

TECHNICAL
APPLICATIONS

Qualitative and Quantitative Analysis of a Course Taught via Classroom and Internet Chatroom

Dick Schoech and David Helton

University of Texas at Arlington, USA

ABSTRACT

Human services distance education research has traditionally focused on pre-post testing of students to discover if distance education methods are comparable to traditional classroom methods in terms of student learning and satisfaction. This focus on comparability using quantitative research techniques ignores the substantial amount of information automatically captured when using some distance education (DE) methods. By combining quantitative, qualitative, and graphic techniques, educators can not only address comparability issues, but can also identify what classroom or DE methods result in higher or lower student learning and satisfaction. This research uses NUD*IST, SPSS, and Excel to illustrate the type of analysis needed for a masters social work course on administration taught via classroom and chatroom. Findings from the analysis support previous research on the comparability of DE methods to classroom methods and the qualitative and graphic analysis of chatroom text helps explain why this is so. We discuss the potential of this multi-technique DE approach for course improvement and for achieving student-defined quality.

KEY WORDS:

chatroom
comparison study
distance
education
online teaching

INTRODUCTION

Most research on human services distance education has analyzed one course using variables concerning the learner, instructor, presentation, course content, outcomes, and the instructional environment (Schoech, 2000). These studies have consistently suggested that no significant difference exists between distance education (DE) and traditional classroom face-to-face (F2F) courses, but skepticism remains (Peters, 2000). The following is typical of the current advice on needed DE research.

We want a demonstration that DE promotes student learning at least as well as live instruction. This can perhaps best be accomplished by using pre- and post-test designs with objective assessments of student knowledge and skills at the beginning and end of courses. Ideally, this demonstration could involve the same instructor teaching two sections of the same class during the same school term, one exclusively by live instruction and the other only by distance learning. (Thyer et al., 1997: 367)

Thyer's suggested quantitative approach is rooted in the need to accumulate statistical evidence that supports the hypothesis that DE courses are comparable to classroom courses. However, this approach has not helped identify what classroom or DE methods result in higher or lower student learning and satisfaction. Thyer's approach also ignores the possibilities for a new line of research based on the unique characteristics of DE courses.

Most DE courses allow the automatic capture of information about DE teaching methods. This information is a rich source of knowledge that can be explored to discover what DE activities work well in a course. This article illustrates how traditional quantitative techniques can be combined with qualitative techniques to analyze automatically captured DE information in order to increase our knowledge about teaching in traditional and DE courses. The illustration involves two sections of a masters level social work course titled, 'Introduction to Human Services Administration'. The same instructor taught both sections the same semester using the same syllabus. Both sections used email, a course website, and a section-specific mailing list (listserv). One section of the course was held in a traditional classroom while the other was held in an Internet chatroom; the first using a standard java chat program, and after the third online session using Instant Messenger™ chat. The change in chat programs was due to severe limitations in the original java chatroom such as: the inability to automatically save chat transcripts, frequent disconnecting of students from the chatroom, and the lack of different fonts and text colors. In the chatroom section, classes 1 and 2, and 14 and 15 were held in the classroom while the remaining classes were held during scheduled time in a chatroom. The only difference in the two sections was that a PhD student who enrolled for a teaching

practicum assisted in the chatroom section. This article first uses traditional pre- and post-test quantitative analysis to address the question of comparability, or 'what is the difference'. It then uses qualitative analysis and spreadsheet visualization techniques to discover 'why the difference' or what DE activity might account for the difference in student learning and satisfaction between the classroom and chatroom. It concludes with implications for future DE research.

QUANTITATIVE ANALYSIS

SPSS, version 9.0 was used for the quantitative analysis around the question of 'what is the difference'. Table 1 presents the basic student characteristics of both course sections. Students self selected into either section during registration. The sections were similar with the exception that chatroom students were older and more experienced in the human services and in technology. Surprisingly, chatroom students traveled approximately 20 fewer miles to attend class than did classroom students.

