Virtual Technologies: Concepts, Methodologies, Tools, and Applications

Jerzy Kisielnicki
Warsaw University, Poland
Chapter 5.4
Virtual Ethnography and Discourse Analysis

Bruce L. Mann
Memorial University, Canada

LEARNING OBJECTIVES:

1. Describe the identifying characteristics of Web-based critical ethnography.
2. Describe the procedure for conducting a critical ethnography on the Web.
3. Explain the limitations of critical ethnography.
4. State a typical question in Web-based ethnography.
5. Define “critical ethnography.”
6. Summarize the recent research about learning communities on the Web.
7. Explain “discourse analysis” as a critical ethnography.
8. Describe the identifying characteristics of mobile phone communications research.
9. Summarize the dissertation research conducted on mobile phones.
10. Describe the identifying characteristics of online conferences with real-time audio voice-over and text messaging during slide presentations.
11. Summarize the recent research on bulletin board discourse analysis.
12. Summarize the recent research on discourse analysis with Henri’s Content Analysis Model.
13. Summarize the recent research on discourse analysis with Gunawardena’s Interactional Analysis Model.
14. Summarize the recent dissertation research with Gunawardena’s Model.
15. Describe the pitfalls of Web-based discourse analysis.
16. Describe the identifying characteristics of online conferences with real-time audio voice-over and text messaging during slide presentations.

Copyright © 2008, IGI Global, distributing in print or electronic forms without written permission of IGI Global is prohibited.
Virtual Ethnography and Discourse Analysis

CRITICAL ETHNOGRAPHY AND THE WEB

Critical ethnography is well represented in Web-based educational research, and a branch of ethnographic research, rooted in the critical style of educational research. Critical ethnography has the following characteristics:

✓ Thinking is mediated by socially- and historically-motivated power relationships
✓ Ideological power is strongest when an oppressed group sees its situation as inevitable, natural or necessary
✓ Facts are inseparable from human values
✓ Language is central to perception
✓ Certain groups in society exert more power than other groups

Procedure in Critical Ethnography

The recommended procedure for conducting a Web-based critical ethnographic study is generally considered to have five stages, adapted here from on-site classroom setting Carspecken (Cohen et al., 2000) to Web-based educational environment.

1. Compile a primary record. In your role as passive participant-observer, unobtrusively compile a primary record, using multiple observers such as tutors or teaching assistants, and multiple data collection devices such as tracking feature in the Web-based environment. Employ a continuous or flexible observation schedule. If it’s student discussions in a bulletin board, concatenate the postings.

2. Preliminary reconstructive analysis. Look for patterns of interaction, power relations, roles, sequences of events, meaning accorded to situations, as in the Web-based content analysis model (Henri, 1992), or interaction analysis model (Gunawardena et al., 1997).

3. Collect dialogues as data. This is a crucial stage in critical ethnography because it requires students to have a voice, to democratize the research (as suggested in Cohen et al., 2000). Add some validity checks.

4. Discover the systems of relations.

5. Use the systems relations to explain your findings. Fit social theory to your analysis of the data. First describe the existing situation - a hermeneutic exercise. Second, list the reasons and possible reasons that exist for the situations. Third, recommend an agenda for altering the situation. Fourth, evaluate the result of the imposed new situation.
   a. Description of the existing condition
   b. Penetration of the reasons
   c. Plan and agenda for altering
   d. Summative evaluation

Limitations of Critical Ethnography

There are some inherent limitations to conducting a Web-based critical ethnographic study.

1. The definition of the situation
2. The potential for Hawthorne effect, wherein the presence of the researcher alters the situation
3. There’s the potential for self-fulfilling prophecy, also known as the Halo effect
4. The implicit conservatism of the interpretative methodology
5. Familiarity
6. Open-endedness and diversity
7. Neglect of wider contexts and constraints
8. Generalizability
9. Reporting multiple realities
10. Integrity of the data
**Typical Question in Web-Based Ethnography**

What are the identifiable cultural and social patterns of this particular online class of students and their instructor using asynchronous online discussion?

