

Networked Communication and the Collaborative Development of Written Expression at Key Stage Three

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Introduction

In Britain's inner cities, there are many children with a 'literacy deficit' whose educational potential may not be fulfilled because they lack skills for communication through written language. Previous research suggests that computer-mediated communication (CMC) may encourage the development of literacy skills by increasing motivation and enhancing inclusive participation in text-based discussion. A study was carried out to explore the effect of text-based CMC on the literacy skills of a group of key-stage three children. The results showed improvements in fluency, confidence, argumentation and awareness of audience.

Background

Chapelton and Harehills Assisted Learning Computer School (CHALCS) is an out of school project in one of the poorest areas of Leeds: a district with a multi-ethnic population and high levels of unemployment. Reflecting the composition of the community, most CHALCS pupils are of African-Caribbean or South Asian ethnic origin and, for many of the students, English is an additional language [Ravenscroft and Hartley, 1998].

CHALCS courses include a literacy programme which achieves good results with younger children but is not meeting the needs of the older age group. Therefore, the literacy team suggested that a new programme be developed to target children in the 13-15 pre-GCSE group. These children do not have the basic skills or confidence from which to develop their abilities to write extended texts of the kind required by the National Curriculum. Thus, the programme needs to facilitate the development of these skills, and enhance the confidence of the children in order to provide a basis for further writing work.

The new programme will incorporate a range of computer tools including synchronous online chat. A small-scale study was carried out in order to establish the extent to which online chat would facilitate the development of children's writing. It was hypothesised that the children involved in the study would show

- ◆ an increased fluency and confidence in writing;
- ◆ an increased ability to express their written opinions clearly and articulately;
- ◆ a move from knowledge telling to knowledge transformation;
- ◆ an increased ability to develop and support arguments;
- ◆ an enhanced awareness of audience;
- ◆ a greater willingness to listen to and interact with others.

Studies on the use of computers in writing have demonstrated that the technology can reduce writing apprehension and increase fluency [for example: Neu and Scarcella 1990, Pennington 1996, Phinney 1990, Warschauer 1999]. Pennington [1996] identified four stages of improvement through computer-assisted writing: "writing easier", "writing more", "writing differently" and "writing better". Most of the studies into computers and writing were carried out using word processing but some, such as Sullivan and Pratt [1996] Beauvois [1997] and Warschauer [1999] used synchronous CMC.

Writing involves a process of changing knowledge into text. Flower and Hayes [1980] see this as a problem involving many components: audience expectations, genre conventions and so on and argue that one of the characteristics of a mature writer is the ability to solve this problem. According to Bereiter and Scardamalia [1987], as writers develop maturity they must move from a process of 'knowledge telling' to one of 'knowledge transformation'. 'Knowledge telling' may be defined as the simple disgorging of everything a writer knows whereas 'knowledge transformation' is the process of converting knowledge into a text which is appropriate to the context and audience. The immediate reader responses provided by synchronous CMC should assist children to make this move from knowledge telling to knowledge transformation.

Collaborating, discussing and arguing with other people can scaffold the development of reasoning and writing. Kuhn et al found that, after engagement in dyadic discussion, people were able to support their ideas with more and better arguments. Burnett [1993] found collaboration scaffolded writing most effectively when the authors engaged in 'substantive conflict' rather than consensus. Mercer et al [1999] came to a similar view; they defined children's talk as 'exploratory', 'disputational' or 'cumulative' and concluded that 'exploratory talk' (involving active discussion of ideas) improved children's reasoning skills. A CMC environment provides a rich setting for discussion and conflict to occur and should thus lead to an improvement in the children's argumentation and reasoning skills.

One of the claims made for CMC is that it enables people to participate more equally in a discussion [Sullivan and Pratt 1996, Warschauer 1996]. In particular, Warschauer [1996] compared face to face and electronic discussion with racially mixed groups and found that ethnicity was a factor in limiting a student's face-to-face participation but did not restrict CMC engagement. In a mixed group such as a CHALCS class, this democratisation could be significant. However, Robertson et al [1999] noted that in CMC, people can "form cliques without appearing rude" [232] - although in Robertson's study the children were anonymous.

Method

Each session was led by a tutor from the CHALCS literacy team. On several occasions, especially in the early weeks of the study, the researcher was also present. The first part of the session (usually one hour but occasionally longer) was given to CMC using the 'chat' feature of WebCT, a virtual learning environment. The remainder of the class time was used for activities not related to the study (for example, SATs practice).

Results

All of the chat sessions were logged. Three early sessions and three later sessions were analysed to determine average turn length, number of turns on topic and number of turns containing reasons (indicated by causal discourse markers such as 'because and so). The results are shown in Table 1.

As Table 1 shows, the children's writing increased in length and complexity, indicating an increase in overall fluency and confidence. In the early sessions, there were more turns in a discussion but the turns were significantly shorter than in later weeks. Furthermore, the longest turn in the later sessions is much longer than in earlier classes. As Examples 1 and 2 show, the longest single turn on 30/4 is shorter and of poorer quality than the longest turn on 9/7. Moreover, on 30/4 only twenty-six turns (6.9%) were more than 10 words long including only two (0.5%) more than 20 words in length. On 9/7, on the other hand, forty-three turns (23%) contained more than 10 words with twenty of these (10.6%) being more than 20 words long.

