# Musical Composition and Creativity in an ICT-Enriched Learning Environment—a case study

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## Abstract

This paper describes recent research into professional level music software as an effective learning tool for primary school creativity and composition. It looks at the software, the environment—both physical and teaching—and at composition and creativity. It fits into the theme of Teaching Environments.

*Keywords*: Composition, creativity, computers.

### Introduction

A ten-week research project placed eight children from Grades 3 to 6 (approximate ages 9 to 12 years) in a rich ICT learning environment. The study sought to investigate ways in which professional level music software could be used as an effective learning tool for creativity and composition in primary school children. This paper describes that environment and the software used before presenting a brief case study of one of the participants, 'Natalie.'

### The Software

The use of the term 'professional' is important to the context of the study. Since this study was interested in creativity and composition, not in learning music, it was not appropriate to use 'teaching' software that was designed to follow strict compositional and musical guidelines. Inherent to the design of this study was the exposure of children to content-free software that placed no restrictions on their creative potential. The study required a rich musical software environment; an environment that provided a full set of features to allow complete creative and compositional freedom.

The study used two commercially available products, both of which were provided by the companies, free of charge, to conduct the research. Neither company placed restrictions on my use of the software, nor did they set, or seek to set, any outcomes from the research.

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Cool Edit 2000 is a four track hard disk recorder that provides advanced filtering, effects and mixing. The main difficulty experienced by the participants in using this program was in file management. Cakewalk Pro Audio 9 is a midi sequencer and an audio recorder. In this study, I used it as a midi sequencer only; this was done in an attempt to avoid possible confusion about the use of two formats in one application. This study used the General Midi sound set, which avoided the need for defining different instruments. Technical set up considerations were not part of the study and I made all the necessary connections and definitions. The main difficulty faced by the participants was that of assigning tracks and channels to allow for multiple midi track recording. This problem was relieved to a degree by the creation of a specific template for participant use.

### The Environment

The physical environment for this study was far from ideal. The study was conducted in the school's computer lab, a relocated classroom that used tables of different heights as computer benches. No provision had been made to accommodate music technology. The four midi keyboards were borrowed and only two were the same. The computers used were between one and four years old and varied in capacity from 133Mhz with 32 mb of RAM to 733Mhz with 256 mb of RAM. These computers are typical of the type found in Victorian primary schools. It could be argued that this physical setting precludes itself as being described as 'an ICT-enriched learning environment.' The richness of this environment comes not from the physical but from the software, its use, and the teaching that accompanied its introduction.

The software environment, as described above, provided the basis of the study. Over the ten weeks of the study, the participants were supported through the introduction of a series of tasks that were designed to develop the skills necessary to complete a final four-week task. The participants were encouraged to experiment, to make choices about content, to collaborate, and to have fun. The small size of the group allowed me to work closely with each individual as the need arose.

### Composition and Creativity

The interpretation, assessment and understanding of children's composition and creativity was essential to this study. Swanwick (1989: 43) defined composition as 'the

act of making a musical object by assembling sound materials in an expressive way.' This study used his definition to place the children's works in context. Amabile (1983) uses a 'conceptual definition of creativity' in an attempt to measure and assess creativity. She says:

> A product or response will be judged as creative to the extent that (a) it is both a novel and appropriate, useful, correct or valuable response to the task at hand, and (b) the task is heuristic rather than algorithmic'
>
> (Amabile 1983: 33).

She adds that a final criterion for creative assessment is 'reliable subjective judgment.'

## Natalie—A Brief Case Study

Natalie is in Grade 6. A final project task, set in the seventh week, required the participants to create a multitrack work that used both programs. The subject matter was not indicated, nor was the style of the work. It could be an advertisement, a song, a story, or any other work. This task appealed to Natalie and she set about composing with great enthusiasm. By the end of the set project, she had produced a remarkably complex and complete piece.

Natalie had little trouble using either program. She used each program appropriately, was able to utilise the required components and managed to save nearly all her files correctly. With Cool Edit, she liked the idea of being able to 'play around with all different sounds'[1] and, if she didn't like them, being able to change them. She had a good understanding of mixing down and demonstrated an organised approach to using the program. Natalie was one of only two participants who preferred Cakewalk to Cool Edit she said:

> I think I liked it better, it was better because you could see the whole thing, and you could get more sounds, all at the same time and have like all different sounds playing at the same time. Without having to just do four at a time without having to mix down and everything.

She liked 'having all the sounds' and the ability to 'have other sounds being louder than other ones.'

## The Composition—'TinkerBell'

The idea for her piece came from a desire to be a singer. She wanted to create a band using Cakewalk. The software provided a great range of drum tracks that she could use. Initially she tried to make her own drums but found that very hard, she said:

> … I couldn't get the right sound and um how to do the big drum rolls and everything. It was just harder doing it on the keyboard because you couldn't find the right sounds.

When she found the right sound the rest fell into place. Her use of form and her considerations of style and melodic structure were influenced by the drum track. This does not diminish the composition; it serves to demonstrate that she could work creatively and appropriately within a formalised structure.

Quite clearly, Natalie was making creative decisions in advance of making sounds. She wanted rock band-type instrumentation and she wanted a tune to go with the beat. She became a little stuck after she had the drums and melody. It was difficult for her to take the next step. Knowing which notes to play was a problem, I suggested that she could try a one-note bass playing four to the bar. She liked the suggestion and began recording her bass line. She chose to stay with the one-note line but added rhythmic variation in the chorus.

During the final session she managed to add a guitar, a harp and a tinkerbell sound. As well as recording the whole thing into Cool Edit, adding a vocal introduction and mixing down. Her clear understanding of what she wanted and her desire to keep it simple shows a remarkable intuitive maturity. The clearly defined four bar phrasing, the obvious A A B structure, and an acceptable use of both harmony and counterpoint further demonstrate the complexity of her composition. It can be argued here that the software has enabled Natalie to achieve far more in her composition than she could possibly achieve without it: for her to compose to a level beyond her musical skill.

## Conclusion

> Composing is a fundamental human activity, whether we compose with words, with blocks, with paint or with tones … giving access to the many languages of the human mind is the work of education. (Bissex, in Upitis 1991: ix)

The beauty of using advanced music software is that it provides a vehicle for children to explore their creativity in a powerful way. Musically, they are not bound by the restrictions of lack of musical skill and knowledge, they are not reliant on other musicians to perform their works, they do not need to have an extensive knowledge of orchestration and instrumentation, nor do they have to wait for everything to be played to hear if it works. All of these restrictions are eliminated; their results are immediate and rely solely on themselves, and they can experiment with a range of sounds 'unlikely ever to be present in a classroom' (Weidenbach 1998: 2). The focus of composition is changed from writing – as in notation and form – to building and hearing.

Music software does not have to be restricted to the music classroom. Multitrack recording can be used as an alternative to or as an adjunct to story writing, it could be used to create a radio-style advertisement or play. The possibilities are great and provide an interesting alternative to traditional and non-traditional presentation modes.

If giving access to the many languages of the human mind is the work of education, then music software and

[1] All participant quotations are taken from transcriptions of recordings of project sessions or from interviews with participants. See Reynolds (2001).

good teaching practice provide a new way to open a pathway for those many languages.

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