Table 2 presents the most meaningful pre- and post-test findings on many of the traditional variables found in the DE literature. Table 2 documents that students in both sections began the semester feeling very positive towards DE technology and both became more positive by semester's end. Chatroom students became significantly more convinced that Internet courses are more personal, allow more student questions, and make students more comfortable asking questions. Previous acquaintance with other students could account for these results. However, we did not measure whether students in either section knew each other previously. We assumed the sections were similar on previous acquaintance, but given that students perceived the chatroom to be very personal, measuring previous acquaintance might help explain this finding. Also, no attempt was made to track student communications outside of the class chatroom. Students became significantly more negative about working in online groups. Satisfaction with course delivery and learning was high in both sections,

Table 1 STUDENT DEMOGRAPHICS

Student characteristic	Classroom Section	Chatroom Section
Number in class; average age	11; 29	10; 38
Number of females; males; minorities	8; 3; 2	9; 1; 3
Months of human service experience	63.3	79.8
Months of computer experience	45.3	126
Miles drive to class	71.6	54.9

Table 2 PRE-POST QUESTIONS CONCERNING ATTITUDE, LEARNING, AND DELIVERY WITH MEANINGFUL RESULTS

Variable or question	Classroom Section (F2F)	Chatroom Section (DE)
Attitude toward DE course: pre-test	Very + toward DE technology overall (4.36 ¹)	More + than F2F toward DE technology overall (4.7 ¹)
Attitude toward DE course: post-test ^a	Became more positive toward use of Internet for learning*	Remained more + than F2F on all items except for working in groups
Average grade (A = 900–1000)	878	868
Satisfaction with delivery	4.2 ¹	4.7 ¹
Satisfaction with learning	4.2 ¹	4.6 ¹
Recommend course	4.3 ¹	4.7 ¹
Correlation: satisfaction with course delivery and grades	.64, sig. = .06	.51, sig. = .16
Correlation: satisfaction with learning and grades	.64, sig. = .06	.29, sig. = .44
DE more personal than F2F	N/A	Became more + **
DE students ask more questions	N/A	Became more + *
DE students are more comfortable asking questions	N/A	Became more + *
Working in groups on projects	N/A	Became more negative*
Preferred more F2F classes	N/A	2.3 ¹
Would take another DE course	N/A	4.8 ¹
Learned more in DE course than traditional F2F course	N/A	4.1 ¹

¹ no and ⁵ yes; + positive attitude

* significant at .05; ** significant at .01

^a Classroom students used three DE methods: email, website, and listserv

but slightly higher in the chatroom section. Surprisingly, chatroom students agreed that they learned more in their section than they would have in a traditional classroom.

Open-ended comments suggested that chatroom students liked the course convenience and flexibility (6 students), instructor availability and quick feedback (2), increased online interaction with colleagues/camaraderie (2), posting of chat transcripts (2), and the course website. Suggested improvements included having a F2F class at midterm (5), and putting other courses online.

In summary, quantitative analysis indicated that chatroom section students entered the course feeling more positive about technology and remained so. They were highly satisfied with course content and delivery and saw the DE course as very personal. They were more satisfied with content and learning than classroom students and had similar overall grades. Thus, once again, the DE course proved to be comparable, if not superior, to the traditional classroom. However, this traditional analysis, which follows Thyer's advice mentioned previously, does not give an indication why this was so. It does not answer questions about what accounts for learning and satisfaction. Since weekly chatroom transcripts were saved on the course website, we decided to explore the knowledge these transcripts contained to help answer this equally important question.

QUALITATIVE ANALYSIS

Chatroom transcripts from 11 Web classes were imported into NUD*IST, version 4.0. Importing was simple, but since NUD*IST does not allow completely free-form coding (selecting a word or range of text within a sentence or paragraph or document for coding) or text formatting once it is imported into the software, the transcripts had to be reformatted in a word processor first. The chat program automatically placed the speaker's online username followed by a colon before each occurrence of speech, thus making it easy to identify each student's conversation. The text following an online username and colon was defined in NUD*IST as the text unit used for this analysis. One difficulty that required recoding, however, was that some students used multiple usernames across chat sessions and within chat sessions. One reason for this was because of technical difficulties with the original chat program in which students would be bounced from the chatroom and then be unable to log back on without first entering a new username. In other cases, some students chose to change their username at will for no apparent reason, although this was discouraged.