**DISCOURSE ANALYSIS**

Discourse research explores the organization of ordinary talk and everyday explanations and the social actions performed in them. Discourse analysis requires a careful reading and interpretation of text, with an interpretation supported by the linguistic evidence. Discourse analysis can be performed on a wide variety of talk and text, including mobile phone communications. In any case, the researcher needs to sensitize himself or herself to the nuances of the language.

**Mobile Phone and Discourse Analysis**

In 2001 in Great Britain, the Guardian newspaper pioneered a well-publicised, national text poetry competition that attracted 7,500 entries from 4,700 mobile phones. The entries were winnowed down to 100 and given to our judges, Justine Jordan, books editor of Guardian Unlimited, U A Fanthorpe and Peter Sansom. They chose a short list of seven, below, each of which was texted to all participating phones over seven days. Most winners, and entrants, had never written a poem before. This met the main aim - to turn text messaging into a creative force. The following online text poems were awarded the top prizes by the newspaper:

Hetty Hughes, first prize -
*txtin iz messin,*
*mi headn’me englis,*
*try2rite essays,*
*they all come out txtis.*
*gran not plsed w/letters shes getn,*
*swears i wrote better*
*b4 comin2uni.*
*&she’ s african*

Steve Kilgallon, second prize -
*Sheffield*
*Sun on maisonette windows*
* sends speed-camera flashes tinting through tram cables*
* startling drivers*
* dragging rain-waterfalls in their wheels*
*I drive on*

Charlotte Fortune, third prize -
*Pls, stop sendg msgs2ths*
* no, i am not linda,*
*I hv not slept w/yr sis,*
* +i wd nvr call any1’s ma a slag.*
*Gd luk w/viag.*
*Luv, yr wrong no. xxx*

Carole Bromley, fourth prize -
*Reunion Slough Reading Didcot Parkway my face flashes between telegraph poles, solemn as the passport photograph no one recognises*

Melissa Terras, fifth prize -
*Watch dog Watch me,*
* or i’ll be prowling my way*
*round your house of a body:*
*licking at windows,*
*stealing through doors,*
*trying beds out for size.*

Here are the runners-up in the newspaper contest

Melissa Terras -
*Move*
*bed, u have seen some action,*
doors, some slam.  
Landlord, u may remove  
every chip, scuff, stain: who knows  
what reflections  
old mirrors project in the dark

Lucy Sweetman -  
i w8 fr yr mesg the beep yr wrds of rude luv.  
U mke me blush w  
The curve of yr letters u tch me thru my palms,  
my eyes

Also, a special prize of £250 was awarded for  
the most creative use of SMS “shorthand” in a  
poem, courtesy of the Media Centre, Huddersfield  
and the Arts Council of England.

### Mobile Phone Dissertation Research

**Physical use and discursive representation with mobile phones:** In 2003 Vicki Kit Yee Yung completed a dissertation entitled “Mobile phones in interaction: Discourse analysis and the material world” in completion of the Ph.D. at Georgetown University. The study addresses the vital role of material objects in discourse analysis. In examining mobile phone use in Hong Kong and Beijing, two types of data were analyzed: Physical use and discursive representation in talk and texts. This study develops an approach to incorporate two levels of mobile phone use, taking the physical objects as the starting point. Considering the nature of human physical interaction with the material world, the physical level was considered in two dimensions. First, a taxonomy of functional categories was developed to capture the multiplicity of mobile phone use by adding subcategories to three main functional categories: technomic, ideotechnic and sociotechnic, as developed in archaeology and material culture regarding artifacts in human society (Binford, 1962; Deetz, 1974). Then a network of consequences of physical use was illustrated in three dimensions: material, psychological and social. This framework enables us to index how the physical use of objects and discourse are intertwined without generalizing one function to all situations. Second, the impact of one mobile phone call was examined in social interaction. A segment of a dinner conversation was analyzed during which time a mobile phone

