A Comparative Discourse Analysis of Online and Offline Knowledge Building Activities

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Abstract: This paper suggests that online collaborative environments like Knowledge Forum provide an important arena for students to exercise their ability to formulate reflective ideas. A discourse analysis of three primary 4 classes' verbal and written activities during a two-week science unit showed that, during online activities there was a significant increase in the number of words students used to answer questions and a higher diversity in the types of questions and answers online as compared to those in the classroom discourse.

Introduction

Knowledge Building as a research discipline has aimed to transform educational settings to move away from didactic teacher-centered to learner-centered constructive pedagogies.. Most of the previous studies, however, have focused solely on analyzing online activities in Knowledge Forum even though areas such as pervasive knowledge building, progressive discourse, and the democratization of knowledge have been identified as important principles of Knowledge Building. According to Scardamaili and Bereiter (2006), *Knowledge Building Discourse* is characterized by progressing mutual understanding rather than simply producing descriptive information for others to agree or disagree with. Our belief is that to create a culture where a community of learner works together toward Knowledge Building, it is important to understand both the classroom and online discourse. Hence, this paper illustrates the contrasting discourse patterns between classroom and online knowledge building activities by revealing the discrepancies between these two settings from qualitative and quantitative views. It should be noted that the purpose of this analysis is *not* to decide which discourse type is inherently more meaningful or better, but rather to describe the nature of discourse exchanges in different contexts.

Methodology

The data presented in this paper comes from the analysis of ten transcribed lessons taken from three primary four classes doing a science unit on the digestive system. To make a comparison between the offline and online activities, we coded the online postings with a set of codes used for the classroom discourse analysis. We then compared the two sets of data to see if there were any significant similarities or differences concerning; (1) the number of words students use to answer and ask questions online as compared to the classroom, (2) the diversity of students' verbal interaction online and in the classroom, and (3) the quality and structure of the verbal and written interactions. On top of the broader qualitative discourse analysis, we chose to conduct a *lexical analysis* (Lee & Fielding, 2004) of text segments coded as (1) teachers' content-related question, (b) students' content-related answer, (c) students' clarification answer, and (d) students' clarification question.

Results

Comparative Lexical Analysis of Online and Offline Discourses

As shown in Table 1 there were significant differences between the classroom and online discourses. The most important finding was the low average number of words that the students used to answer content-related questions in the classroom. It ranges from an average of 2.5 words for classes A and B to 2.25 words for class C. In Knowledge Forum there was a significant increase in the numbers of words that students used for the same verbal activities. The average numbers of words students used to answer the teachers content-related question online were, 22.4 words for the 25 answers posted by Class A. The student in Class B used an average of 18.0 words for 3 answers to the teachers' question (and 11.2 words to 54 student questions). Class C used an average of 36.7 words for their 25 answers posted online. Additionally, the average numbers of words that students used to answer other students' content-related questions were 6.0 words, 11.2 words, and 10.7 words for Classes A, B, and C respectively. There was also a clear tendency to a higher diversity of verbal interactions online as compared to the more didactic teacher-centered discourse used in the classroom. The most obvious difference is the demand from classmates to clarify answers and ideas, something that rarely occurred during classroom activities.

Table 1: Lexical Data: Occurrences and word counts for questions and answers.

	Class A		Class B		Class C	
	Offline	Online	Offline	Online	Offline	Online
Total number of *content question as*ked by teacher	106	3	123	1	42	1
Total number of *content questions* asked by students	10 (to t) 0 (to s)	0 (to t) 11 (to s)	3 (to t) 5 (to s)	0 (to t) 69 (to s)	7 (to t) 2 (to s)	0 (to t) 25 (to s)
Total number of answers to content questions	153 (to tq) 0 (to sq)	25 (to tq) 4 (to sq)	130 (to tq) 6 (to sq)	3 (to tq) 54 (to sq)	42 (to tq) 0 (t 0 sq)	25 (to tq) 18 (to sq)
Average number of *words* student used per content answer	2.5 (to tq) 0.0 (to sq)	22.4 (to tq) 6.0 (to sq)	2.5(to tq) 2.0(to sq)	18.0 (to tq) 11.2 (to sq)	2.25 (to tq) 0.0 (to 2 sq)	36.7 (to tq) 10.7 (to sq)
Total numbe*r* of *clarification questions* asked by students	0	5 (to s)	0	50 (to s)	0	27 (to s)
Total number of *clarification answer* from students	0	1 (to s)	0	16 (to s)	0	9 (to s)

Note: s=student, t=teacher, sq=student question, tq=teachers question

Comparative Discourse Analysis of Online and Offline Activities

The most common pattern in the classroom were the teacher 'content-related question' followed by student 'content-related answer', commonly known as IRE (Initiation, Response, Evaluation), one of the most common discourse patterns in the classroom (Mehan, 1979). The discourse analysis of the classroom lessons showed clear signs of IRE patterns with "quick and short answers". The dominance of this practice is also reflected in the low average number of words students used for answering questions. At only two occasions were the students allowed to clarify their answers and ideas in the classroom setting. The major structural difference between the online and offline discourse can probably be described in terms of 'time'. While working online in Knowledge Forum, the students were given enough time to formulate and think over their answers and questions, there was rarely observed in the classroom discourse. This factor may also contribute to the higher diversity of questions and answers online.

Conclusion

Education is not only about learning a specific content. It is equally important for students to acquire the skills to evaluate information and provide ideas in a critical and reflective manner. These skills naturally improve as the students progress through different stages of development, but ought to be exercised intentionally through all levels of education. The present study indicates that there might be reasons to argue that online collaborative environments like Knowledge Forum allow students to exercise their ability to construct more complex answers, questions, and ideas. The analysis shows that both the quantity and quality of ideas increased significantly during online activities as compared to those in the classroom activities. Knowledge Forum and similar online Knowledge Building environments may provide students with an equal opportunity to express their ideas.

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