The NUD*IST code-and-retrieve functions were used to run a string text search on each student username. Selecting 'display statistics' from the string search previously run generated the number and percentage of the total text units communicated by each student, broken down by chat session. For this research, we performed a content analysis of the chat transcripts and were able to identify nine broad communication categories from the text units:

- Greetings and goodbyes: Conversation occurring immediately prior to the beginning of official course content or immediately after official course content had concluded.
- Login and logout: Automated text generated by the Web chat program each time a student either intentionally or accidentally logged in or logged out of the chatroom.
- Web mechanics: Conversation concerning course technicalities, for example, how to change the color or size of one's font in the chatroom session.
- Web problems: Conversation concerning Internet connection problems, problems accessing or using the chatroom or installing the chat software.
- Joking: Conversation said in a humorous or lighthearted manner.
- On topic: Conversation on the course topic.
- Off topic: A 'catch all' category referring to text that did not fit into the other categories.

Although in several instances one could argue for inclusion of certain text passages in multiple code categories, each text unit was restricted to only one code category at this stage of the analysis due to time restrictions.

Considerable amounts of text in the transcripts were related to computer access problems, problems downloading or viewing from the course website, problems installing the Instant MessengerTM software, or problems emailing assignments to the instructors. Clearly, Internet/technical issues were factors for students in the chatroom section. Additional in-depth analysis of these information-rich class transcripts, in which additional codes are developed and thematic content is brought to the surface, is warranted.

Once all chat sessions were coded, one of NUD*IST's 18 different code-based retrieval operators called 'Intersect' (which is essentially an 'AND' function) was used. Codes in NUD*IST are also called nodes and can either be 'free' nodes or can be attached to 'parent' nodes in a hierarchical structure. For example, a particular chatroom session could have been designated as a parent node and each student could have been listed as child nodes stemming from the parent in a hierarchical fashion or vice versa. Anytime a text search is initiated, NUD*IST automatically creates a new node based on the text used for the search. This made it easy to separate each student's class communications and to later combine this code (student's name) with another code (i.e. 'on topic', 'greeting', etc.) to determine the number and percentage of text units spoken by each student for each coded category.

One problem with the NUD*IST software is that searched text, when retrieved, is not presented within the context that it occurred. This can sometimes be problematic as one may inadvertently code something incorrectly because the retrieved text's meaning may be ambiguous when taken out of its original context. Researchers using NUD*IST, therefore, must be cautious not to get carried away with their coding schemes and subsequently lose sight of the origin of the data. However, NUD*IST does provide a button on the

floating coding palette that allows one to jump to the source data and see the text passage in context. This feature was helpful when a coded text passage suddenly appeared to be miscoded.

One of the more important features of NUD*IST for many is the code-based-theory-building system. While the degree to which a software program can claim to actually construct a theory for the researcher is questionable, NUD*IST provides a structured format on which to build one's own theoretical assumptions. While this research demonstrated how to enhance quantitative techniques by adding qualitative and graphical dimensions, a 'purer' and more in-depth qualitative analysis could certainly be undertaken using the code-based-theory-building capability of the NUD*IST software. For example, while this research devised several broad communication categories for initial study, future studies might use more specific categories that evolved as one studied the transcripts more closely and developed ideas about the relationships between these codes. In this study, the 'on topic' category, for example, could be expanded with some indication of the quality of the conversation. NUD*IST's hierarchical structure of nodes provides an excellent format for noting and developing these relationships as one adds and shifts nodes around the tree.

Additionally, future analysis might add a qualitative group interview, focus group, or series of individual interviews using the class chatroom. These online interviews might bring out more categories and themes that account for learning and satisfaction. For example, class participants might confirm recent theories regarding the 'hyperpersonal' (King and Moreggi, 1998) aspect of online communication and suggest that this phenomenon resulted in more class cohesion and, therefore, higher overall satisfaction with the course. They might also bring out more information regarding some of the inherent differences in a text-only chat class environment compared to a face-to-face classroom and help determine whether these differences were favorable to student learning and satisfaction. For example, the text-only chat class environment may be more inherently prone to possible misunderstandings in context or meaning due to lack of clarifying audio/visual cues. In addition, because of 'lags' in the time it takes a student to type a response, hit the 'enter' key, and have the response appear on the screen, text-only chatroom may result in more 'interruptions' in conversations and multi-simultaneous conversations. Again, interviews with chat classroom students and/or further analysis of the chatroom transcripts may help to determine what effect, if any, these issues have on student learning in online classroom environments.

