How the Teacher's Role Changes in On-line Case Study Discussions

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ABSTRACT

The case study has long been a staple in information system education, and as information system education adopts asynchronous distance education formats, the case study discussion increasingly takes place on-line. While there has been speculation about how the role of the teacher might change in asynchronous learning networks, there has been little empirical research that explicitly and rigorously investigates similarities and differences between teacher roles in online and face-to-face activities. This paper examines the differences in the role of an instructor while conducting identical case study discussions in both contexts. Transcripts from eight case study discussions, 4 face-to-face and 4 online, were analyzed using a content analytic framework derived primarily from the previous work of Anderson, Archer, Garrison and Rourke. These authors developed a model that studies cognitive, social, and teaching processes in ALN discussions. The scheme also considers characteristics of the discourse process developed by Aviv. The findings provide evidence that even though higher levels of certain cognitive processes are observed online, the instructor has less control of the "choreography" of the discussion in this mode. We consider the implications of these findings, and suggest strategies for producing better results in online case study discussions.

Keywords: Online case study discussion, Asynchronous Learning Network, Teacher role, Student role

1. INTRODUCTION

The case study method of instruction is a narrative-based learning activity that has a rich tradition in professional education. In this method, an experienced facilitator leads a group of students through analysis and discussion of a story – a story that is a realistic representation of a professional situation likely to be encountered in the student's field (Benbunan-Fich and Hiltz, 1999). Through this process the student gains experience that simulates actual professional practice. The case study method has been widely adopted in professional fields such as information systems, management, medicine, law, and education.

Even though a "case study" has a somewhat different meaning in each of these settings, there is agreement that the method's effectiveness is dependent on the facilitator's skill in leading the process (Applegate, 1988). For many areas of management education, including information systems (IS) the Harvard Business School has published a variety of materials instructing case teachers in effective use of the method (Applegate, 1988; Bonoma, 1989; Rangan, 1996). These materials have proven to be useful for many thousands of instructors, but they generally address the face-to-face (FTF) classroom context in which case-based instruction has traditionally been used. As distance education and e-learning become more prevalent, however, the FTF classroom can less frequently be taken for granted. Asynchronous learning networks (ALNs: "a communication system designed to support anytime/anywhere interaction among students and between students and instructors" (Benbunan-Fich and Hiltz, 1999, pg. 2) have been used for a variety of discussion-based learning activities, and among these is the case study discussion. With its ability to provide extended reflection

time, the ALN holds great promise as an ideal forum for case study discussions (Harasim, 1990).

Yet a careful examination of the practice of the case study discussion in the classroom suggests that the traditional case study discussion may have to be modified when transferred to an ALN. For example, while research suggests that collaborative learning activities such as case study discussions can be successful in ALNs (Hiltz, 1994; Leidner and Jarvenpaa, 1995), it also indicates that the critical success factors for asynchronous collaborative learning may be different than in FTF environments. Curtis and Lawson (2001) have found that while there are substantial instances of collaboration in the ALN activities they observed, the nature of these collaborative behaviors was different than in FTF collaborative learning. Heckman et al. (Heckman, Maswick, Rodger, Ruthen, and Wee, 2000) found that the number of roles is reduced and the role structure simplified when technology is the primary means of group interaction. These findings suggest that we may need to better understand the differences between FTF and ALN discussion modalities. Thus, there is a need for an empirically grounded investigation of the pedagogical implications of using ALNs for collaborative discussion-based activities such as the case method (Leidner and Jarvenpaa, 1995).

In this paper, we will briefly discuss the principles of one common method of case-based instruction. We will then present the results of a recent empirical study that compared and clearly illustrated several potential differences between FTF and ALN case study discussions. We will explore the implications of these differences for facilitators charged with leading case discussions in each mode. Finally, we will present strategies for improving the learning effectiveness of case study discussions in ALNs.

2. THE CASE STUDY METHOD OF INSTRUCTION

A case study is a true or fictional narrative. A true case study presents a description of an actual situation that has occurred in a real organization. Even when the case is fictional, however, it usually presents a realistic situation in a realistic way. A case need not be real, but it must be realistic. Case studies are normally written in a neutral style. That is, the case narrative does not explicitly point out the problems faced by the characters in the case. Most cases are intentionally designed to present the student with an ambiguous stimulus. As cases are distinguished by their ambiguity and openness to multiple interpretations, the solutions generated are often tied to how the problems and issues are defined, and to the personal and professional beliefs and values of the students (and teachers) who examine them (Bruns, 1993).

