither the student nor the teacher can escape it. This causes some people to develop several negative emotions towards the new learning media. [1] These emotions may be an obstacle in the students learning abilities and willingness to learn in e-learning or even using it. These kinds of students are in danger of losing some of their possibilities in nowadays educational environment when they lose one learning channel that is quite important nowadays both in educational and in business environment.

Cause for this fear may come from the past negative experiences with technology or computers and can be applied even other parts of their lives with reluctant behavior towards all the other technology assisted issues in the society. When the experience in using technology in low, the skills usually are also low and the willingness to even learn to more or become better user is low. These kinds of learners and technology users usually associate all the technology negatively and their behavior can also be called technophobic [2].

The assumption for this research is that the computer using skills affect on the students" behavior and emotions that they deal with while using e-learning system. Also the attitudes towards any new technology and computers affect to the e-learning experience. Here the students who have negative attitudes towards the technology and computer are labeled as technophobic.

2. Emotions in E-learning

Emotions have a big impact to learning in traditional teaching [3] and in e-learning [1, 4-5]. The emotional connection between emotions and learning results in e-learning courses has been under research strong implications to this have been found [1, 5-6]. Attitudes towards e-learning have been both negative and positive, always depending who you are asking from. Frustration using computers is a common phenomenon nowadays around the world with almost everyone who has operated a computer at some point [4]. For some users frustration level grow to the extent of developing technophobia. Technophobia can be apparent even with people who are using the computer [2] not just with the ones that do not use the computer at all. The computer self-efficacy and attitudes play big role in frustration levels [7]. Frustration has been researched to take up to 1/3-1/2 of time spent on the computer [8] and this should be considered while planning courses and timetables.

People react in different ways to different situations. Partly these reactions are learned and based on people's previous experiences. Some people associate positive emotions to new technology and others think of technology as a negative issue. The difference among these two groups is that they associate the same technology in a completely different emotional context [9]. People's emotional reactions do not stay unchanged; they are in a constant change during their whole life [10]. Someone who has been reacting very negatively towards technology can later even like using technology. People's emotional contexts can thus change. This kind of process may be referred to as emotional learning [9].

Learning is not purely a cognitive phenomenon [11]. It is a process that is closely linked to students' social and emotional needs, as well as to the context of their learning environment [9]. Especially in e-learning, a positive experience of using the system is the most important reward. It motivates the users to execute their needs in that certain user context. A hard-to-use service is not encouraging, and people will only use it if they are forced to.

Anxiety is a normal emotion experienced at some point in every human's life [12]. Purpose of anxiety is to motivate to seek solution for the perceived danger or problem. Anxiety can cause people to react several ways, usually it causes people to have poor concentration, worry, to be overactive and have uncontrollable thought processes [12]. These symptoms make learning process a lot harder than it would be with positive emotions. Frustration causes the users to have diminished abilities with respect to attention [13], memory retention [14], learning [15] and thinking creatively [16]. It may cause the users to get frustrated with the same system in the future also or make them not to use the system at all in the future.

3. The fear of technology/Technophobia[1]

Our society today is permeated by technologies; the study of technophobia becomes increasingly relevant when examining technology's influence in user psychology. According to Korukonda and Finn ([17], p.80) "Technophobia has been an enduring problem in industrial economies over the last 20 years with some estimates putting the number of technophobes at close to one-third of the industrialized population of the world". They further put forward that suggest that it is the consequences of the heavy infusion of computer technology in everyday life. Students are often exposed to such technologies, with computers and digital media at the forefront of education.