#### Table 1. Julia Bird 30, Poetry Book Society, the original and its translation:

<table>
<thead>
<tr>
<th>Original</th>
<th>Translation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>a txt msg pom.</td>
<td>a text message poem</td>
</tr>
<tr>
<td>his is r bunsn brnr bl%, his hair lyk fe filings W/ac/dc going thru. I sit by him in kemistry, it splits my @oms wen he :-)s @ me.</td>
<td>his eyes are bunsen burner blue, his hair like iron filings with ac/dc going through. I sit by him in chemistry, it splits my atoms when he smiles at me</td>
</tr>
</tbody>
</table>
Virtual Ethnography and Discourse Analysis

call occurred. Looking at its material and technological configurations in the physical context, it was established that concurrent realities and multiple floors arise when physically co-present and technologically mediated interactions occur simultaneously in the situation. Since these floors do not share the same communicative resources, they significantly shape participation structure. For discursive representation, the representation of mobile phones was analyzed in discourse to reveal particular socio-cultural characteristics and users’ knowledge of the technology.

Three types of representation were analyzed in print media and talk. The first type represents mobile phones as agents, anthropomorphized through linguistic means with layers of identity, social relationships and ability to take actions. The second type of representation characterizes individual users by highlighting particular aspects of use. The third type generalizes social groups based on their phone manners. Mismatches of social practices regarding mobile phone use can be taken as the basis for stereotyping of social groups, as assumptions of appropriate behaviors with the technology vary in different communities.

Web-Based Research of Bulletin Board Discourse Analysis

Another, more popular form of communication is the Bulletin Board Discussion. In this context, the “discourses” can be regarded as sets of linguistic data that are coherent in organization and content, and enable the researcher to construct meaning with a social context. The emphasis on the “construction of meaning” implies an action purpose to discourse analysis. Cohen et al. (2000) has linked this style of research to Habermas’ critical theory. In Web-based educational research, several methods and models have been developed to analyze the content of Web-based student interactions.

Bulletin Board Dissertation Research

Functional moves in discourse analysis: Trena Paulus earned a Ph.D. from Indiana University in 2003 with the thesis “Collaboration and the social construction of knowledge in an online learning environment.” This study examined the computer-mediated communication of ten graduate student groups as they completed two types of tasks in a distance education course. Groups were provided with Web forum, e-mail and synchronous chat tools to communicate. Discussion transcripts were analyzed to answer the following questions. (1) What communication tools do groups utilize to complete projects at a distance? (2) How do individual group members participate in the discussions? (3) What topics do small groups discuss as they complete learning tasks? (4) Do groups utilize a cooperative or collaborative approach to the task? (5) Do they exemplify the phases of the social construction of knowledge? Computer-mediated discourse analysis was used to analyze all messages exchanged by the groups. Messages were unitized into functional moves and coded by topic, collaboration indicators, and a social construction of knowledge model. Inter-rater reliability of over 80% was achieved. Student post-task reflections were analyzed for themes related to the research questions.

Findings revealed that group discussions were on task, with a focus on conceptual learning, logistic issues, technology use or social maintenance of the group. Discussion forum was selected as the primary means of communication, with other tools utilized for specific purposes. All group members operated within a framework of mutual respect for each other, and individually contributed in different ways to the group effort. Groups completing application tasks took a cooperative approach, with an initial focus on individual action, followed by feedback from the group. Groups completing synthesis tasks engaged
Virtual Ethnography and Discourse Analysis

in sharing and comparing information related to the conceptual learning of the task. Both types of groups exhibited a discourse of connecting with each other to understand diverse perspectives, rather than engaging in debate, pointing to the need for a new model of the discourse of collaboration and knowledge construction.

Discourse analysis for revealing disparities in some EMOs: In 2001 Monica Pini completed the Ph.D. at the University of New Mexico with a thesis “The corporatization of education: Education management organizations (EMOs) and public schools.” The purpose of this study was to analyze some specific educational discourse practices used by EMOs that operated public schools for profit. Private companies saw public education as an area in which to expand, particularly through operating charter schools. In this study, texts from the Web pages of some of the leading corporations were analyzed, along with federal reports, state charter laws and policies, and academic research on charter schools and EMOs. The author’s methodology is based on Critical Discourse Analysis and semiotic methods from the fields of Linguistics and Communication.

