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On Being Too Nice: Message Interaction in an Asynchronous Learning Network

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Abstract: *The interact system model (ISM) is used to examine the interactions between messages submitted during online discussions related to a graduate education course in curriculum theory. Interactions are analyzed using complexity science and conclusions are drawn concerning structures that could enhance discussion and support the construction of collective understandings.*

Keywords: asynchronous communication, discourse analysis, message interaction, tertiary education, complexity science

Introduction

The discourse containing the messages analysed in this paper was part of a four month conversation that took place in an online M.Ed. curriculum theory course conducted within an asynchronous learning network (ALN) (Hiltz & Goldman, 2005). That is, the students and course instructor employed asynchronous computer conferencing to conduct regular week-long seminars discussing the curriculum perspectives presented in assigned readings. More importantly, there was a conscious effort to capture the “second key characteristic of ALN as a form of teaching and learning; ... students ‘learning together’ in a cooperative or collaborative manner that ideally leads to the development of a learning community” (Hiltz & Goldman, 2005, p. 6). In such a community the construction of collective understandings can be pictured as an evolutionary process (Varela, Thompson & Rosch, 1991). This view is taken here, where the interactions between posted messages are analysed using methods derived from Fisher’s (1980) interact system model and the discussion progress examined using ideas from complexity science (Davis & Sumara, 2005).

Research in Tertiary Level Online Education

Surveys (OECD, 2005) show tertiary level educational institutions making significant ongoing investments in IT networks and increasing enrolments in online courses and programs (Allen & Seaman, 2006). Despite this interest in online course delivery there is “a relative paucity of true, original research dedicated to explaining or predicting phenomena related to distance learning” via computer networks (Phipps & Merisotis, 1999, p. 13) and much of the

published work “does not include a theoretical or conceptual framework” (p. 27). Within the narrower sub-field of courses employing asynchronous learning networks, where student online contributions play a major role, most research has employed quantitative methods (Goldman & Hiltz, 2005), measuring frequency and time online, numbers of messages posted, and student and faculty satisfaction. Such instruments lack strong theoretical and empirical bases (De Wever, Schellens, Valcke & Van Keer, 2006) and fail to actually examine the intellectual activity taking place. Studies wishing to explore ALN participants’ collaborative construction of knowledge need to employ discourse analysis (Gee & Green, 1998) of online conversations and examine the content and relationships between posted contributions. Naidu and Järvelä (2006) note that efforts to understand human communication patterns are not new and suggest that researchers studying online collaborative learning environments look to the wider literature on discourse analysis. This paper takes such an approach, employing an extended version of Fisher’s (1980) interact system model, an analysis method developed to study face to face discussions.

ALN Conversations and Complexity

“The pedagogical assumption that students learn by constructing knowledge through group interaction is the theoretical foundation of ALN (Benbunan-Fich, Hiltz & Harasim, 2005). In online class discussions, the most common mode of ALN interaction (Alvi & Dufner, 2005), students construct personal meanings and negotiate collective understandings through the exploration of ideas contributed by class members. From a technical point of view the process is rather simple. One class member, a student or the instructor, posts an initial statement on the issue for discussion, and others submit notes responding to this opening position and add their own views on the subject. A conversation develops through repeated rounds of such postings. In practice such extended turn taking does not always occur and unfortunately many online discussions are rather short lived. With limited interaction between posted messages there is little opportunity for the development of an intellectually deep exploration leading to collective understanding.

Enactive cognitive science views the development of knowledge as “a process akin to evolution as natural drift” (Varela, Thompson & Rosh, 1991, p. 207). A network of understandings and stimuli (information) interact and through a process of selection and self-organization the individual mind builds a relatively stable and sustainable world view. Taking this view at the group level we can picture the emergence of intersubjective understanding as a process of interaction between individual contributions.

Evolutionary biology informs us that not all species have effectively interacted with their environments and undergone complex self-sustaining transformations. Complexity science has identified “redundancy among agents, internal diversity, neighbor interactions and decentralized control” (Davis & Sumara, 2005, p. 315) as conditions necessary for the emergence of a sustainable system. This suggests that for productive group discussions individuals must feel free to state their views (decentralized control) and must actively put their ideas out for examination by others (neighbour interactions). Contributions need to have enough overlap (redundancy) to permit meaningful exchange, but at the same time there must be sufficient divergence of opinions (internal diversity) to stimulate both intra- and intersubjective debate. This paper explores for the presence or absence of these conditions within a particular ALN.