SPREADSHEET ANALYSIS

Researchers can learn much by visually analyzing graphs and charts. For example, NUD*IST results were entered into Excel to produce line charts of

the total text units for the five students with the highest and lowest grades for all 11 chat sessions. Both charts showed that the norm was substantial variability rather than a consistent pattern. Thus, examining communication categories rather than total communications seemed in order. Figure 1 presents categories by chat session. Some expected trends existed, for example, the number of 'logins' and 'logouts' and 'technical/mechanical' communications dropped as students became adept at using the chat format, especially when the online chat moved to the more stable Instant Messenger™ software. 'On topic' remarks stabilized at a high level after the first two chat sessions, suggesting that students' comfort level may have increased significantly by the third online class. The amount of 'joking' appears to have risen by class three and stayed fairly stable

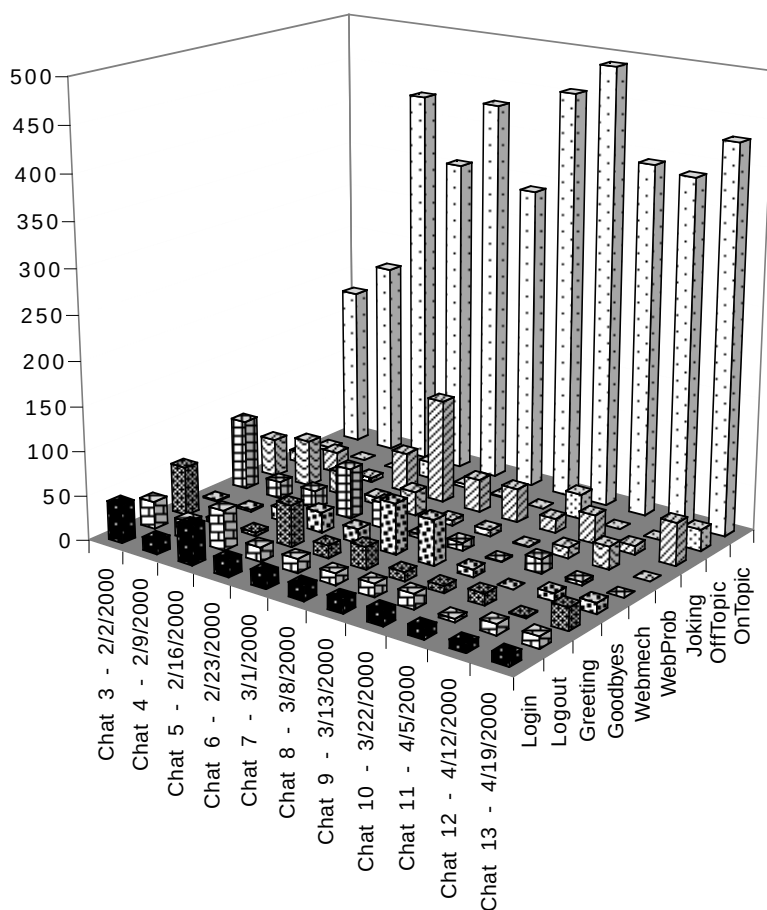


Figure 1 TOTAL TEXT UNITS SPOKEN PER CHAT SESSION AND CATEGORY

thereafter. Also, more 'greetings' seem to have occurred in the first online session and the fourth online session coinciding with the beginning use of the two different chat programs and usernames. However, some categories, such as 'greetings', 'goodbyes', and 'off topic', seemed not to follow a pattern. We can speculate that 'greetings' and 'goodbyes' vary depending upon the amount of time needed for students to show up for class, the number of students needing special assistance on projects after class, or if the chat transcript was terminated with several students still in the chatroom. This phenomenon is similar to classroom activity where current events, tragedies, and news dominate or blend into the intended class topics. One such emotional event was a tornado that struck the area, including the local child protective services building.