The case study method is aimed at accomplishing the following learning objectives (Benbunan-Fich and Hiltz, 1999; Leidner and Jarvenpaa, 1995):

- Improving the ability to ask helpful questions.
- Sharpening analytical and critical thinking skills.
- Developing a set of principles and concepts that can be applied in practice.
- Generate a high degree of involvement in the learning process.
- Increase knowledge of subject matter by dealing intensively with a specific problem.

The case study method is ***experiential***, ***active***, and ***collaborative***.

It is ***experiential*** in that it stimulates a student to develop new perspectives by reacting to and acting on an encountered situation. Experiential learning is a natural process that has developed as human beings evolved. Experiential learning models by Kolb (1984) and Bandura (1989) suggest that narratives can simulate actual experience through the human talent for modeling and integration of action into concepts. The case study method allows students to encounter and engage in a much wider variety of situations than would be possible in real life. While it is obviously not feasible to work for a dozen companies or lead a dozen projects over the course of a single semester in real life, it is possible through the case study method to simulate these actual experiences. Thus a case is experiential because it uses the natural human response to narrative, to story, to engage students in situations that have the potential to change them.

The case method is also an ***active*** learning method. In case study analyses, students are not passive recipients of information. Rather, they are required to actively engage the situation, play the role of one or more of the actors presented, critically analyze the situation and make decisions about future actions. Beyond simply receiving information, students are expected to perform a process. The intention is that through repetition of this process their skills will be gradually improved. Bruner comments that narrative is an "invitation to problem finding, not a lesson in problem solving" (2002, pg. 20). Thus, students are expected to act on the world rather than passively receive information about the world.

The case study method is ***collaborative*** because students are expected to consolidate their learning by teaching one another. The purpose of the case study discussion both in small preliminary groups and in the general class discussion is to allow each student to help all the other students in the class gain a new perspective on the case events. By articulating one's own opinion, each student not only helps all the other members in the learning community, but also clarifies and consolidates his own understanding (Gomez-Ibanez, 1986; Hammond, 2002). As all teachers know, the simple act of talking or writing about a subject causes one to learn new things about it. The teachers' role in the case study discussion becomes that of a facilitator.

It follows from these three characteristics that ***active student participation*** in class discussions of cases is a crucial element in the learning process (Gomez-Ibanez, 1986; Leidner and Jarvenpaa, 1995; Benbunan-Fich and Hiltz, 1999). In order to participate meaningfully, students are expected to prepare for the full class discussion by a

thorough reading of the case and through informal meetings with other learners to reflect on how different perspectives impact the issues.

The ***role of the instructor*** is an equally important one for case methodology. In this paper we focus on a widely used approach to case study discussion presented in teaching materials published by the Harvard Business School. (This conceptualization of the instructor's role, while common, is not meant to be exhaustive of the many possible methods of case instruction.) In the role of moderator and facilitator, the instructor is expected to create "an environment in which the contributions of individual students will build upon one another to illuminate the problem more fully" (Gomez-Ibanez, 1986, p. 4). Not only must the instructor know the case in detail, but he or she must "think process" (Applegate, 1988, p. 4). Instructors must develop thoughtful and stimulating questions and raise issues that generate active participation. Instructors are also advised to guide the case discussion, not control it. Rangan (1996) refers to this method of sketching the movement of a case discussion without predefining specific content as "choreographing" the case. Garvin (1991) recommends being prepared for uncertainty, while Applegate (1988) advises teachers to look for ways to build on what students are saying in order to set up transitions, summarize important points, and provide feedback to the learners as an example to them of the importance of listening to one another and building on each other's comments. Thus, the instructor's role in the case study method calls for very little lecturing or content presentation, and a high degree of Socratic, question-based facilitation.

3. HOW ASYNCHRONOUS CASE STUDY DISCUSSIONS ARE DIFFERENT

When a case discussion is moved out of the FTF classroom and into an ALN, what are the advantages and disadvantages? Benbunan-Fich and Hiltz (1999, pg. 7) argue that the advantages of ALNs for case study discussions lie in their ability to "increase group process gains, such as synergy, pooling of information, objective evaluation, cognitive stimulation and learning; and decrease group process losses, such as fragmentation, blocking, domination, evaluation apprehension and information overload." More importantly, Benbunan-Fich and Hiltz (1999) refer to the increased time to read and reread messages, which increases reflection time and thereby improves formulation of responses and the quality of decision-making. On the other hand, they suggest that disadvantages of ALNs lie in their ability to encourage procrastination that may lead to a lower quality of decision making due to time constraints. They also speculate that the distant feel, or lack of social atmosphere, of ALNs may decrease the motivation and satisfaction of students.