As technology develops, it demands people to develop their working habits. For some this is a normal way to work. When there is new technology, they take it in to their everyday life functions and their work. But for others, this kind of development and demand for new technology is terrifying. They are very reluctant to adopt any kind of technology to their actions; even it sometimes would help their life enormously. This kind of people are said to have technophobia. This kind of fear towards technology has been seen in everywhere and obviously with increasing amount of technology surrounding us, the technophobia is showing up with more people and more widely than ever. Therefore, the study of technophobia becomes increasingly relevant when

examining technology's influence in user psychology. Defining technophobia is essential at this point. There are many definitions of technophobia, but the most commonly cited definition is the one proposed by Jay [18] who defines it as:

1. A resistance to talking about computers or even thinking about computers
2. Fear or anxiety towards computers
3. Hostile or aggressive thoughts about computers

With his definition, the technophobia research area fairly broad. More recent update for the definition is from Rosen and Weil [19]:

1. Anxiety about current or future interactions with computers or computer-related technology;
2. Negative global attitudes about computers, their operation or their societal impact; and / or
3. Specific negative cognitions or self-critical internal dialogues during actual computer interaction or when contemplating future interaction.

The label computer-phobic (or technophobic) describes individuals who range from severe reactions on all dimensions to mild discomfort on a single dimension.

This definition shows how technophobia can be apparent; even with the people who are using computers [2] not just with the ones that do not use the computer at all.

Technophobia has implications to design and development. The use of new services is always in small quantities in the beginning. As the service becomes popular among the big user groups then it has the possibility to become the ¡°next hot thing¡±. New services have been thought to be somehow informal ways to transform data and information, especially in the corporate world. This is what happened to email in the 1980s. It was considered to be an element of reducing productivity [20] and was predicted as companies carefully measure the effect, they would terminate email use [21]. This obviously did not happen and nowadays email is a ¡°big player¡° in information distribution business, especially in companies and educational institutes. This shows how email was intimidating even for researches, who thought the new messaging system will take the time from efficient work time and somehow disturb the workers. Now we know better, but without the people who were not reluctant towards the new technology, email would be unused today.

For new technology usage in education, the teachers are the link between the students and the technology. For example computers have a lot to offer nowadays to teaching but it still is being underused by teachers. This is due to the attitudes

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[1] In this paper „fear of technology" and technophobia are used interchangeable.

and the lack of knowledge how to take the advantage of the computers in teaching also they are experiencing lack of confidence in their own computer skills, they think they do not to have enough pedagogical skills to teach students with computers and some teachers think that there is nothing technology could bring more into their teaching [2, 22]. But the problem is not just the teachers at school, to be able to use the assistance of technology and computers in their teaching, the teachers need the support and assistance of the other personnel in school. They need to get the funding from the principle of the school and support from the computer administrators. Also some other personnel may be needed, based on the school the teacher is in. It is seen that the administrator is sometimes the falling point for the lack of technology usage [22]. They are not supportive in their actions or are questioning the need of computers in some subjects. Usage of the technology also brings troubles among sex differences, there are signs showing that computers are used more by boys and male teachers than girls and female teachers [23]. This may give the boys advantage over the girls when moving to higher levels of school. From the atmosphere that comprises of an anxious model and gender-biased classroom practices the children will get unintentional signals that the computing is a genderized activity [24]. This role model impact is described by Rosen and Weil [25]:

"With these fears, negative cognitions, and negative attitudes, teachers will not be able to provide confident role model to the students as they attempt to teach the students how to use the machines. As earlier work has shown, these students will likely become the next generation's technophobic adults." The future will show how the equality will work among the school staff and students as the technology continues developing to more hidden and hopefully easier to use.

So it is not just the fear of technology that makes technology underused or e-learning courses have high dropout rates. It is also all the things going around them. But having technophobia will not make it easier to handle all this technology around the learning process, since it arouses lots of emotions that are discouraging to learning. From these emotions, fear and anxiety are the most common ones [2]. These emotions can drive the user away from the technology for a long time or make the using unpleasant.

