Computer Apology: The Effect of the Apologetic Feedback on Users in Computerized Environment

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Abstract

Apologizing or praising has various effects on people's motivation levels. One way to employ emotions in computerized environments is to present humanized messages like apologetic statements. In this study, a game offering apologetic statements for a group of subjects was used to understand the effect of apologetic statements in computerized environment. Findings have shown that the apologetic feedbacks made the subjects feel more respected, more comfortable, and more sensitive to their feelings. These findings confirm the legitimacy of the claim that computers' offering apologetic statements to the users can realize the real user-centered design.

1. Introduction

Emotions have become one of the important issues of human-computer interaction and lots of studies showed that use of emotions in a computerized environment affects the users' behavior to the system in a positive direction. Olivera and Sarmento [4] state that emotional mechanism affects decision-making, memory, learning, motivation and other higher order cognitive capabilities. The studies coming from educational psychology and human-computer interaction showed that the role of emotions in educational and computerized environments and use of emotions in the e-learning settings, which represent learning and computerized environment, can affect users' performance in that environment. For example, one research showed that motivational messages in teacher discourse including emotional supports provides supportive climate for learning [5]. Hence, students' affective states affect the climate in learning environments.

One way to employ the emotions in computerized environment is to give written feedbacks including emotions such as apologetic feedbacks. In order to alleviate a victim's anger and in order to reduce negative evaluations of the offender, apologetic statements are used in several societies. Similarly, Nielsen [6] argues that error messages responding to user's action should include a simple apologetic statement when the reason of the error is the limitation of the interface to perform the intended task.

2. Literature Review

Many studies have confirmed the idea that the use of emotions, in terms of humanized messages such as apologetics and flattering in computerized environment has an enormous effect on users' performance. Several research studies showed that interaction time between a system and its users who received emotional message from a computer was longer than the time between the system and those who received generic feedback [1, 3, 8, 10]. Moreover, Fogg and Nass' study [1] also showed that the interaction was more enjoyable for users who received flattery from a computer than for those who received generic feedback. In the Paula and Lammers's [12] study, high self-esteem subjects who received human-like error messages performed significantly better on computerized tasks than high self-esteem subjects who received less personal, computer-like feedback. These studies support the idea that emotion-support agents increase users' performance in accordance with their willingness to continue working with the agent.

In addition to those studies, Tzeng showed that apologetic statements made subjects feel better about the interaction of the program [7]. On the other hand, same study showed that subjects in apologetic feedback groups did not perceive their performance and ability to play the game as better than those in non-apologetic groups. Laere, Lundgren, and Howe found that human-like and machine-like interface styles did not have significantly different effects [2].

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The common point of those studies, even if there are such differences, is that use of humanized messages in computerized environment has positive effects on users about the interface.

3. Method

3.1 Participants

Ten high school students participated to the pilot study. Total 40 high school students consisting of 8 female and 32 male participated to the main study. All students had enough experience on the use of computer, and most of the students love playing games. These students were randomly selected among voluntary students which have experience with computer use and game play. The study was conducted in a computer laboratory, and each student was assigned one computer in the lab.

3.2 Materials

In the study, two different instruments were used, a word-guessing game and a questionnaire.

3.2.1 The Game. A word guessing computer game, originally designed by Tzeng, was used in this study. In this computer game, users have to guess the correct term with the help of clues given by the computer randomly from the pool of pre-selected nouns or phrases. In each game, there were ten clues. In other words, users had right to attempt to guess the correct word or phrase ten times at most. The clues are all conceptually related to the key but not synonyms. If a subject makes a correct guess, a congratulations message appears and he/she is asked to play the next game. If the user makes wrong guess, a short feedback message is presented and the user is directed to attempt another guess. If the user couldn't make correct guess after tenth attempt, another feedback message is presented and the answer is presented before the users are asked to play another game. Subjects have 30 minutes to complete 10 rounds.

There was one treatment in the game (apologetic). The treatment had two levels so that there were two types of the game: Apologetic and non-apologetic.

Apologetic/Non-Apologetic Feedback. In this game, half of the subjects received apologetic feedback; the other half received generic feedback. The apologetic feedback indicated that the computer was responsible for the subjects' incorrect guesses. In the game there were three types of feedbacks: the fist one was given for incorrect guesses, the second one was for correct guesses, and the third one was given after the tenth unsuccessful attempt to guess the key. Apologetic feedbacks were given for the first and third feedback conditions. The feedback messages for each of these conditions are listed in Table 1.