We recently conducted an empirical comparison of FTF and ALN case study discussions in order to examine the process differences between the two mediums. The study had three objectives:

1. **Descriptive.** To provide a rich, detailed, descriptive comparison of actual case study discussions in both FTF and ALN modes. Research Question: *Do process differences exist between FTF and ALN case study discussions?*
2. **Methodological.** To expand our understanding of several content analysis approaches for analyzing ALN discussions. Research Question: *Can a reliable and valid content analytic scheme be developed to analyze online and FTF case study discussions?*
3. **Pedagogical.** To explore methods for improving the conduct of case study discussions in ALN mode. Research Question: *What are the pedagogical implications of any process differences that may be observed between the two modes?*

To achieve these objectives we observed 8 case study discussions: 4 FTF and 4 ALN. The first author was the class instructor, and the discussion facilitator in both mediums. The study was designed to reduce and control for systematic sources of bias (e.g., order effects, group composition effects, and effects due to differences between the two cases used as discussion stimuli) by adopting the following measures: Each student participated in two case discussions, one FTF and one ALN. The same two cases were discussed by all students. Half of all students discussed Case A first, the other half discussed case B first. Half of all students discussed in FTF mode first, the other half discussed in ALN mode first. The instructional goals for each discussion mode were identical. Each discussion was structured by the facilitator into three sections, with identical starting and transitioning questions in each mode. The facilitator made an effort to cover the same issues in both mediums in a similar fashion.. To control differences that might arise from the facilitator's interactions with the different groups and over the different mediums, we constructed the following facilitator guidelines.

- Adopt the same strategies in calling on individuals in both classes
- Cover the three broad sections in similar ways:
  - Use the same starting and transition questions
  - Allocate periods for each of the three discussion sections that are of approximately equal proportions in FTF and ALN discussions, and of approximately equal time in both FTF sessions.
- Do not direct student answers to go in the same way as in the other medium or other section
- Do not bring up points initiated by the students of another section or medium

The students were informed of the study in an earlier class period. They were told that discussions would be graded for participation in the normal fashion by the course graduate assistant. They were also informed that both discussions would be transcribed, that a doctoral student would analyze the texts, that individual student identities would not be used in the analysis, that the results of the analysis available to the professor would contain no student identification, and that the analysis would have no impact on their grades.

FTF discussions were recorded and transcribed in their entirety, and ALN discussion forums were captured. Transcripts from the 8 discussions were content analyzed. We used a content analytic framework derived primarily from the work of Anderson, Archer, Garrison and Rourke (see Rourke et al., 1999; Anderson et al., 2001; Garrison et al., 2000) and Aviv (2000), which built on the work of scholars focusing on social interdependence theory, critical thinking, and constructivist learning (Hiltz and Turoff, 1993; White, 1993; Olson, 1994; Hass, 1996; Newman et al., 1996). This coding scheme included four categories of indicators: ***Discourse*** process, ***Social*** process, ***Teaching*** process, and ***Cognitive*** process. For the purposes of this paper, we used codes in the ***Discourse*** process (see Table 1 below), ***Teaching*** process (See Table 2 below) and Cognitive process (see Figure 4 below). The inter-rater agreement of the content analysis was 86% of all coding decisions. At the end of the process students completed a short questionnaire that explored their feelings and perceptions regarding the two different modes of discussion.

This paper reports on the third objective, the pedagogical objective of exploring methods for improving the conduct of case study discussions in ALN mode. A complete description of the study, the development of the coding scheme, and reports on the first two objectives may be found in (Heckman and Annabi, 2003; Heckman and Annabi, 2005). In the following paragraphs we present a brief summary of the findings most relevant to the consideration of the teacher's role changes.

3.1 Number and Targets of Utterances

The first observation from our data is the sheer difference in the number of individual utterances. From a manual count of utterances, we found that in the average FTF discussion, there were 287 individual utterances, compared to 74 in the average ALN discussion. The presence of the teacher was much more pervasive in the FTF discussions, averaging 141 utterances compared to an average of 11 utterances in each ALN discussion as indicated in Table 1. In the ALN discussions, students carried a much greater share of the discourse. The ratio of student/teacher utterances was 5:1 in ALN, compared to 1:1 in the traditional classroom. In addition, student utterances were longer in ALN (100 words versus 30 words), while teacher utterances were shorter (50 words versus 80 words.)

	ALN	FTF
Average # Utterances/Student	2	5
Average # Utterances/Teacher	11	141
Teacher: Words/utterance	50	80
Student: Words/utterance	100	30
Ratio:Student/teacher utterances	5:1	1:1

Table 1. Utterances in FTF and ALN Discussions

As indicated in Figure 1 virtually all student utterances in FTF were responses to the teacher. In ALN discussions over half of student utterances were responses to other students.