4. Technophobia in e-learning

Students in e-learning courses tend to react on usability problems with fairly strong emotions [1, 5-6]. In his exploratory-grounded study of graduate students, Scull [26] found that, in one hand, students experienced higher levels of anxiety when they were

under time or goal pressures, or when the technology failed or somehow malfunctioned. When something went wrong, this affected the emotional state of the students, leading to panic and anxiety. On the other hand, the study also showed that despite deadlines and equipment failure, many students were able to develop strategies that can reduce their computer anxiety. For example, "they were careful to avoid information-support that used computer jargon and to call on patient and understanding computer friends for help" (213).

In the same vein, another study by Sheeson [27]found that "computer confidence had significant effects on user perception of task complexity while the effects of computer liking were minimal at various task levels, increasing computer experience may help reduce computer anxiety" (213).

Students" learning results in e-learning are affected by the way they react on the problems in learning and technique. The positively reacting students are more equipped to overcome bigger and more problems than the negatively reacting and thinking ones [1]. The frustration-pride model [1] indicates the positive and negative cycles in e-learning experience. The students who manage to keep their attitude and thinking positive despite the setback in studying are more likely to be able to finish their courses with positive experiences.

Fear of technology plays a big role in e-learning studying. In most e-learning courses the main learning device is the computer, with which every student have to work with and if they have fear or anxiety towards computers or any new technology, it makes their e-learning career fairly difficult.

5. Research

The students of the e-learning system were sent an invitation through e-mail to respond to a questionnaire in spring 2008. The questionnaire was to be completed on the Internet. A questionnaire included rating scale questions and open questions. All the respondents have been using for their studies the e-learning system under research.

5.1. Respondents

The respondents, 354 in all, who participated in the study, had been studying the same e-learning system. Respondents had been studying in e-learning system diversity of times. Respondents were working in all over the organization in several types of tasks. Of the participants, 320 were women and 34 men, and they were between 23 to 63 years of age.

5.2. The questionnaire

The questionnaire was divided into 5 different categories. The categories were: 1. Basic

information, 2. E-learning system usability, functionality and user experiences, 3. Emotions, 4. Relationship towards new technology and computers, 5. Using a computer and network for studying. These categories measured different areas of the e-learning experience. In the answers of the questionnaire, the participants stated their experience of using the e-learning system as a training facility. The answers are the respondents' subjective opinions regarding the usability of the e-learning system. Computer skills variable is formed from the section 1 in the questionnaire, where the respondents answered about their computer usage and basic skills with the computer. Attitude towards computers is formed from the section 4 of the questionnaire and the attitude towards using computer in studying is formed from the section 5.

5.3. Method

In the analysis, answers from sections 1, 4 and 5 were used. Section 1 included basic questions about the users and their experience in using computers and other technology at home and at work. Section 4 included questions about how the respondents feel about the computer and new technology and section 5 was about how the respondents feel using the computer and internet for studying. The questions were 1-4 rating scale questions. The variables were named as follows; Section 1 = Computer skills, Section 4 = Emotions towards computers and Section 5 = Using computer for studying.

Answers were analyzed using the correlation tables and graphs. In order to reduce number of variables used in analyzing, the factor analysis was used to identify most loaded components within each section. Calculating the mean of these correlated variables in sections made analyzing and interpreting the results easier. Analyzed variables were the mean of computer skills variables, the mean of attitude to computer variables and the mean of computer in studying. Statistical relationships between these variables were analyzed using the Spearman's correlation method for ordinal data.

5.4. Analysis

According to table 1 results there is a significant, positive correlation between the computer skills and attitudes generally towards computers (p-value < 0.0001) and using computers in studying (p-value < 0.0001). This means that, the worse the computer skills the students have, more negative is their attitudes towards the computers and new technology.

This shows that the level of the skills in using the computers and other kind of every technology influences to the emotions that the students have about the technology. These emotional obstacles could be improved by teaching the basic skills better.

But the problem with these kind of students is that they are usually very reluctant of learning new skills in this technology area, technophobia is taking over the willingness to learn.