	Topic	Words	Turns	Mean turn length	Turns on topic	Turns with reasons
30/4	Aliens	2021	373	5.41	21.4%	1.07%
7/5	Pop Music	1880	323	5.82	44%	4.02%
14/5	TV	831	219	3.79	78%	3.1%
18/6	Is School Fair?	1127	76	14.82	78.9%	22.3%
2/7	Women in Sport	883	75	11.77	93.3%	21.3%
9/7	Family Roles	1549	187	8.28	73.2%	11.7%

Table 1: Analysis of logged chat sessions
(NB only child turns have been counted)

120	Jabir	once upon a time i got abducted by four Aliens. they took me in there space ship and swore to kill me so I did my raping bad man way and beat thay back side goog Jabir Dj Funk gravity 99" click
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Example 1: Longest single turn 30/4

188	Shabbana	Men and women all have equal rights to anything done in a family house - hold. People say that a father is the head of the house but to me I think that the person who wrote that is not clever. This is because I feel that anyones mum and dad is the head of the house. I feel that mums and dads and children should all become a team and do all the house work together. Not just the mum doing all the work.
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Example 2: Longest single turn from 9/7

Example 1 and Example 2 also indicate how the quality of exchanges changed during the study. In later sessions, the children were more able to use reasons to support and justify their opinions; furthermore, those reasons are more likely to be coherent. For example on 7/5, Mustafa gave the following reason for liking pop (Example 3) but it begs the question because, obviously, nobody likes music that they do not consider good.

13	Mustafa	I like pop music because they are good unlike Jazz.
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Example 3: Supporting 'reason' from 7/5

Example 4, on the other hand, shows a functional argument supported by some evidence: (following Kuhn et al [1997] who categorised arguments as non-justificatory/ justificatory and non-functional/functional):

90	Mustafa	I think men are offered more jobs than women becuae women are sometimes weak and can't lift heavy things like men.
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Example 4: Argument from 2/7

As the programme developed, children were also more likely to ask for and pay attention to the views of other participants. In the early weeks children tended to disagree without reasons, dismissing opinions with which they did not agree. For example, in Example 5, Mustafa, Drake and David use repeated 'z's to express their disdain for jazz.

Discussion

The most striking result of the online chat is the extent to which the children's writing increased in length and complexity. They were more able to use reasons to support and justify their opinions and were give consideration to the views of other participants. In Pennington's terms the children were "Writing Easier" and "Writing More" and "Writing Differently" [Pennington, 1996].

Although some children had these skills from the outset, others developed them during the programme. This suggests that the children were increasing in self-assurance: both in the belief that they had something which was worth saying and in their abilities to write it coherently. This is supported by the children's own evaluations in which some of the pupils commented that they had become more confident as a result of the CMC.

The children seemed to realise a need to communicate their ideas and opinions to other members of the group. Furthermore, in the later weeks the children were willing to challenge those whose opinions were not sustained by evidence. Some of the children commented that they had learned to pay attention to other peoples' opinions and to see matters from different perspectives.

There is some fluctuation in the results; for example, 14/5 had shorter mean turns than the two preceding weeks but significantly more turns on topic. 9/7 had shorter average turns than 18/6 or 2/7 (although still significantly longer than the earlier sessions) with fewer turns containing reasons. This could be due to variations in topic; there was a lot of agreement on 9/7, for example leading to a number of short turns such as 'yes' or 'I agree'. Discussions became more focussed as the children gained confidence; in the early phase the children suggested broad categories such as 'pop music' but as the programme progressed, they were more likely to pose questions such as, "Is school fair?"

It should be noted that the tutor believed the chat had helped children to take more care with spelling and grammar. The children often challenged each other's spelling/grammar and the tutor thought that this encouraged children to think more about making their writing understandable. This suggests a developing awareness of audience.

Conclusions and Recommendations

The results indicated that the chat facilitated an increase in the children's confidence in their own writing abilities, in their self-esteem as writers and an enhanced awareness of audience. This improved the children's ability to construct and put forward an argument, showing a move from knowledge telling to knowledge transformation. However, the CMC chat was informal and did not require the children to write extended texts where the writer needs to consider the overall structure and genre of a document. Therefore, a bridging programme needs to be designed so that the children can transfer their new skills to other writing contexts. This could comprise the following stages:

1. CMC discussions;
2. Collaborative authoring (for example, using MS Word with NetMeeting);
3. Individual authoring and collaborative editing/revision, sharing documents via email;
4. Individual authoring.

More detailed and systematic research needs to be carried out in order to determine how far text-based CMC enhances the self-esteem and confidence of developing writers. There should also be pre and post testing of children's written work in other contexts in order to determine the extent to which skills developed through the programme can be transferred to other situations.

Note

In the interests of confidentiality, the names of all the children have been changed.

Acknowledgements

This research is funded under ESRC Case studentship in collaboration with Chapeltown and Harehills Assisted Learning Computer School. Thanks are due to Mr Brainard Braimah (Director CHALCS) and Mr Abdul Jalloh (Literacy Tutor CHALCS) without whose support this work would not be possible.

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World Wide Web

CHALCS <http://www.chalcs.org.uk>

WebCT <http://www.webct.com/>

Appendix - Children in the Study

	Girls	Boys
Asian (Pakistani)	5	
West Indian	4	5
African	1	
Arabic		1
Arab/Asian		1
African/White		1
White	1	
Total	11	8

Table 2: Children in the study cohort by sex and ethnic group

School year (age)	Number of children
6 (10-11)	1
7 (11-12)	4
8 (12-13)	6
9 (13-14)	7
10 (14-15)	1

Table 3: Ages of the children in the study cohort