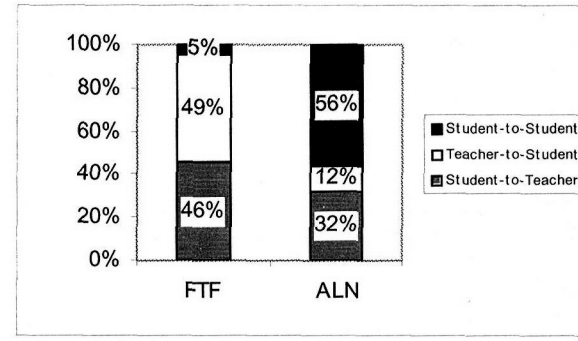

Figure 1. Speaker-to-Target

3.2 Pattern of Dialog

In addition to differences in the number and targets of utterances, there was a substantial difference between the two mediums in the pattern of dialog. In FTF the teacher [T] asked a question (sometimes preceded by a comment), and a student [S] responded. The alternation of teacher and student was consistent as illustrated in Figure 2. Each utterance was a direct response, tightly coupled to the immediately previous utterance. Each speaker was often talking directly to someone – students always responding to the teacher, teacher often directing a cold-call question, follow-up question, or feedback to a specific student. The time gap between utterances was regular and very short.

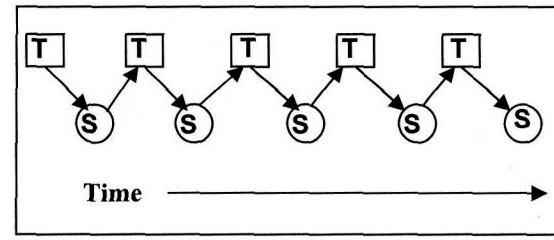

Figure 2. Pattern of FTF Dialog

The asynchronous dialogs lacked the linear, turn-taking characteristic of the FTF discussion (See Figure 3). After the teacher initiated the discussions, a number of students responded, sometimes simultaneously, and often with no reference to other student responses. Once a discussion was going, many students might respond to a provocative comment by another student. The teacher occasionally responded to a few student comments, but mainly summarized the discussion and led transitions into new discussion areas. A number of student comments and several teacher comments generated no explicit response. It was possible to have several parallel discussion threads going simultaneously. Several students noted in a follow up survey that they "did not have time" to read other student comments before posting, and others complained of duplicated postings. Thus it was not clear that students had received previous utterances in the dialog. The gaps between utterances were irregular.

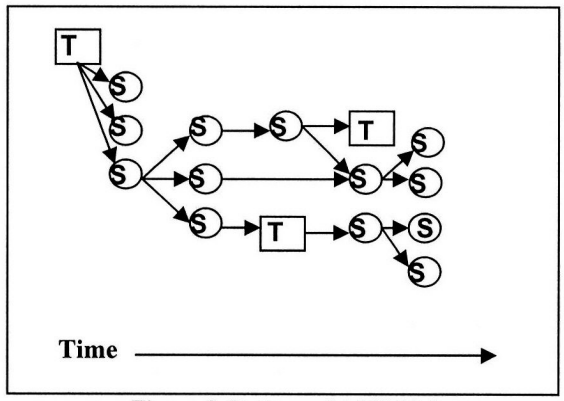

Figure 3. Pattern of ALN Dialog

3.3 Teaching Process

It is clear that there were many more examples of traditional "teaching" (as indicated by the number of ***Teaching*** process codes) in the FTF discussions. Table 2 shows that, on average, there were 125 instances of direct instruction in FTF, while there were only 18 in ALN. While the majority of these instances were to *confirm understanding*, the average FTF discussion contained 15 instances of *presenting content*, while the average ALN discussion contained only 2. There were also examples of *focusing the discussion* in the FTF discussion, which did not occur in the online mode. These focusing actions can be distinguished from larger, preplanned transitions in the discussions, which were coded as *discussion strategy*, and which occurred in both modes.

	ALN		Face-to-Face	
	Number	%	Number	%
Direct Instruction	18	69%	125	85%
Discussion Strategy	3	12%	5	3%
Present content	2	7%	15	10%
Focus discussion	0	1%	7	5%
Sum discussion	2	9%	3	2%
Confirm understanding	9	32%	93	63%
Diagnose misconception	0	0%	2	1%
Inject knowledge	1	3%	1	1%
Response to technical	1	5%	0	0%
Facilitating Discourse	8	31%	22	15%
Drawing in participants	1	4%	16	11%
Encourage std contribution	0	0%	0	0%
Identify agree/disagreement	5	19%	2	1%
Seek consensus/agree	1	3%	2	2%
Setting climate for learning	0	0%	0	0%
Assess the efficacy	1	5%	2	1%
Total	26	100%	148	100%

Table 2. Teaching Process in FTF and ALN Discussions

There were also more instances of *facilitating discourse* in the average FTF discussion. Most of these instances took the form of *drawing in participants*, which typically took the form of calling on specific students, often as "cold calls," a phenomenon that did not occur at all in the online discussions.

