Semi-Continuous Monitoring of Student Feedback in Interactive Synchronous E-Learning Environments

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Abstract

The paper presents a new program tool intended to increase the feedback received from students during interactive synchronous sessions. It works in a semi-continuous, nonobtrusive way, giving information about predefined parameters. The results are monitored online by the instructor and the data is logged for further evaluation. Instructors using the program have reported a significant change of their perceived level of interaction with the students. The better feedback allows them more adaptability to the student needs, without interrupting the flow of the session. The program is independent of the conferencing environment and runs in parallel with it.

1. Introduction

Distance education courses based on e-learning actively use asynchronous and synchronous tools, as communication channels between students and instructor or as multi-user virtual online environments for computer-mediated communication.

The synchronous tools specially designed for instructional environments generally provide built-in feedback tools. They are mainly vote-based and allow the instructor to ask students about a specific issue. The problem is that such a "voting" interrupts the normal flow of the discourse, takes valuable time and has only Yes/No resolution.

The authors felt frustrated by these limitations and designed a tool that insures the collecting of feedback reactions from students in a semi-continuous way, while simultaneously visualizing for the instructor the global image of the monitored feedback received during the interactive synchronous session. A preliminary study found the program useful and easy to use. The fact that this tool is independent of the used conferencing system makes it a potential candidate for widespread dissemination within the educators' community.

2. Feedback monitoring program

The program contains two components, the client side and the server side. The client side part of the program is running on the computers of the students and the instructor during the interactive synchronous session. The students see a small window on top of their conferencing application (see Figure 1).

![Position NOW!](image)

Figure 1. Student feedback window

The prompting of the student to position the mouse is equivalent to ask him to evaluate simultaneously two parameters.

The instructor has to program the session by deciding how to prompt the students (blinking text and/or sound) and when (automatically or manually). Every
configuration may be saved for future use. A default configuration is provided.

Figure 2. Instructor feedback window

The instructor feedback window (see Figure 2) contains the received answers, i.e. the feedback that we want to monitor. The numeric values represent the number of identical answers. The time elapsed from the sampling of the last answers is also displayed.

The server side assures the communication with the clients and also contains the database with the received feedback, at the time of the samplings. There are no records of specific students' answers.

The used environment for developing both client and server side was asp, html and Java script.

3. Research method

The current study aims to provide answers to the following research questions:
1. To what degree do students perceive the feedback monitoring program as comfortable to use?
2. How is students' technical comfort with the feedback monitoring program related to student satisfaction?

The participants were 122 3rd year students enrolled in a 4-year Software Engineering program. There were 29 females and 93 males. There were two instructors, one worked with 2 classes and another with one class only. A typical interactive synchronous session with each class was 45 minutes weekly.

Data to answer the research questions was gathered by survey questionnaire posted on the course's site at the end of the winter semester, during the last week of classes. 108 answers were received. Two variables were represented in the survey:
- student comfort with the feedback monitoring program and
- student satisfaction.

The research team developed 4 items to test the student's comfort with the feedback monitoring program:
- "It was easy for me to operate the feedback window"
- "The prompts didn't distract me from the content"
- "I understood well the meaning of the feedback values"
- "I reacted to most of the prompts during the sessions"

A 5-point Likert-scale was used for all the questions (1=strongly disagree, 5=strongly agree). Cronbach's reliability test was computed for the 4-items comfort scale and .84 was obtained. The received answers, in the range 4-20, produced a mean M=17.2.

For students satisfaction only one item was asked:
"How would you describe your overall experience in using the feedback monitoring program?" The possible responses were in the range 1=very unsatisfying to 5=very satisfying. The mean response was M=4.35.

Both instructors were interviewed during the semester and at the end of it.

4. Results

The first research question was tested by these 4 items. The obtained mean score M=17.2 (range 4-20) indicates that respondents have a high level of comfort in using the feedback monitoring system. Responses to the first item indicated that most of them didn't have difficulties using the feedback window (M=4.6). The answers for the second item (M=4.2) tested if the feedback prompts were perceived as a nuisance. The response received for the third item (M=4.1) seems to suggest a need for a better definition of the checked parameters. The last item (M=4.3) confirmed the quality of the feedback monitoring design and use.

The second research question was tested by comparing the mean score obtained for both variables. Responses to the student satisfaction question yielded M=4.35, while the calculated mean score for the 4 items of the technical comfort was M=4.3.

Both instructors reported that they felt comfortable with the system. They perceived a better interaction with the students, an improvement of the fluency of the discourse and more content delivered.

5. Discussion and future research

The semi-continuous feedback monitoring program was perceived as useful by both students and instructors. It encourages us to further explore its effects on students and instructors, in order to refine his use, establishing feedback templates and prompting methodical recommendations for instructors. We intend to research the influence of other parameters as well: interesting, boring, relevant, useful, and fast.