Method

Course Setting

The setting for this study was a 14 week (January - April) M.Ed. course in curriculum theory, examining the purposes of education espoused by various authors and their proposals for the organisation and content of school curricula. Class sessions involved 12 seminars conducted via asynchronous computer communication employing the Discussion tool provided in the learning management system, WebCT Campus Edition Version 4.1. The messages analysed in this study are those related to seminars 6 and 7 held in week 8 (Mar 1 - Mar 7) and weeks 9 and 10 (Mar 9 - Mar 21) of the course; approximately the middle of the class time together. The participants in the course were the instructor, who is also the first author of this paper, and 7 students; six of whom were teachers in K-12 schools and one an instructor of adults in health services.

Seminar Structure and Foci

All seminar sessions in the course followed a structure that was set out for the class in the course syllabus and discussed during the first week's online exchanges. Discussion was to focus on readings assigned by the instructor and was initiated by postings from one of the students serving as the Seminar Leader. These introductory notes, submitted by 11:59 pm of the first day in the cycle and based upon the assigned readings, identified: key points and questions, connections to professional experience, links to other course readings and to the research literature in general. In addition, the Seminar Leader was responsible for ongoing support and maintenance of the discussion by: reiterating original unanswered questions, identifying new issues and questions, and noting and inviting focussed discussion on emerging themes.

To ensure a timely initiation of seminar discussion, each session had an assigned student First Responder who would make postings by 11:59 pm of the second day in the cycle. In these the First Responder would: comment on the opening submissions, relate the assigned paper and Leader's notes to their own professional experience, contribute their own questions arising from the papers, and make links to other course readings and literature in general.

Seminar 6 focussed on critical theory and built from a reading of a paper by Giroux (1994), "Teachers, Public Life, and Curriculum Reform". Seminar 7 examined values, morals, ethics, and the spiritual within curriculum starting from a reading of Huebner (1985), "Spirituality and Knowing".

Analysis of the Discourse

With seminar discussions conducted via computer conferencing using WebCT there was a permanent ordered

electronic record of all messages submitted. The analysis of this record, conducted under the direction of the first author of this paper, was completed by two research assistants, the second and third authors; graduate students who had not been participants in the course.

Class members had been asked to confine each posted note to making a single point, but this request was not always met. As a result the first task of the analysis was to break down the posted messages into individual conversation acts; units of single focus and purpose.

Although each seminar had a distinct focus arising from the assigned reading, the Seminar Leader's initial postings and subsequent discussion broke this into multiple themes and conversation strands. Thus the second analysis task was a reading of each act to identify those initiating new themes and conversation strands and then clustering all other acts with their related theme and strand. The acts in each strand were then placed into interacts or pairs in the conversation sequence. The Interact System Model (ISM) (Fisher, 1980) focusses on the nature of relationships in interacts; how each act is linked to the immediately prior unit in a conversation strand. Fisher's original interact relational factors, developed for analysis of face-to-face group conversations, required slight expansion to fit the asynchronous online situation. In particular there were acts, such as an apology for the length of a note required to make a point, that performed social structuring tasks rather than actually addressing the content of the conversation. These were placed in an additional seventh relational factor category.

Relational Factors

- 1 Interpretation – simple value judgement without supporting arguments
 - f Favourable toward the prior act
 - u Unfavourable toward the prior act
 - ab Ambiguous mixed – both favourable and unfavourable evaluation of prior act
 - an Ambiguous neutral – no definitive evaluation of prior act
- 2 Substantiation – value judgement with supporting explanations or arguments
 - f Favourable toward the prior act
 - u Unfavourable toward the prior act
 - ab Ambiguous mixed – both favourable and unfavourable evaluation of prior act
 - an Ambiguous neutral – no definitive evaluation of prior act
- 3 Clarification – expansion on prior act with no evaluation or a request for expansion
- 4 Modification – alteration of content of prior act
- 5 Agreement – simple statement of assent
- 6 Disagreement – simple statement of dissent
- 7 Social Structuring - linked to strand but not addressing content of the conversation

Tables were constructed recording for each act its: theme and strand, author, submission date, related prior act, and the relation factor code. This information was then used in the concept mapping software, SMART Ideas (Version 5.1.19.2), to