Table 1. Correlations between the variables

Spearman Correlation Coefficients Prob > |r| under H0: Rho=0 Number of Observations		
	Emotions towards computers	Using computer for studying
Emotions towards computers	1.00000

343 | 0.42973 <.0001 342 |
| Using computer for studying | 0.42973 <.0001 342 | 1.00000

343 |
| Computer skills | 0.46242 <.0001 343 | 0.26580 <.0001 343 |

Sections 4 and 5 are also correlating (p-value < 0.0001) significantly. This correlation shows that the students whose attitude towards computers and new technology is bad, they are not willing to use them in their studies either. This causes them to be very negative about e-learning, which requires them to use the computers and other technology all over the studying process.

This negative cycle that these students are in is defined in Juutinen and Saariluom[1] pride-frustration model. To be able to help the students with their fear of technology and using it, the source of their fears should be discovered.

Same connections are visualized in Figures 1,2 and 3. The graphs are made with SAS enterprise guide 4.1 by using scatter plot diagram. A graph displays the relationship between the two variables. In each of the graph, the pattern of dots starts from the lower left corner and continues to upper right corner; it suggests a positive correlation between variables. The tighter the pattern of values is the stronger the correlation is.
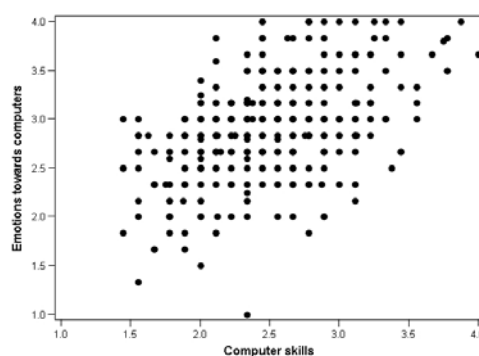

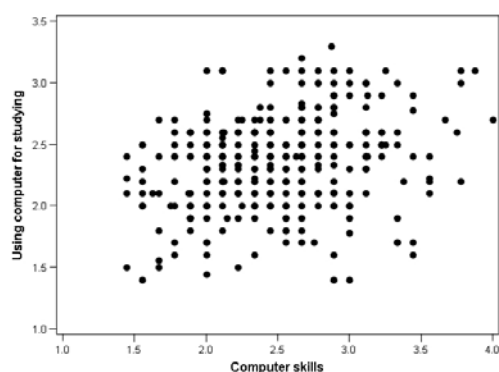Figure 1. Correlation between variables Emotions towards computers and Computer skills

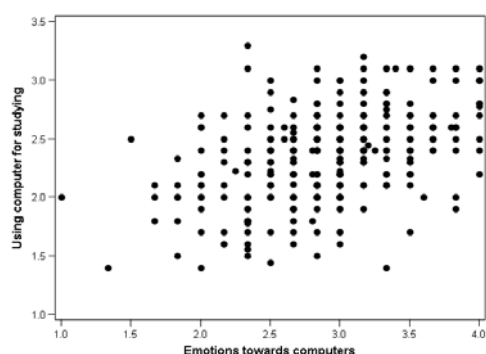Figure 2. Correlation between variables Using computer for studying and Computer skills

Figure 3. Correlation between variables Using computer for studying and Emotions towards computers

6. Conclusion

This research shows how the technophobia can cause troubles to students in e-learning. These students lack the basic computer and technology using skills and they are reluctant to learn to use any new technology equipment or learning methods. They emotions towards the computers and e-learning systems are negative and problems is usage make them even worse. The negative cycle [9] causes the students to lose their interest to learning and looking for help. The key for theses students would be good and fast technical support and tutors helping them to get to the positive thinking mode and therefore to the positive cycle [9] that feeds the learning willingness and ability to handle the obstacles better.

Technophobia can be caused from several issues, and these reasons should be found out to make these students get also to the rising wave of e-learning studies. Otherwise they may be in great risk of dropping out from the development of the learning nowadays, whether it is in their education or at their work. Lifelong learning in today society demands the usage of computers and technology.

7. References

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