Finally, there appeared to be increased occurrence of *identifying agreement and disagreement* in the online discussions. Closer inspection revealed that, in the ALN discussions, virtually all instances of identifying agreement and disagreement were performed by students themselves, and not by the teacher. In fact, 14 of the 26 instances of *Teaching Process* (54%) in the average ALN discussion were performed by students. In the average FTF discussion, however, only 8 of 147 instances of *Teaching Process* (5%) were performed by students (see Table 3.)

	Online		Face-to-Face	
	Teacher	Student	Teacher	Students
Direct Instruction	10	8	117	8
Facilitating Discourse	2	6	22	0
Total	12	14	139	8

Table 3. Role of the Teacher and Student

3.4 Cognitive Process

In the average FTF discussion we observed nearly twice as many instances of cognitive process as in the average ALN discussion (139 versus 71). However, Figure 4 indicates that the instances of cognitive process were predominantly in the lower order Exploration category in FTF. They consisted mainly of *rote factual response and information exchange*, almost entirely in direct response to questions from the teacher about the "facts of the case." This early, detailed discussion of the facts occurred much less frequently in ALN discussions. This suggests that a more leisurely process of information exchange, potentially rich in detail, occurred in the FTF discussions.

In contrast, the ALN discussions contained more high-level Cognitive Process instances, both in absolute and relative terms. The most striking difference was in the Analysis category, with nearly twice as many instances occurring in the ALN discussions. It appears that the reduction in the lower order Exploration activity may have in some sense "made room" for an increased level of Analytic activity. Interestingly, the number of instances of the highest level Cognitive Process, Integration, was identical in both modes, suggesting that students were able to synthesize the facts of the case and come to judgment and resolution equally well in both modes

In addition to the differences in frequency of occurrence among the categories of cognitive indicators, it is important to point out the interesting differences in the distribution of

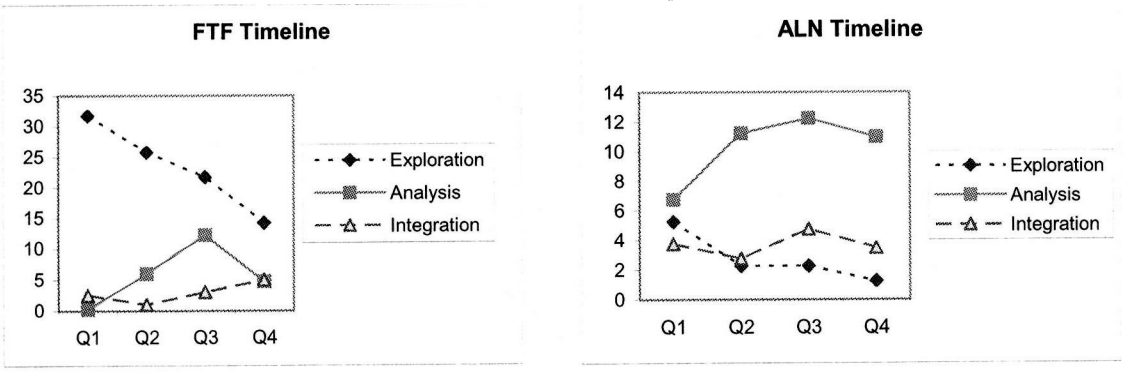

Figure 4. Timeline of Cognitive Activities

cognitive categories over time. Although the instructional plan for discussions in FTF and ALN was identical, it proved very difficult for the instructor to carry out such a plan. Although the instructor executed the plan for discussion in the same way in FTF as he did in ALN, the students' responses differed. The instructional design was one where the discussion would start with much exploration of ideas, move to analysis, and later conclude with resolution (elements of cognitive processes). As illustrated in Figure 4, exploration, analysis and integration indicators occurred in different proportions over time. The FTF timeline is in accordance with the instructor's plan: spend the 1st and part of the 2nd quarters building a rich understanding of case details and related information, move to analysis of the facts in 2nd and 3rd quarters, and reach a solution (integration) in the last quarter. While the instructor was able to maintain this structure in FTF, he was unable to maintain it in ALN. Students included information, analysis and even integration in their responses to the teacher and other students from a very early stage of the discussion, regardless of the instructor's questions and discussion strategies.