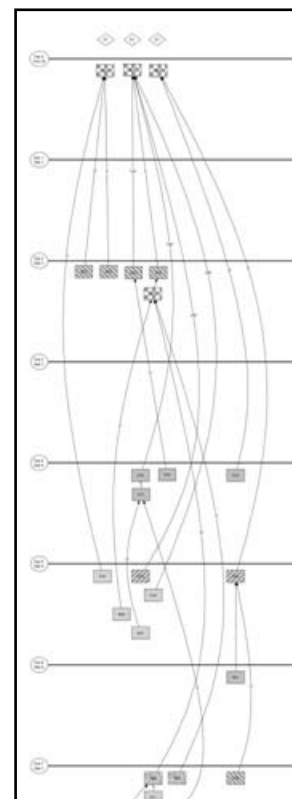


Figure 1: Seminar 6, Theme E

generate a map of each seminar, showing the conversation flow in each strand. See Figure 1 for a map of the three conversation strands emerging during the eight-day discussion on the fifth theme (theme-E) to arise during Seminar 6. These maps, when projected in large format using an LCD display unit, support analysis of overall conversation flow and the individual interacts involved.

Results and Discussion

In both seminars the discussions followed multiple themes which were almost exclusively initiated by the two Seminar Leaders. In Seminar 6 one theme arose from a note not posted by the Seminar leader and in Seminar 7 two themes originated in this way. Within the themes the conversations regularly broke into sub-strands. Information concerning themes, strands, numbers of messages and numbers of acts are shown in Tables 1 and 2.

Past experience with asynchronous computer mediated communication suggested that discussion progress would be aided by the use of focussed messages that addressed one idea, or in other words constituted single conversation acts. Class members had been asked to adopt this style, but, as can be seen in the tables, they did not in general adhere to this request. Overall, in the two seminars individual messages contained an average of 1.5 conversation acts. In Seminar 6, where participants held more closely to the rule of one idea per message (average of 1.32), the conversation was less fractured (average of 1.67 strands per theme) and discussion within themes was more sustained (average of 13.5 messages per theme).

Themes	Number of Strands	Number of Messages	Number of Acts	Acts/ Message
A	2	15	19	1.27
B	1	17	19	1.12
C	2	18	23	1.28
D	1	8	16	2.0
E	3	19	26	1.37
F	1	4	4	1.0
6	10	81	107	1.32
Average/ Theme	1.67	13.5	17.8	

Table 1: Conversation Pattern: Seminar 6

In Seminar 7 class members contributed messages containing an average of 1.63 acts and the conversation broke into an average of 2.2 strands per theme, with discussions of shorter duration (average of 7.9 messages). Within the two longest surviving themes (19 and 18 messages) posted notes contained an average of 1.32 ideas, while those in the shortest lived themes (2 and 3 messages) had an average of 2.4 acts. It would appear that attempting to keep to messages holding single ideas does aid the act of responding and in turn promotes more sustained discussion.

Themes	Number of Strands	Number of Messages	Number of Acts	Acts/ Message
A	3	11	23	2.09
B	2	8	15	1.88
C	2	5	9	1.8
/	2	8	11	1.38
E	2	6	12	2.0

F	2	4	7	1.75
G	5	3	10	3.33
H	1	15	18	1.2
I	1	17	22	1.29
J	2	2	2	1.0
10	22	79	129	1.63
Average/ Theme	2.2	7.9	12.9	

Table 2: Conversation Pattern; Seminar 7

Looking at the discussions at a finer level and examining the frequency of different types of interacts reveals interesting details concerning the class members' approach to the sharing of their views. Tables 3 and 4 show the number and percentage of interacts reflecting the relational factors of the ISM.

Seminar 6 – 95 Interacts													
Inter acts	1				2				3	4	5	6	7
	f	u	ab	an	f	u	ab	an					
#	5	0	1	3	22	0	19	0	20	15	10	0	0
%	5.3	0	1.1	3.2	21.1	0	19.0	0	21.1	15.8	10.5	0	0

Table 3: Interact Distribution in Seminar 6

Seminar 7 – 107 Interacts													
Inter acts	1				2				3	4	5	6	7
	f	u	ab	an	f	u	ab	an					
#	8	1	1	2	16	6	11	3	31	10	5	0	13
%	7.5	0.9	0.9	1.9	15.0	5.6	10.3	2.8	29.0	9.3	4.6	0	12.1

