The critique
A critique of 4 articles used in the study evaluating the quality of learning in an online discussion forum.

25 relevant peer reviewed articles from University based resources were obtained from the internet. Time was spent assimilating the flavour of the studies, trying to work out what each study was trying to do and say. Only on reflection two months after carrying out the study and returning to each of the 4 studies do I find that I can be far more critical. When I started out I couldn't see the "wood" for the "trees", 2 months later I find that things are much clearer.
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Review 1
Hara, Bonk, & Angeli (2000). Content analysis of Online Discussion in an Applied Educational Psychology. *Instructional Science* 28 (2) pp 115 – 152. Obtained from http//crlt.indiana.edu/publications/techreport.pdf (downloaded 20 Sept 2003)

Introduction
This 33 page report evaluated an online discussion forum involving 20 students (12 male) participating in a graduate level educational psychology programme. Students were expected to play the role of initiator and summarizer of the weekly asynchronous computer mediated discussion over a 12 week period. Content analysis of the online discussion based on the methodologies developed by Henri and Howell–Richardson/Mellor's was carried out.

Research Findings
The authors found that students dominated the discussion. Electronic interaction patterns were evaluated weekly with an increasing density and word length of communication being recorded. Social cues decreased as students became more task focused. Student's restructuring of cognitive representations of information processed was evident Cognitive discourse changed from clarification and inference skills to judgement and application skills by the end of the 12 weeks.

Comment / Review
a) Strengths of the study
> ➢ Student interactions using online discussion reinforced normal classroom discourse.
> ➢ Information was processed at a high cognitive level.

b) Weaknesses of the study
> ➢ Students participation rates were low.
> ➢ 20 students were not enough to generalize results and the study was ethnocentric.
> ➢ Analysis of online discourse was time consuming and cognitive/metacognitive variables were difficult to code.
> ➢ Methodologies used lack reliability and validity.
> ➢ Triangulation of results was minimal.
> ➢ No mention was made of inter-rater reliability.
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The study was fairly robust with a good discussion of strengths and weaknesses. The study indicates how little we know and how much needs to be done in online discourse research.
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Review 2
Hakkarainen et al (2002) Effective participation and discourse through a computer network: Investigating elementary students' computer supported interaction. *Journal of Educational Computing Research* (in press) http://www.mmi.unimaas.nl/euro-cscl/Papers/102.doc (downloaded Sept 20th 2003)

Introduction
This 23 page report evaluates patterns of participation and quality of discussion in Virtual Web School (VWS) mediated interaction.

23 5th grade students (12 – 13 years old; (12 male)) from an Helsinki elementary school studied a science module over 4 weeks. They worked in a variety of modes using the Virtual School Web (VWS) to share and discuss information.

Students responses were analysed using a combination of quantitative and qualitative methodologies. Social network analysis was carried out using the VWS log files.

Content analysis determined the quality of the students interactions.

Research findings
Using social network analysis the participation rate was 39% with 101 notes (range/individual from 7-39) being posted. Participants outdegrees varied between 3 – 29 whilst indegrees varied between 2 - 21. Content analysis indicated that 58% of the comments sent were topic based, 75% of these gave information, 25% seeked clarification. 83% of comments were neutral.

Comment / Review
a) Strengths of the study:
The authors considered that:
  ➢ social network analysis was a valuable valid method for determining participation processes.
  ➢ Inter-rater reliability, using two raters was satisfactory at 89%.

b) Weaknesses of the study:
  ➢ No investigation was made to see if student participation rates were linked to the extent of learning.
  ➢ Students went through the motions – comments lacked passion.
  ➢ Content analysis was not based on any theoretical construct.
  ➢ Ethical considerations related to young children were not mentioned.

The methodology used was appropriate. Social network analysis was useful but content analysis was simplistic and not based on any theoretical constructs.
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Review 3
Newman, Johnson, Cochrane and Web (1997) Evaluating the quality of learning in computer supported cooperative learning. *Journal of the American Society for Information Science and Technology (JASIS).* 48 (6) pp 484-506 http://www.qub.ac.uk/mgt/papers/abstract.html (downloaded 10 Oct 2003)

Introduction
      This 19 page report used content analysis methodologies to measure critical thinking during group learning. A controlled comparison between learning in face-to-face and computer conference seminars was conducted using methodologies based on work done by Garrison and Henri.
      Half the 49 undergraduate students did their seminars face-to-face, whilst the other half used the Network Telepathy conferencing system. At the end students were given questionnaires on their experience of seminars and computer conferences. Replies were analysed to see how closely Garrison's critical thinking stages were matched.
      Content analysis determined the quality of learning taking place. Discourses were analysed for +ve or -ve critical thinking indicators by two people.

Summary of Research findings
       Critical thinking measures were similar for both face to face and computer conference discussions. Results analysis suggested that face to face seminars were better for creative problem solving and idea generation, whilst computer conferencing better supported the ideas of linking ideas, interpretation and problem integration but discouraged input of personal ideas.

a) Strengths of the study
  ➢ Presentation of data using spider diagrams enabled differences between the 2 conditions to be easily seen.

b) Weaknesses of the study
  ➢ The small scale group study was biased, and the results are not generalizeable.
  ➢ Garrison's critical thinking constructs, did not match with what went on in the face to face seminars.
  ➢ No information on the style of questionnaire used or on inter-rater reliabilities was given.

Overall summary
      Quantified discourse learning was attempted. Methodologies used were valid.
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Review 4
Rourke et al (2001) Methodological issues in the content analysis of computer conference transcripts. *International Journal of Artificial Intelligence in Education (2001), 12, 8-22.*
http://computing.unn.ac.uk/staff/cgpb4/ijaied/abstracts/Vol_12/rourke.html (downloaded Oct 10th 2003)

Introduction

This 16 page report examined six fundamental issues of content analysis through reference to 18 content analysis studies. In sections 1 and 2 quantitative content analysis, descriptive and experimental research designs are discussed. The differences between manifest (surface) content and latent content are evaluated in section 3 whilst in section 4 the process of transforming transcripts into units of data (sentence, message, thematic, illocutionary etc) are discussed. Sections 5 and 6 discuss software packages that facilitated content analysis and ethical issues.

Summary of Research findings

The authors suggested that most of the studies evaluated were of little educational value. In the 18 studies the unit of analysis included thematic measures (9), messages (5), sentences (2) and paragraph, illocutionary and propositional occurred once. On analysis of the variables used critical thinking and social, cognitive and metacognitive elements were the most popular. Reliability measures were not discussed in 6 studies and the research design was mainly descriptive.

a) Strengths of the studies evaluated
  ➢ None stated.

b) Weaknesses of the studies evaluated
Rourke et al commented that :
  ➢ most research was anecdotal and subjective.
  ➢ many studies failed to adhere to the basic principles of qualitative research,
  ➢ failure to report reliabilities invalidated many of the studies discussed.

Overall summary

Rourke suggests that content analysis was poorly understood. Much work was still needed to be done to develop content analysis tools that were efficient, reliable, valid and practical.

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