3.5 Student Perception

After participating in both discussions, students were given the opportunity to voluntarily complete a brief, anonymous survey. Seventy-five (75) students completed the survey for a response rate of 63%.

The survey data indicated that students felt equally comfortable participating in ALN and FTF discussions. They did, however, feel significantly more involved in the FTF discussions. Students were asked, ***in which mode did your instructor provided more helpful information?*** Their responses indicate that they felt the instructor was more informative in FTF (see Figure 3). Respondents had the opportunity to elaborate on this point via an open-ended response. Those who thought the instructor provided more information in FTF discussion tended to cite increased feedback in FTF, better fit with their learning style, or a better job of facilitation by the instructor. Typical comments were:

- *There was more feedback in the class.*
- *He presented the same information in both, however, listening to it in class as opposed to reading it made it sink in better and seem more relevant.*
- *The professor leads the discussion much more in class and translates what people say so everybody understands it*

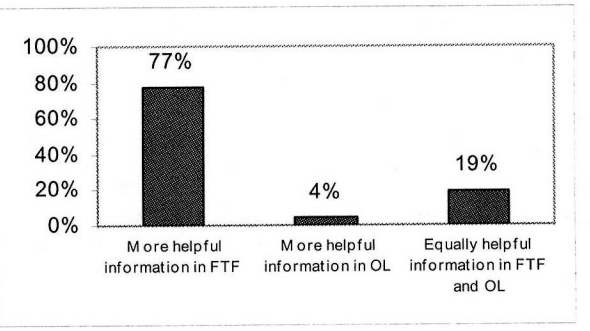

Figure 5. In which mode did your instructor provide more helpful information?

Finally, students were asked, ***In which mode would you prefer to discuss cases in the future?*** To this question 90% of students indicated a preference for FTF discussion, while only 10% said they would prefer to discuss cases in ALN in the future. In their open-ended responses several students who preferred future ALN discussions articulated some of the benefits often attributed to ALNs:

- *People were expressing more complete, well thought out comments*
- *You don't have to sit and listen for two hours. When OL you can jump in at any time.*
- *I don't like talking in front of a lot of people. I felt more comfortable participating OL.*

However, most students argued in favor of the traditional FTF classroom, and provided a wide variety of reasons for doing so:

- *I prefer the flow of the verbal discussion. It's more organized, less formal.*
- *There is a missing human element (in OL).*
- *Ideas can grow and diversify faster (in FTF).*
- *FTF makes you get more involved. I prefer it because it makes me pay attention.*
- *I didn't like OL because it takes a long time to read all the postings and many of them are worthless comments.*

4. IMPLICATIONS FOR THE TEACHER'S ROLE

In the previous section, we have pointed out important differences between the conduct of FTF and ALN case study discussions. These differences in the pattern and sequence of dialog (see Figures 2 and 3) have a profound effect on the conduct of asynchronous case study discussions, and may create a number of apparent problems for a teacher used to conducting a traditional, FTF, Socratic case study discussion. The most fundamental problem is a relatively complete loss of control over the linear, turn taking, Socratic "choreography" that characterizes most discussions in the traditional classroom. Much of the pedagogical literature on the case method instructs the teacher to "choreograph" discussions in order to allow students to make an increasingly complex set of discoveries and syntheses (e.g., Rangan, 1996). Such choreography has traditionally been achieved through an incremental build-up of facts and inferences, and the linear nature of FTF dialog makes this incremental build-up relatively easy to control.

Because the ALN discussion proceeds in parallel rather than in a single linear form, and because it proceeds in many cases without the intervention or direction of the teacher, four additional problems manifest themselves. Tables 2 and 3 make clear that there was a significant decrease in instructor's teaching activity in ALN mode. This manifested itself in four specific ways:

1. It is more difficult for the teacher to ask follow-up questions.
2. It is more difficult for the teacher to provide immediate feedback to students.
3. It is more difficult for the teacher to provide serendipitous direct instruction.
4. It is more difficult for the teacher to explore concrete detail.

4.1 It is More Difficult for the Teacher to Ask Follow-up Questions.

In the FTF case study discussion, the teacher listens carefully to each student response, and leads the discussion forward by asking additional questions. It is often through follow-up questions that teachers insure that students consider the many aspects of the case that the teacher feels to be important. The teacher typically does not know in advance what these questions will be, but instead constructs them based on each student's previous comment.