USING MULTIPLE TOOLS

The visual inspection of the qualitative data suggested that quantitative analysis might again be helpful to explore what accounted for high satisfaction and learning. We wanted to discover whether any patterns existed between the number of communications in each of the nine categories' codes and the following variables: students' grades, satisfaction with content, satisfaction with delivery, previous human service experience, and previous technology experience. This analysis attempted to answer questions such as 'do students who communicate more or stay on topic make better grades?' or 'are students who experience fewer technical problems more satisfied?'

Correlations using SPSS, which are presented in Table 3, yielded the following findings.

- The high negative correlation of 'on topic' with 'login' (-.58) and 'logout' (-.65*) suggested that being bounced out of the chatroom due to poor telecommunications connections decreased class discussion. The significant negative correlation between 'grades' and 'problems' (-.74*) suggests that technical problems negatively impacted students' learning much more than bouncing in and out of chat. An alternate explanation is that the better students were sophisticated enough to ensure that the mechanics of the class did not interfere with their grade. This is similar to a classroom where students, who have problems with consistent attendance, timely submissions, etc., may consistently make lower grades.
- The high positive correlation between 'on topic' discussion and 'greetings' (.64*), 'joking' (.66*), and 'goodbyes' (.56) needs to be further investigated. It seems that those comfortable enough with chat for small talk contributed more relevant discussion.
- A surprising finding is the high negative correlations between 'goodbyes' and 'satisfaction with delivery' (-.72*) and 'satisfaction with learning' (-.65). Correlations with 'greetings' and 'satisfaction' were negligible. Perhaps those who were least satisfied with delivery and learning were those who needed more help after class and therefore were more represented in the 'goodbyes'.

Table 3 CORRELATION: COMMUNICATION CODES, SATISFACTION WITH DELIVERY/LEARNING, EXPERIENCE, AND GRADES

Variables	Greeting	Log in	Log out	Mech	Problems	Joking	On topic	Off topic	Byes	Delivery	Learning	Total chat	HS exp	Web exp
Greeting														
Login	-.41													
Logout	-.34	.90**												
Mech	.47	-.55	-.34											
Problems	-.38	-.15	-.13	.07										
Joking	.71*	-.35	-.29	.62	-.25									
On topic	.64*	-.58	-.65*	.16	-.16	.66*								
Off topic	.45	-.60	-.31	.79**	.06	.42	.14							
Byes	.15	-.28	-.56	.20	.12	.43	.56	-.20						
Delivery	.11	.33	.58	.08	.06	.02	-.43	.35	-.72*					
Learning	-.02	.32	.49	-.01	.15	-.04	-.42	.34	-.65	.93**				
Total chat	.71	-.58	-.61	.32	-.15	.79**	.97**	.25	.58	-.34	-.35			
HS exp	.10	-.21	-.12	-.32	-.27	-.54	-.02	.21	-.51	.15	.19	-.14		
Web exp	.45	-.47	-.20	.29	-.24	.01	.23	.57	-.38	.04	-.09	.21	.61	
Grade	.40	-.14	.04	.40	-.74*	.49	.23	.47	-.17	.05	-.03	-.10	.40	.73*

* significant at .05; ** significant at .01

Delivery = satisfaction with delivery; Learning = satisfaction with learning

HS exp = months of human service experience prior to course; Web exp = months of Internet experience prior to course

- The significant correlation between 'Web experience' and 'grades' (.73*) suggests that students who have Web experience going into the class make better grades. This is not the case with human service experience. Ideally, previous Web experience should not influence a student's grade in a course on administration. If this finding continues, the course needs to be revised to ensure that achievement on assignments does not reflect Internet skills rather than course learning.