The discourse analysis and its triangulation with other data revealed a disparity between what EMOs say they do and what they actually do. EMOs’ ideological rhetoric builds an ideal model of education that is not supported by evidence, and veils the for-profit character of the companies.

In 2000 Virginia Bielman completed the Ed.D. at the University of Nevada, Las Vegas with a thesis “Building community in a virtual classroom: Construction of classroom culture in a postsecondary distance education class.” The purpose of this dissertation was to investigate how a community was constructed in a postsecondary distance education class that relied only on computer-mediated communications. The use of a social constructionist perspective with Interactional Ethnography provided a theoretical and methodological means to make visible how the actions and interactions of the class members constructed their community. This study was built on and expanded qualitative research in K-12 traditional classrooms, which provided a lens with which to view the processes that shaped online community development. Past research has used ethnography and discourse analysis to investigate how traditional classroom participants’ interactions over time constructed a unique social culture and how this culture influenced student learning. Interactional Ethnography made visible in-the-moment and over-time development of the community characteristics by the members’ actions and interactions by employing ethnographic analysis to identify what characteristics developed over the semester, and sociolinguistic analysis to reveal how these characteristics were developed.

Data sources from this 16-week online Survey of Literature course included class Web pages, student survey responses, debriefing questionnaire responses, and electronic transcripts of instructor-student e-mail, class listserv communications, and class Multi-user Domain, Object Oriented (MOO) discussions.

Findings revealed that actions and interactions of class members constructed common understandings of norms and expectations, roles and relationships, and the meaning of words, actions, and objects of the classroom. They compensated for the lack of face-to-face conversational cues by using techniques such as emotes, exaggerated spelling, and acronyms. Both on-task and off-task sharing of thoughts, feelings, knowledge, and experiences were important in constructing the online community and providing students with opportunities for learning both social and academic content. This intertextual and intercontextual use of resources demonstrated the historical dimension of community construction and potentially helped to decrease feelings of isolation and build rapport among the community members. This study provides practical examples of online instructional design and student-centered peda-
gogical techniques. It also supports the premise that class members construct community characteristics and opportunities for learning through their actions and interactions.

Discourse Analysis with Henri’s Model

Henri (1992) developed a content analysis model in which she identified five key dimensions for analysis of online discussions, namely: (1) participation rate (e.g., raw number and timing of messages), (2) interaction type (e.g., direct response, “in response to the posting…”), (3) Social cues (e.g., “It’s my birthday today…”), (4) cognitive skills (e.g., judgment “I disagree with…”) and depth of processing (surface-level or deep-level processing), and (5) Meta-cognitive skills and knowledge (e.g., providing examples and relating to situations). Hara, Curtis & Angeli (2000) parallelled Henri’s (1992) recommendations of content analysis in online discussions and proposed more elaborate guidelines to analyze electronic conversations. Their study focused on the social and cognitive processes demonstrated by the students during online discussions. Both Henri (1992) and Hara et al. (2000) defined social comments as statements not related to formal content of the subject matter. According to their definitions, social messages included self-introductions, greetings, jokes, and complimentary messages. Further, the cognitive skills and level of information processing indicated student understanding, reasoning and development of critical thinking skills. They identified the level of information processing as surface-level and in-depth level processing. Surface-level processing involved making judgements without justification. In-depth level processing involved indicating the strengths and weaknesses in the student’s work that contained supporting arguments, suggestions for improvement, and reasoned responses.