In the ALN discussion, the teacher is still responsible for asking questions, especially those that provide an overall structure to the discussion. These questions are most important at the initiation of a discussion and at key transition points. It is very difficult, however, for the teacher's role as follow-up questioner to function in the same manner as in the FTF discussion. This is why, in the case studies we observed, there were fewer questions asked in the ALN discussions.

The solution to this problem is to partially transfer the questioning role to students. The cases we observed suggest that students will not automatically assume this role. Thus, it will probably be difficult to partially transfer the questioning role to students because they are implicitly and deeply habituated to respond to teacher questions, not to ask questions of one another.

The teacher's role then, changes from being the primary questioner to one of training students in the art of questioning. There is a radical change of perspective here. Instead of concentrating on what is known, members of the class focus on what is not known yet, and ask each other for help in knowing it. The teacher's role is to help students learn to ask insightful questions instead of using past knowledge as their main reference point. The questioning process gives students practice in assessing the relevancy of information, a critical skill for every professional.

How should students be trained in the art of questioning? The first step is to simply build a requirement for student questioning into the structure of the case study assignment. For example, in Q1 or Q2 of the discussion, students might be instructed to post only questions to fellow students (or responses to student questions – see below). By constraining postings in this way early in the discussion, students may gradually become conditioned to assume the responsibility of the questioner's role. But teachers must do more than simply require questioning. We must also help students learn how to ask good questions. In order to help students gain skill in questioning, teachers can assign questioning exercises. For example, students might be required to:

- Ask questions about information not present in the written account of the case. What additional information would be most helpful in analyzing the problems in the narrative?
- Ask questions of specific characters. What would you ask each character if you had an opportunity to talk to them FTF?
- Ask questions about characters' motivations.
- Ask questions about characters' assumptions.

Since not much is known about how to transfer the questioner role from teacher to student, future research should investigate ways to help students become effective questioners.

4.2 It is More Difficult to Provide Immediate Feedback to Students.

Both the drop in the quantity of direct instruction by the teacher (Table 3) and explicit student comments suggest that there was less immediate feedback in the ALN mode. Because the ALN discussion proceeds in a parallel rather than linear form, because the teacher is unlikely to be online long enough to provide feedback to every student comment, and because many researchers advise that too much teacher feedback inhibits the free flow of student ideas, it is necessary to partially transfer the feedback role to students as well.

This will be difficult, because students implicitly value teacher feedback more highly than they value the feedback of other students. Thus, the teacher's role changes from that of provider of feedback to that of training students to provide and accept valuable feedback to one another.

A first step is to require students to respond to the questions posed by other students in Q1 and Q2. In this manner, the responsibility of providing feedback to other students will soon become second nature. But a simple requirement to respond to questions is unlikely to be sufficient. How can we train students to provide high quality, constructive and effective feedback?

Some preliminary ideas include:

- Train students in the art of providing positive constructive feedback. Teach them to comment on the positive and negative together.
- Require students to challenge the ideas of other students. Require them to respond to at least one comment by another student that they disagree with.

4.3 It is Difficult for the Teacher to Provide Serendipitous Direct Instruction.

In a traditional classroom discussion, teachers find many opportunities to provide serendipitous direct instruction to the class. A student response might reveal a lack of understanding of a basic concept. A question may suggest a lack of familiarity with certain background facts. Experienced teachers develop a sense for when such shortcomings may be shared throughout a group, and the traditional classroom discussion provides a "just in time" opportunity to give a short factual presentation just when it is needed. While it is possible and desirable for teachers to continue to provide such direct instruction in ALN discussions, Table 2 indicates that it is more difficult to do this to the same extent and with the same degree of timeliness as is possible in a FTF discussion.

The solution once again is to partially transfer the direct instruction role to students. This will be difficult because students generally lack authority in the eyes of other students, and they therefore often lack the status necessary to be credible instructors. This problem can be overcome however, by training students to find and present concise, external sources of information. While a student may lack status in the eyes of other students, external information from credible sources does not.

Students can be required to present external sources of information by making it a normal discussion expectation that each student will provide links to relevant outside websites. The amount of information that can be available to all students is greatly increased. In this way, instead of limiting opportunities for direct instruction to those areas in which the teacher is proficient, a much wider range of information can be made available to the entire learning community.

4.4 It is More Difficult for the Teacher to Explore Concrete Details of the Case.

The discussions observed in this study suggest that, left to their own devices, students will skip over exploration of the concrete details in the case, and proceed directly to abstract analysis and integration (See Figure 4.) This can be considered a positive phenomenon, because it indicates that online discussions contain higher proportions of analytical and integrative cognitive activities.

