Components of an Optimal Online Environment

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ABSTRACT

Experts were polled in the area of Computer Supported Collaborative Learning (CSCL) research to determine components of an optimal constructivist/collaborative online learning environment. One hundred seventy-seven panelists were asked to participate. Eighteen panelists responded contributing 93 components. They were then asked to rate these components on a scale of 0-7. Thirteen panelists responded. The components were then ranked according to average score. The top ten ranking components were calculated. The "Most Popular" components rated "5" or better, were determined by majority. A third round seeking a consensus was attempted.

Keywords

Constructivist, collaborative, online, Delphi Poll, top-ten components, "most popular" components

PURPOSE

The purpose of this study was to determine components of an optimal constructivist/collaborative online learning environment.

RESEARCH DESIGN

In this study, a Delphi Poll was utilized. Expert opinion is used to determine components of optimal constructivist/collaborative learning environment since a thoroughly explored model has yet to appear in the literature. The individual responses remained anonymous; however, a list of the panelists' names and their institutions appeared on the questionnaires.

PANELIST DETERMINATION

The panel members are experts in the field of CSCL research. All of the panel members have been conference presenters at the CSCL Conference held at Stanford University in December of 1999. The range of expertise includes international researchers in the fields of computer science, instructional design, organizational systems design, communications, and educational technology. The researchers hailed from universities, government research laboratories, and private industry.

PROCEDURE

The procedures used in this study were successive rounds of a questionnaire. The first round asked participants to provide their own five components of an optimal constructivist/collaborative online learning environment. Round two asked the panelists to rate all of the 93 components resulting from round one on a scale of 0-7. Round three attempted a consensus of the "most Popular" components. The rounds were sent and received via e-mail.

FINDINGS

Two types of results were generated from the data. First, each statement rating was averaged. These ratings were then ranked in order from highest to lowest. The highest average rating received a score of 6. Second, "Most Popular" components rated "5" or better, were determined by majority.

The top ten ranking components were:

- #1: Peer interaction.
- #2: Sharing the results of your efforts with others.
- #3: Collaborative knowledge construction.
- #4: A way of negotiating group consensus or conclusions.
- Equally ranked #5: A means of motivating, focusing and scaffolding the discussion; a shared workspace.
- Equally ranked #6: robust technology (easy access, ease of use, etc.); and continuity over time and space, such as provided by threaded discussions.
- Equally ranked #7: Somebody facilitates interaction, this requires the possibility to monitor what is going on during interaction; and some facility for students to communicate (synchronously or asynchronously).

- #8: Associated curriculum framework. The accompanying curriculum should provide a framework that promotes collaboration, construction, reflection, peer review, etc.

- Equally ranked #9: Presence of the collaborators, either through digital/electronic means or colocation; accountability for one's collaborative actions, that is others are aware of authorship, without explicit signing required; an active role of mentor; support, encouragement, and challenge from the other people (co-learners & mentors) involved, being taken seriously by others, and being given room to play; construction: students are given tools that let them fairly easily generate their own representations (drawing, animations, text, etc); clear temporal organization: synchronous and asynchronous participation can both be supported.

- Equally ranked #10: Scaffolding to help students with the tasks they are involved in as well as with the collaboration itself; collaborative technology that helps participants communicate as well as share intermediate technical results; sharing: student can view other students (public) work; persistence of the discussion to support group and individual reflection over time.

"Most Popular " Components rated "5" or better by a majority of the panelists were:
- Presence of the collaborators, either through digital/electronic means or colocation.

- An active role of mentor.

- Associated curriculum framework.

- Peer interaction.

- Clarity of how to participate.

- Sharing the results of your efforts with others.

- Careful representation of users to each other.

- Optimal awareness functionality.

- Communication and peer review.

- People engaged in personally meaningful projects.

- Somebody facilitates interaction.

- Patterns or templates for knowledge representation or structuring, based on didactical valid principles, that can be used as a staring point for constructive activities and critical reflection.

- Teacher designers.

- Face to face sessions included in overall scheme.

The "most popular" list is more significant than the "top ten" list. The "most popular" list was determined by a consistency of high scores rather than averaged high scores. The consistent high score is more significant in a poll with a small number of respondents. The consistent high scores removes some skewing of results that takes place due to the extreme scoring of a few respondents. The "most popular" list should be used as the essential components in future models of an optimal constructivist/collaborative online learning environment.

SIGNIFICANCE
A working model of an optimal constructivist/collaborative online learning environment is needed in the field distance education. The results of this study provide needed guidelines for designing optimal collaborative learning environments. These findings generated a definitive list of essential components for constructivist/collaborative online environments as determined by a majority consensus of experts in computer supported collaborative learning research.

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