Dissertation Research Using Henri’s Model

Karen Brown completed a Ph.D. thesis at the University of Virginia in 2002 entitled “A case study describing online discussion in a tenth-grade biotechnology class” (DAI-A 63/03, p. 909). The purpose of this study is to examine the online discussion between high-school students at different physical locations. Little is really known about the use of Internet technologies for teaching and learning in the school environment. Previous research has tended to focus mainly on university students and this research has attempted to compare traditional courses to those using Internet technologies to determine which was best. Such designs fail to consider the many variables that work together to create an effective learning experience. Vygotsky has argued that students achieve a higher level of development through interaction with more capable peers. Unfortunately, most instructors do not provide learning environments in which student discussion is implemented with any regularity. Additionally, in-class discussion can be also limited by the amount of content to be covered, the number of students enrolled, the time limitations of the schedule, and the willingness of students to talk in public. It has been proposed that electronic discussion groups can provide an effective, alternative avenue for fostering class discussion. Using technology to extend the classroom in this way may create a shared space among learning participants and lead to higher order cognitive processing. This case study investigates this aspect of the learning environment for 10th grade Biotechnology students in the Blue Ridge Virtual Governor’s School.

The investigator used the work of Henri (1992) and others to conduct a content analysis of the discussion. This analysis includes recording the number of messages; recording the number of messages per student in the group; mapping the conversation by drawing lines between student
numbers to indicate the flow of discussion; and chunking content into thinking activities, such as asking a clarifying question, providing clarifying information that was not previously within the conversation, etc. While laboratory research can be valuable, research in the field (individual classrooms and schools) can often be more useful, particularly in helping understand educational environments and the effects of curriculum and instruction. This research study provides a detailed description of this case and the scenario of the online discussion.

**Dissertation Research Using Gunawardena’s Model**

**Collaborative problem solving in Math:** In 2004 Jennifer Kosiak completed a Ph.D. at Montana State University with the thesis entitled “Using asynchronous discussions to facilitate collaborative problem solving in college algebra.” The study was conducted to investigate the nature and quality of online mathematical communication that occurred during collaborative problem solving and its effect on mathematical achievement in college algebra. Two intact sections of college algebra were randomly assigned to either a treatment group (online group work) or control group (individual seatwork). Both sections of college algebra met face-to-face and were taught by the same instructor. Students in the treatment group (n = 26) were placed into six collaborative groups. Four week-long online tasks designed according to the Treisman Workshop Model were assigned throughout the semester. These tasks were to be addressed collaboratively, with each student required to post three messages to their group’s online folder. Students in the control group (n = 30) were assigned the same four tasks, but were required to work on these tasks individually.

Two content analysis techniques were utilized to answer the primary research question. The online transcripts of the treatment group were coded using the framework developed by Stacey and Gooding (1998) which examined the patterns of interactions. Results from this analysis revealed that the majority of the messages sent were coded as thinking aloud, followed by responding, explaining with evidence, and questioning. Each message was also ranked according to Gunawardena, Lowe, and Anderson’s (1997) Interaction Analysis Model. One in five messages was ranked as a high-level message exhibiting evidence of the co-construction of knowledge. As indicated by the group’s average high and highest phase level reached, it was found that in 19 of the 24 problem solving episodes (six groups by four tasks) clear evidence of the co-construction of mathematical knowledge was shown. Analysis of covariance (ANCOVA) was used to analyze mathematical achievement differences between the treatment and control groups. ANCOVA was performed on the raw scores of the final examination and researcher-designed problem solving examination using the pre-test scores as the covariate. The treatment group performed as well or better on both measures of achievement. After controlling for initial differences in mathematical ability, the treatment group performed significantly better than the control group on the final examination.