But reduced exploration of concrete case details may also have negative consequences. Sadoski et al. (Sadoski, Goetz, and Rodriguez, 2000) reviewed the literature on the effects of various attributes of narrative on comprehension and recall. Their review suggests that both comprehension and recall are enhanced by the characteristics of concreteness, novelty, character identification, and higher levels of imagery. It may also be that narratives are a natural human "chunking" strategy that aids recall because the story progression is easier to remember than an unrelated handful of facts. If the beneficial effects of a case narrative on memory and comprehension are function of the concrete details of the case, it is possible that the patterns observed in these discussions may have a negative effect on these outcomes.

Teachers can engage in two strategies to improve the probability that students will explore and attend to the concrete details of a case. The first strategy is to rely on the story itself for concreteness, by choosing cases that contain vivid details, images, events, and characters. In other words, focus on story value more than on abstract analytic value. Batt (1990) reflects on the use of case studies in the training of law students. He notes that "master cases" tend to involve highly dramatic, unusual events, and somehow seem to fully engage the minds of law students in such a way that the stories are impossible to forget.

A second strategy is to train students to support every abstract assertion with concrete evidence from the case. If students acquire the habit of providing a concrete example of every abstract quality they describe, more of the concrete details of the case will be surfaced and discussed. By supporting every normative assertion or interpretation with a concrete piece of evidence from the narrative, students will quickly form the habit of grounding their analysis in the empirical evidence that the case presents.

5. CONCLUSION

In summary, the role of the teacher in an online case study discussion changes in the following 5 ways:

- From choreographer of an implicit Socratic dialogue to designer of explicit new structures.
- From questioner of students to trainer of student questioners.
- From provider of feedback to teacher of student responders.
- From provider of information to teacher of student information providers.
- From analyst (with a focus on rational deduction) to editor (with a focus on story values.)

The study described above indicates that case study discussions conducted asynchronously, online, can generate a higher level of cognitive analysis than the same discussions conducted in the FTF classroom. We have noted however,

that a number of attributes of the FTF classroom discussion may be lost when the case study discussion goes online. When these attributes are lost, teachers can easily experience problems. However, we have outlined in this paper a number of solutions that will not only alleviate some of the problems caused by the very different nature of an online discussion, but in fact provide a variety of opportunities to dramatically improve the student outcomes from case study discussions.

Most of the suggestions presented above result in requiring students to take more independent responsibility for not only their own learning, but for the processes of the learning community as a whole. They do not only require the students to assume this responsibility, but also suggest ways to train them to develop the skills that will allow them to fulfill the requirement. This way, the online case study discussion has the potential to be far more student centered than the classroom discussion.

We should note that there are limitations inherent in the study design we used. First, observations based on these eight discussions do not necessarily describe ALN or FTF attributes in other contexts. These discussions were based on a specific form of stimulus, the case study, which may have attributes that are different from other learning activities. In addition, some outcomes in this study may have been due to the idiosyncrasies of the particular instructor, who is also the first author. But it is important to note that design attributes that lead to limitations may also make positive contributions to the quality of a study. For example, the observation of a single instructor necessarily creates issues about generalizability, but may also provide control against some forms of unwanted variation and bias. The important point is that procedures be described in sufficient detail so that readers can make informed judgments.

There is still much work to be done in developing the pedagogy of online case studies. Each of the suggestions made above - teaching students to question, to provide feedback, to provide information, to provide concrete evidence in support of assertions – merits a more detailed presentation than space permits in this article. We hope that future work will explore these issues in greater detail. In addition to seeking out practical solutions to the problems described above, future research should also explore the expectations and attitudes of students concerning the role transferals suggested here. Student comments indicate that students have been conditioned to expect the teacher to be the sole or primary source of expert knowledge and guidance. Achieving the recommendations presented here may require attention to the attitudinal and motivational predispositions students bring to the educational setting.

In addition, we believe there is a great opportunity to expand our understanding of the more generalized uses of narrative in teaching online. The case study is but one of several possible narrative forms that have great potential benefit in online teaching and learning. Other narrative forms, which can inform management pedagogy include the scenario, the personal narrative, current events stories, literary works (novels, stories, poems, dramas), parables, and fables. While it is beyond the scope of this paper to explore these genres, it is our hope that this detailed study of the pedagogical effects of asynchronous learning networks on case study discussions may provoke further research into other narrative forms. In this way, we can continue to explore the rich, but relatively untapped, potential of a narrative-based pedagogy in asynchronous learning networks.

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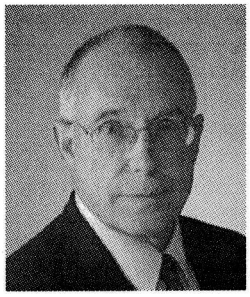

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