IMPLICATIONS

Quantitative, Qualitative, and Visual Tools

Each of the three tools helped answer the questions posed by this research. SPSS allowed traditional pre-post comparisons. NUD*IST's intuitive graphical interface, relative ease-of-use, and extremely functional code-and-retrieve capabilities made it a good tool to learn from chat transcripts. The graphic presentation of NUD*IST's data yielded insights about what trends should be examined further. NUD*IST-generated data were correlated with pre-post-test data to identify significant findings concerning comparability and why differences existed. An important conclusion is that researchers familiar with many tools are better able to explore complex topics such as what accounts for learning and satisfaction under various teaching methods. Padgett (1998) endorses a multi-method approach such as that demonstrated in this research and cites growing support for such a research methodology in fields that include nursing, education, and social work. Even so, with enough time available to the researcher and the proper expertise, a much more detailed and probing qualitative examination of the data in this research could yield enormous information about the nature of DE that might otherwise be unobtainable. The research results, thus far, have generated almost as many compelling questions as they have answered. Similar to the grounded theory approach originally developed by Glaser and Strauss (1967), this research has taken a 'constant comparison' approach in which we analyzed data, formulated additional questions, and then returned to the data for further analysis. However, we have by no means reached saturation, and therefore believe that further qualitative examination in this research could be very instructive.

Expand Comparability to Answer Why

DE research needs to explore 'why comparable.' Consistent with previous research, this study again found DE and traditional classroom learning methods comparable. However, we are just beginning to discover why this is so. To explain why requires more complex comparisons of chatroom and classroom activities. From examining the nine communication codes, one obvious difference is that the traditional lecture is not part of chatroom activity. Chatrooms only provide a format for class discussion. Chatroom discussion is often touted as being more focused and on target than a classroom discussion. One common explanation

is that classroom students can 'blurt out,' but chatroom students must take several seconds to type out their comments, thus causing them to 'think before they speak.' The theory of 'online disinhibition' (King and Moreggi, 1998) suggests that chat may allow shyer or less verbal students to communicate more in class, since no one can actually see them, hear them, or interrupt them. In addition, some believe that externalizing thoughts, especially through a non-verbal means such as writing, may actually help to strengthen and generalize learning (Murphy and Mitchell, 1998). However, to make true comparisons of the complex variables that exist in chatrooms and classrooms would require use of techniques, such as trained observers using coding cards, to observe classroom activity either in real time or on videotape.

Moving Beyond Comparative Research to Quality Improvement

While comparative studies between traditional classrooms vs. DE courses are needed, comparability should not be the central focus. Online courses capture information that can be used throughout the semester to improve the course. Instead, instructors need to publish baseline data using various DE techniques so that satisfaction and learning can be monitored across variables such as teaching techniques, types of students, and number of students. By establishing baselines and closely monitoring student change toward course objectives, instructors can take a continuous quality improvement (CQI) approach to improving course quality. CQI techniques are not based in experimental design, but in measurement, small changes, and monitoring to guide a system to move towards consumer-defined quality (Sluyter, 1998). One implication of a CQI approach is that student definitions of quality need to be developed and continually refined throughout the course. These definitions of quality would traditionally be based in student satisfaction and learning. In this course, students' perception of satisfaction and learning were congruent. However, in some courses conflict could exist. For example, satisfaction in social work research courses may be low even when learning is high due to students not seeing the value of research in future practice. In courses where students do not see the value of course learning objectives, it would be more difficult to take a CQI approach and continually optimize on student-defined quality.

Rethinking Privacy and Intellectual Property

Collecting and using substantial course generated information for research raises issues of confidentiality, intellectual property, and protection of human subjects. Upon entry to this course, all students had access to previous online course summary statistics so they could see the value of course research. To address the issue of informed consent, a pre-test informed students that research would be conducted to assess the effectiveness and satisfaction between the classroom and chatroom sections and that the research would be presented at a conference and possibly submitted for publication. Students were apprised that participation in

the research was voluntary and that information would be de-identified and used for research purposes only. To help ensure privacy, chat sessions were posted to a password and user ID protected area of the course website. In hindsight, a statement concerning the research and that non-participation would not affect grades should have been on the course syllabus rather than on the pre-test or other course documents. This would have made it clearer to students that they could have their chat contributions along with the pre- and post-test data excluded from any research without affecting their grade. Institutional Review Board forms were submitted because the research involved human subjects and the research was to be published.

