Children's Communication when Composing Music Collaboratively with and without ICT

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ABSTRACT

This paper aims to compare the communication between primary school pupils during a computer- mediated music composition and the traditional one. The differences of students' verbal and non-verbal communication between the two composing processes are explored and modelled. For this purpose, video recordings of students' communication were gathered and analysed qualitatively. The results from this case study in Cyprus reveal differences in children's talk and body language between the two composing processes which are related to the interaction with the composing tools.

KEYWORDS: *Verbal communication, Non-verbal communication, Computer-based music composition*

INTRODUCTION

Talk between pupils and its educational value has been the focus of several studies especially in subjects such as mathematics and science (e.g. Mercer 1995; Wegerif, 2005). Most of these studies stress out the importance of the communication mediation tool in students' collaborative learning. Computers are among the tools which can enhance students' collaborative learning by supporting pupil-pupil talk. Even if the value of talk has been examined extensively in several closed tasks which look for a correct answer such as maths and science (Dillon, 2003:894), there is scarce literature regarding students' collaborative talk during computer-mediated music which is an open-ended task. As a result, the present paper is focused on revealing the qualitative differences of students' collaborative talk along with non-verbal communication between two composing processes using different tools. One of the composing processes will be carried out with the use of the software *Audacity* (CPIA) and the other one will be the traditional one, using musical instruments (CPOA).

LITERATURE REVIEW
Verbal Communication

Among the few studies investigating collaborative communication in computer mediated open-ended and creative tasks is Dillon's study (2003). Dillon examined children's communication when composing using the software *ejay* and concluded with the four most common dialogue categories; "musical suggestions" (introduction of new musical ideas), "musical extensions" (developments of previ-

ous suggestions), "positive support" (agreement and support for interaction) and "questions".

Mercer (1995) on the other hand, identified three categories of talk when investigating collaborative talk in non-musical computer based activities. "Disputational" talk is characterised by individualised decision and disagreement with what has been said. "Cumulative" talk, involves positive but uncritical comments on what was said. Finally, in "exploratory talk" collaborators engage critically but constructively with each other. Bullock (1975), supports that exploratory talk is the most desired talk in education because it involves advanced reasoning and it makes the people more aware of their knowledge (cited in Auker, 1991). However, according to Wegerif (2005) open-ended tasks are usually related to creativity which requires exploration of ideas and imagination and not necessarily reasons for each choice made.

Non-verbal Communication

Neill and Caswell (1993) investigated body language during cooperative work and suggested five categories. The first category refers to the "posture and the use of space" (distance between the people and position of their bodies). The second category is the "gaze" (showing feelings such as admiration). The third category is the "facial expression" (like frowning) and "head position". The next category is "intonation" (tone of the voice such as enthusiastic). The final category includes "gestures" (speech and emotion related) and "hand signals".

In this study, non verbal communication will be studied in relation to the meaning collaboratively constructed during the composing process adopting Mead's (1934) suggestion that actions such as gestures become signs and messages only within a flow of meaning as they are not in themselves specific messages.

METHODOLOGY

A case study was conducted in a public primary school in Cyprus with a group of four nine-year old students (Females=1, Males=3). The group was formed based on the following criteria; small, mixed gender, close friends. Participants equally experienced both composing processes for six months. After this, they were asked to create a music piece of their choice in two separate sessions, firstly without and then with *Audacity*- randomly selected. Children's talk was video-recorded and analysed verbatim along with the non-verbal communication. Data was re-examined repeatedly so the verbal and non-verbal categories were formed. However, it must be said that there are points of overlap between talk categories within an exchange.

FINDINGS

In this part of the paper the case study findings in relation to the categories (nature) of talk and non-verbal communication present during the two composing processes and the effect of the composing tools on students' communication (quality) are exemplified.

In the following table (1) the categories of collaborative talk are presented.

Table 1: Categories of Verbal Communication

Category	Description	Excerpt
Technical	Talk about how to use the software	-Drag the browser and press play.
Uncritical	Expression of an idea	-Let's start with this song.
Explanatory	Explanation of an idea	- Let's bring more instruments. It will sound nicer.
Reflective	Evaluation of an idea.	- Let's record applauses and make it sound like "bouzoukia".

Students in CPIA talked before recording their musical ideas, while and after listening to them. In CPOA, students had to stop performing when talking. Furthermore, in CPIA students discussed using terms offered by the software interface such as "fade in" and "change of pitch" some of which were musical. Interestingly, students in CPOA also used terms such as "fade out" by transferring their knowledge from one experience to the other. Moreover, a distinct type of talk was present during CPIA called "technical talk". This kind of talk is valuable because children negotiate the relationship between the visual and aural perception of the changes made to their composition.

Considering non-verbal communication four categories were identified as shown in the following table (2).

Table 2: Categories of Non-verbal Communication

Category	Description
Students in CPOA composed in a circle, promoting constant eye-contact and	
Facial Expression	communication using face muscles
Gestures	communication using hands
Body movement/posture	communication using body
Intonation	communication using voice tone

synchronisation between themselves. They smiled when they were satisfied with their composition and frowned when they were not. They moved in the space by holding their instruments. They used gestures such as grapping the air in order to stop all together. In CPIA, students' interaction was mediated through the computer screen. They sat side by side facing the computer which caused confusion over "getting in" and when "to stop" during composing. This happened because children missed the messages given by their peers' body language. Finally, students' position in the space, determined by the use of the composing tool, had an impact on their role within their group. In CPOA, children stood in a circle having equal position and thus the role of the leader was shared among the children. Whereas, in CPIA the leader was the one who held the mouse and through whom changes in the composition were done and thus judged.

CONCLUSION

This paper has attempted to reveal the effect of different composing tools on students' collaborative communication. The case study results have shown that composing with the use of *Audacity* has made the children use a distinctive category of talk called "technical talk". Moreover, students used musical vocabulary offered from the software. Regarding non-verbal communication, using different tools had an effect on students' position in the space which consequently affected their role within the group and their interactions. In conclusion, children should experience composing using different tools because each tool contributes differently on students' communication which accordingly enables them to construct meanings collaboratively.

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