**Online social presence:** In 2002 Berlinda Saenz completed the Ph.D. degree at the Virginia Polytechnic Institute and State University. Her thesis title was “Student perceptions of social presence and its value in an asynchronous Web-based Master’s instructional program.” This study examines the theory of social presence and its relevancy to distance learning. Short, William, and Christie (1976) originally designed social presence to evaluate the difference between types of dyads (one-to-one interactions) and the quality of the communication media used for those interactions (Rafaeli, 1988; Rice, 1984; Walther, 1992). However, the theory of social presence was not designed to explain mediated communication between multiple individuals. Although studies have investigated the effects of social presence in computer-mediated conferencing, little field
research exists on the importance of social presence with multiple individuals communicating together within a Web-based instructional program. Moreover, it is evident from the body of literature that a universal meaning of social presence is lacking. For this reason, social presence in this study referred to the degree to which adult learners perceived that they had established some form of rapport with members of an online community. This includes interactions with other learners and support personnel (i.e., faculty, staff, technical support, graders, etc.). Social presence has emerged as an important social factor in the field of distance learning (Gunawardena & Zittle, 1997; Rourke, Anderson, Garrison, & Archer, 1999). Recent field studies emphasize the importance of examining social and psychological factors that affect student satisfaction, impact learning, and influences the way people communicate in distance learning environments. Researchers in the fields of education and human interpersonal communication have identified interactivity (i.e., interaction), intimacy, and immediacy as attributes that enhance social presence. Although social presence has been characterized as an important construct in distance learning (McIsaac & Gunawardena, 1996), little existing field research describes the value adult learners place on it, and whether it affects their satisfaction within a mediated learning environment. This descriptive study examined the adult distance learners’ perceived value of social presence (based on interactions, intimacy, and immediacy), in addition to whether it existed within an asynchronous Web-based instructional program.

**Pitfalls in Discourse Analysis**

Antaki et al. (2003) identified five ways of treating typed discussions that fall short of discourse analysis because none of them actually analyse the data. They are:

1. Under-analysis through summary;
2. Under-analysis through taking sides;
3. Under-analysis through over-quotation or through isolated quotation;
4. Circular identification of discourses and mental constructs;
5. Under-analysis through false survey; and
6. Under-analysis that consists in simply spotting features.

**Research on Learning Communities Built on the Web**

Through the use Web technology, students can be drawn together from almost anywhere to construct their own formal or informal groups. There has been recent interest in schools and universities in finding out how Web technology can be used to build and sustain learning communities of students. Typically students work on projects collaboratively, allowing them to learn from one another and letting the problems to be solved dictate the knowledge that must be acquired, thus frequently and purposefully crossing disciplinary boundaries.

Communication can even be facilitated by technology in real time, partially overcoming geographical inhibitions.

**Real-Time Audio Web–Conferencing**

Elluminate (Mabey, 2001) provides real-time Web-conferencing, cross-platform support, and advanced yet easy-to-use moderator tools. The technology affords two-way voice over the Internet, a shared, interactive whiteboard, instant messaging, application sharing, breakout rooms, as well as an interactive quiz and survey manager. However, this affordance has a class-size restriction due to bandwidth.

In Elluminate, every “e-lecture” (electronic lecture) should be designed to include questions for discussion or responses among groups of stu-
Virtual Ethnography and Discourse Analysis

Figure 1. Forums displayed in the Discussion board of a WebCT course

Table 2. Web-based ethnographic research

<table>
<thead>
<tr>
<th>Ethnographic Research Assumptions / Characteristics (Gall, Gall, &amp; Borg, 2003)</th>
<th>Procedure</th>
<th>Checklist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certain online groups are privileged over others (hegemony)</td>
<td>Formulate a research problem and select a case</td>
<td>I focused on the cultural patterns in human behavior</td>
</tr>
<tr>
<td></td>
<td>Gain entry</td>
<td>I took an “emic perspective,” namely: to study individuals to determine how they themselves defined reality</td>
</tr>
<tr>
<td></td>
<td>Collect data</td>
<td>I studied the natural settings in which the culture was manifested</td>
</tr>
<tr>
<td></td>
<td>Analyze and interpret the data</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Report the case study</td>
<td></td>
</tr>
</tbody>
</table>
dents, rather than simply representing one-way transmission of “knowledge.” The students, as well as the instructor, should be encouraged to raise new topics and ask questions of the class, as well as respond to one another’s contributions. This kind of daily interaction does demand constant attention from the instructor, and thus is a labor-intensive mode of course delivery.

REFERENCES


Virtual Ethnography and Discourse Analysis


This work was previously published in Selected Styles in Web-Based Educational Research, edited by B. L. Mann, pp. 439-456, copyright 2006 by Information Science Publishing (an imprint of IGI Global).