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Content Analysis of Online Discussion Forums:

A Comparative Analysis of Protocols

Review of Journal Articles – Article 2

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The article provides a review of two well-documented protocols for analyzing content in online discussion forums, in the context of an asynchronous online distance education course. There are two questions, which are addressed in the corresponding study: 1.) Whether two methods of content analysis that are designed to address knowledge construction and critical thinking produce similar results, and 2.) What are the relative advantages and disadvantages of each protocol in terms of ease of use, analysis, and interpretation of results?

The motivation for the study stems from the fact that whereas there are quantitative descriptive statistics for online conferences (e.g., number of postings) and evaluations to gauge user satisfaction, there are few qualitative measurements to ascertain whether online discussion actually leads to knowledge acquisition and helps to develop critical thinking skills. A key observation cited is that the most obvious data available to evaluate the effectiveness of online discussions, namely the transcript of the discussion threads, is the least used given a lack of content analysis capabilities on the part of the evaluators.

The two protocols used in the study are the Interaction Analysis Model (IAM) by Gunawardena, Lowe, and Anderson (1977) and the critical thinking model posited by Newman, Webb, and Cochrane (1996). Both models attempt to verify the existence of meaningful thinking in online discussions, and neither is focused on content acquisition.

The IAM is a content analysis model based on a constructivist paradigm designed to detect evidence of knowledge construction. The IAM is fairly straightforward, comprised of five phases of knowledge construction. Each phase includes a detailed definition of the related activity. Phases are assigned to

a complete thought or passage, which may be one or more paragraphs in length. Owing to its simplicity, the IAM is one of the most frequently used online content analysis models currently available.

The second model used in the study, which comes from Newman et al. (1996), was designed to measure critical thinking. It is based on a five-stage model that includes problem identification, definition, exploration, evaluation and integration. The complexity of the protocol is increased by instantiating approximately forty separate indicators of critical thinking in categories such as relevance, justification, novelty and ambiguities. Codes are assigned to each sentence or statement, and include either a plus or minus to indicate whether the coded statement contributes to or detracts from critical thinking.

The study took place over a one-week online discussion as part of a graduate level class (also delivered online) in instructional design. Participation in a weekly discussion forum was required to pass the course and contributed 5% of the student's grade. Students were divided into two teams, using a single case study. One team was required to analyze the case and post a set of controversial issues to the discussion board, and then facilitate the online discussion for one week. The other team debated the lead team's position on the controversial issues, by posting messages.

Each posting was reviewed and scored using both method protocols, by three separate evaluators to develop initial ratings. The evaluators then conducted inter-rater check processes for both protocols to reached consensus on ratings for each method. The IAM discussions took 1.25 hours versus 10 hours for the Newman et al. protocol. This is because for the IAM the evaluators only needed to agree on a single phase for the entire posting. In contrast, the Newman

et al. protocol required the evaluators to consider the application of each of the forty codes to every sentence or phrase in every posting. There appeared to be an inverse relationship between the ease of applying the protocol and the ease of interpreting the results. While it was more difficult to apply the IAM during coding, the richness of the phase definitions provided immediate meaningful data to the evaluators.

Back to the question of whether two methods of content analysis produce similar results, the article suggests that different methods serve different purposes. IAM does a better job of forcing evaluators to consider context when applying a protocol, as they must understand how the passage being coded relates to the rest of the conversation. The Newman et al. protocol, using its 40 codes, defines the structure and application of the protocol, making the definition external to the evaluator. Considering advantages of each, the study concludes that IAM provides a more holistic view of the discussion flow and knowledge construction, whereas the Newman et al. protocol provides focused and segmented coding on potential indicators of critical thinking.

The general conclusion of the article is that discussion board forums provide a key component to online courses by stimulating knowledge construction and critical thinking. In the past, researchers have for the most part limited their analyses of online forums to quantitative reports of frequencies. Qualitative analysis is possible as coding schemes like those referenced become available. However, it is important to understand the strengths and weaknesses of these protocols in terms of their ease of use during coding and interpretation, and applicability of results.

References

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