Table 1. Feedback messages used in the study (Originally messages were in Turkish)

After making correct guesses	
	Congratulations! _____. Your answer is correct
After making an incorrect guess in response to a clue	
Apologetic feedback	Sorry, your answer is not correct. Please try again.
Non-apologetic feedback	Your answer is not correct. Please try again.
When subjects failed to correctly guess the answer after 10 clues	
Apologetic feedback	You could not guess the correct word. We are sorry that our clues were not very helpful for you. Please play another game! Correct word : _____
Non-apologetic feedback	You could not guess the correct word. Please play another game. Correct word: _____

3.2.2 Questionnaire. A questionnaire was prepared to obtain information about users' ideas concerning the game, the use of apologetic feedbacks, and their performance. It has Likert type items with 5 choices: from strongly agree to strongly disagree.

3.3 Data Collection

Subjects' performance scores in terms of number of correct and incorrect guesses were gathered by the game, and their ideas about their performance, and the game were collected by means of the questionnaire.

4. Results

Compared to non-apologetic feedback apologetic feedback made subjects feel more respected ($f(1, 6.063)$, $p=0.020$), and also it made subjects feel more comfortable while playing the game ($f(1, 8.099)$, $p=0.008$). Moreover, apologetic feedback made subjects feel more sensitive to their feelings ($f(1, 6.083)$, $p=0.019$).

80% of subjects, who played the game in which the apologetic feedback was used, thought that the apologetic feedback made the experience of playing

the games more enjoyable (M= 4.1). However, 60% of them thought that employing an apologetic message with an error message should be necessary, if subject's performance decreases because of computers' inability to carry out users' demand (M=3.77).

The study revealed that the apologetic feedbacks made the subjects feel more respected, more comfortable, and more sensitive to their feelings (f (1, 6.083), p=0.019). The study also showed that 5% of subjects receiving the apologetic feedback thought that apologetic feedback seemed insensitive to them; whereas 50% of those receiving the non-apologetic feedback thought that non-apologetic feedback seemed insensitive to them. Of those who received apologetic feedback, 80% thought that the apologetic feedback made the experience of playing the game more enjoyable (M=4.1), and 25% thought that apologetic feedbacks seemed awkward to them (M=3.4).

5. Discussion

The results of the study indicate that the apologetic statement makes playing the game more enjoyable. This supports the Tzeng's [10] and Fogg and Nass's findings [1]. Moreover, use of the apologetic statement in the interface made subjects feel more comfortable and more sensitive to their feelings compared to the non-apologetic statement. These results are similar with Tzeng's [10] results.

In the light of these results, we can say that the use of apologetic statements with an error message contributes the human-computer interaction. If we consider that the main aim of the user centered design is to create an environment for users in which they feel themselves comfortable, use of apologetic statements in the user interface design become a very important issue. Moreover, in human-human interaction, one of the more important, may be the most, issues is to behave in a respectful manner. In most of the societies when a person does not behave in a respectful manner or makes a mistake towards the other person, apologizing is the traditional and the most effective way in order to overcome the problem. Similarly, this study shows that most of the subjects thought that apologetic feedbacks do not seem awkward to them and 95% of them receiving apologetic feedback felt that apologetic feedback seemed sensitive to them. Here, it seems that subjects find it interesting to confront with respectful behavior such as apologizing when they encounter an error caused by computers' inability as if they encounter a problem in human-human interaction. The findings of this study indicate that representing the affective state of a person in the interface design is very important in human-computer interaction because people are more sympathetic to see emotional aspects in the interface such as, sensitivity, respect, and feeling of humanity. Therefore, these results might be used as evidence for the claim that computers' offering apologetic statements to the users can substantiate the idea of real user centered design.

6. Limitations

The number of subjects used in this study might not be enough to understand the effects of the apology on users. The use of larger samples would provide firmer findings. The other limitation is that apologetics used in the game have not been investigated from a pragmatic point of view. Analyzing these strategies and determining the apologetic feedbacks based on the findings emerging from analysis of speech act strategies of apology should be considered.

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