A similar issue involves intellectual property and copyright. Students, especially those with experience, contribute substantial intellectual property to a course during class discussion. In the USA, copyright law maintains that all Web-based text created after 1 April 1989 is automatically copyrighted with ownership belonging to the author. Quoting of emails and chat without the permission of the authors, even though authors do not claim copyright, is a violation of US copyright law (Templeton, 2001). While reprinting one or two chatroom sentences would be acceptable under fair use guidelines, longer chat quotes would require copyright release before publication. To avoid having to track down students to obtain copyright release permission after revisions to this article were made, no quotes of chat sessions were used.

Finally, privacy and confidentiality issues increase in a Web-based course where substantial information is captured. For example, US organizations usually own the emails of their employees that are generated on the job. In a classroom, a student might confide in a faculty member about some personal or course issue and could assume that communication to be private. However, the syllabus should inform students that they should not make this assumption in an online course because the university can look at student-faculty emails without their knowledge.

CONCLUSION

This research confirmed once again that DE courses are comparable with classroom courses for student learning and satisfaction. We need to progress beyond the comparison of classroom and DE courses and begin to focus on what accounts for student learning and satisfaction with various teaching methods. To analyze the wealth of information automatically captured in an online course requires a variety of visualization, qualitative, and quantitative tools. For example, combining quantitative and qualitative analysis made it possible to discover that a student's persistent comments about technical problems in DE courses might negatively influence learning. Graphically monitoring DE content for statements about technical problems may help identify students with low learning potential early in the

semester. Given the available tools and wealth of information captured in an online course, a CQI approach to course improvement may be appropriate.

In summary, successful classroom and chatroom teaching is still a mysterious phenomenon that requires a variety of analytical tools and approaches to understand and to translate that understanding into improved learning and satisfaction.

References

- Glaser, B. G. and Strauss, A. L. (1967) *The Discovery of Grounded Theory: Strategies for Qualitative Research*. Hawthorne, NY: Aldine.
- King, S. A. and Moreggi, D. (1998) 'Internet Therapy and Self Help Groups: The Pros and Cons', in J. Gackebach (ed.) *Psychology and the Internet: Intrapersonal, Interpersonal and Transpersonal Implications*. San Diego, CA: Academic Press.
- Murphy, L. J. and Mitchell, D. L. (1998) 'When Writing Helps to Heal: E-Mail as Therapy', *British Journal of Guidance and Counselling* 26(1): 21–32.
- Padgett, D. K. (1998) *Qualitative Methods in Social Work Research: Challenges and Rewards*. Thousand Oaks, CA: Sage.
- Peters, B. B. (2000) 'Use of the Internet to Deliver Continuing Education in Social Work Practice Skills: An Evaluative Study', unpublished doctoral dissertation, University of Texas at Arlington.
- Schoech, D. (2000) 'Teaching Over the Internet: Results of one Doctoral Course', *Research on Social Work Practice* 10(4): 467–86.
- Sluyter, G. V. (1998) *Improving Organizational Performance: A Practical Guidebook for the Human Services Field*. Newbury Park, CA: Sage.
- Templeton, B. (2001) '10 Big Myths about Copyright Explained', URL (consulted Aug. 2001): <http://www.templetons.com/brad/copymyths.html>
- Thyer, B. A., Polk, G. and Gaudin, J. G. (1997) 'Distance Learning in Social Work Education: A Preliminary Evaluation', *Journal of Social Work Education* 33(2): 363–7.

Dick Schoech, PhD, is a Professor at the University of Texas at Arlington School of Social Work. He teaches administration, community practice, and computer applications. Address: University of Texas at Arlington, School of Social Work, Box 19129, Arlington, TX 76019–0129, USA. [email: schoech@uta.edu]

David Helton is a PhD student in the School of Social Work at the University of Texas at Arlington with a dissertation interest in mental health services provided via the Internet. He is a Licensed Chemical Dependency Counselor and has worked in the substance abuse field for the past 12 years.