Table 4: Interact Distribution in Seminar 7

In both seminars the majority of interacts were of categories 2, 3, and 4 (80% Seminar 6, 71% Seminar 7) indicating that they were substantial. Participants were responding meaningfully to classmates' previously posted messages. The percentage of favourable interacts (1f, 2f, 5) was quite high (39% Seminar 6, 27% Seminar 7). This means that for over one-quarter of their postings, participants' notes indicated agreement with or support for a previously submitted position. Possibly of more significance is the total absence of disagreement interacts (6) in both seminars and the very low percentage of contributions that presented a comment or argument clearly unfavourable (1u, 2u) to a previously posted view (0% Seminar 6, 6.5% Seminar 7). The significant percentage of ambiguous (1ab, 1an, 2ab, 2an) interacts (24% Seminar 6, 15.9% Seminar 7) could indicate that participants were unable to express clearly articulated opinions on classmates' ideas. An alternate interpretation is suggested by the fact that most of the substantial (2) ambiguous submissions were of category ambiguous mixed (ab); that is containing both favourable and unfavourable comment on a prior act. Possibly the students were uncomfortable expressing negative views concerning classmates' thoughts and thus made efforts to reduce the impact of their notes by including some positive comments along with their critique. The large number of clarification (3) interacts (21% Seminar 6, 29% Seminar 7) could also arise from a reluctance to directly challenge. In Seminar 7 many of these interacts were calls for expansion or clarification on a classmate's previous message and appeared to be a subtle way of presenting a challenge to the views expressed. In Seminar 7 12.1% of the interacts served a social structuring purpose. Here the students were apologizing for the length

or complication of their arguments presented in a previous note. This seminar, exploring the place of the spiritual in the school curriculum, clearly presented social interaction problems for the students. They did not wish their words to be taken as a criticism of any other participant's religious beliefs.

Conclusions

Looking at this data through the lens of complexity science we can explore for the presence or absence of conditions essential to the emergence of collective understandings: interactions, decentralized control, redundancy, and diversity. Interactions were certainly present. The students provided substantial comment of each others' submissions to the electronic conference. Still it does appear to be possible to increase the ease and frequency of such interactions by posting messages that contain single ideas. When students in these two seminars came closer to this goal of single conversation act submissions discussion was more sustained.

Messages contained in the course syllabus and regularly repeated by the instructor expressed the desire for decentralized control. There are no fixed definitive answers to the complex issues explored in the course seminars. Whether or not schools should serve as active agents of social change (Seminar 6) and the place of religion in schooling (Seminar 7) are matters of personal opinion. One can have strong arguments for a position, but there will always be room for differing opinions. This means that students should not have felt constrained in expressing their views, but it appears that in fact the seminar directions were somewhat controlled. Students abdicated control to the Seminar Leader and left it up to him or her to set the agenda by initiating all but 3 of the 16 discussion themes. Possibly the title "Leader" was problematic. This suggests that their task was to lead discussion and possibly others, not wanting to interfere, held back in making suggestions concerning other possible avenues of investigation.

Behaviours from the larger social milieu also seemed to provide some negative control. In Canada religious and political positions are considered to be personal matters. The principle that each is entitled to their own beliefs leads to a reluctance to freely discuss issues with political or religious roots. The lack of unfavourable or disagreement interacts suggests that students had difficulties distinguishing intellectual debate of ideas from criticism of personally held beliefs. Their desire to be polite is commendable, but it appears to have possibly introduced undue and restricting control on the debates.

The significant number of favourable interacts suggests considerable redundancy in views. Although course participants came from a variety of cultural backgrounds they found that there was much on which they could agree even when dealing with controversial issues. This provided the class with enough commonality to start debate.

The data, with very few unfavourable or disagreement interacts seems to indicate a serious lack of diversity. That this might actually not be the case is suggested by the large number of mixed ambiguous interacts. It is possible that in fact the class members did hold differing views on the seminar issues, but wishing to maintain the delicate online social structure, were reluctant to directly express opposing views. Social interaction is limited within an ALN using computer conferencing. Text can appear harsh without other channels, such as tone of voice or facial expression, to express or modify message intent. Thus participants are prone to masking directly opposing arguments. Although this concern for others and desire to be nice is commendable, complexity science indicates that it may not be productive for

the construction of group understanding. There is a need to help participants in ALNs to express their views while still maintaining positive social relationships.

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