Learning to compose using interactive technology: A case study investigation of whole-class composition processes using the MIROR Platform in a Greek primary school

Triantafyllaki, A.*, Kotsira, L.** & Anagnostopoulou, C.*

**Department of Music Studies, National and Kapodistrian University of Athens*
***Athens College Elementary School*

Introduction: Advances in music technology have profoundly affected the research and practice of children's creative music-making, including composing (Burnard, 2007). Related research has investigated the affordances of the technology when composing, the different strategies children use when interacting with the software, the use of technology as a pedagogic change agent, or the use of the technology in studying creative processes. Yet, the pedagogical interaction between teacher and students during composing experiences (Ruthmann, 2008) is less explored, particularly at the primary level of education and while using new music technologies to compose. As such, the pedagogy of composition using new music technologies remains an area in need of further exploration, particularly in the case of whole-class teaching that continues to be the main strategy for music teaching in the Greek primary sector.

The Study: In this case study investigation, part of the FP7 European research project MIROR (Musical Interaction Relying on Reflexion, see www.mirorproject.eu), we investigate the ways in which a primary school teacher engages a class of 25 eight-year old children in composing across a three-month intervention, using the interactive reflexive music system MIROR Compo (see Addessi *et al*., 2012). The technology was used/integrated in one of two weekly music lessons (40 minutes/wk). In particular, the study explores the pedagogical practice of using MIROR Compo (MC) in whole-class teaching situations and focuses on students' understanding of the fundamental musical concept of structure as it is developed through classroom dialogue. The MC system encourages users to draw on their own previously generated improvisation-type melodies in a sequential way, and proposes various new musical phrases based on these initial melodies. This process allows for compositional elements such as repetition, variation, transformation, contrast or use of original material to be manipulated in forming a new composition.

Reflection on teaching composing using MC: The study is currently in its final weeks of completion. A range of data have been collected, including teacher interviews and reflective writing, children focus group interviews, classroom observations, and musical data from the system. Two excerpts below from the teacher's reflective writing are presented here as examples that serve to highlight some of the issues that are emerging for the study as a whole.

> *Reflective Excerpt 1: When we entered the stage of composing with the technology I really wondered about whether to interfere in the process, providing from the beginning some parameters. The composer Igor Stravinsky in a series of lectures in 1939-40 has said: The more I constrain my activity and myself, the*

larger and full of meaning my freedom will be. I really felt that some of the children saw the creative process of composing as a threat, considering perhaps they were not able to produce something creative. So I decided to draw some parameters that would unlock the creativity that I feel is present in every human being, careful at the same time not to limit those children who seemed at ease with the activities. I considered it would be really important to be able to balance the lesson somewhere between freedom and constraints. This was achieved I feel through some scaffolding of the activities in groups that needed me, acting as a safety net almost so they could proceed… It is very important and interesting that children's views arose from a process that placed them in control of the procedure and emphasized personal agency.

This excerpt highlights the significance of the role of the teacher in scaffolding and encouraging children's thinking and learning by setting parameters for the composing task. We see here how the teacher struggles with making an informed decision about when and how to provide guidelines for the composing task, careful not to restrict learner agency in the process (Ruthmann, 2008) and balancing her pedagogy somewhere between freedom and constraint.

Reflective excerpt 2: The children saw how it was possible to be 'stuck on something' and then to become 'un-stuck'; how it was possible to deal with a situation and not lose sight of the aim; and how weaknesses are shared by everyone. My role was important here as I suggested solutions, being however careful not to make judgments. Children practiced listening, analyzing and describing the musical result, asking their classmates to explain or support their compositions, the end result.

In this example we see how the teacher places emphasis on dialogue, questioning and an analytical attitude to learning in her classroom when using the program. As key authors in generalist educational research suggest, dialogue lies at the heart of how children learn and develop through classroom experiences (Alexander, 2004/2006; Mercer & Littleton, 2007). In the context of music composition with young children, Major & Cottle (2010) suggests how the role of the adult is significant in creating time and space for rich conversational experiences which contribute to the development of young children's thinking and understanding.

Concluding thoughts: The kind of pedagogical practices fostered through engaging with the MIROR Compo system seem akin to those found in 'possibility thinking'; the teacher seemed to balance teacher and child-led initiatives, explicitly fostering a sense of agency in her young learners (Cremin *et al.*, 2006). In this case study, the introduction of the MC system in a whole-class teaching situation was assisted by (but also encouraged) a learner-centered pedagogy based on inviting children's reflections on the composing process through classroom dialogue. Further analysis aims to highlight learners' processes of problem-finding and problem-solving through classroom talk while engaging with the MC system.

Acknowledgments

The work described here forms part of the MIROR European project, co-funded by the European Commission under the Information and Communication Technologies (ICT) theme of the Seventh Framework Programme (FP7/2007-2013).

References

Addessi, A.R., Volpe, G., Varni, G., Newman, S. (2012). Children music-making with interactive reflexive technology. A case study of spiral model of specification. In the *Proceedings of the eChallenges e-2012 Conference*, 17-19 October 2012, Lisbon, Portugal.

Alexander, R. (2004/2006) *Towards Dialogic Teaching: Rethinking Classroom Talk*. Cambridge: Dialogos.

Burnard, P. (2007) 'Reframing creativity and technology: Promoting pedagogic change in music education'. *Journal of Music, Technology and Education*, 1(1), 37-55.

Cremin, T., Burnard, P. & Craft, A. (2006) 'Pedagogy and possibility thinking in the early years'. *Thinking Skills and Creativity*, 1(2), 108-119.

Major, A. & Cottle, M. (2010) 'Learning and teaching through talk: Music composing in the classroom with children aged six to seven years'. *British Journal of Music Education*, 27(3), 289-304.

Mercer, N. & Littleton, K. (2007) *Dialogue and the Development of Children's Thinking*. London: Routledge.

Ruthmann, A. (2008) 'Whose agency matters? Negotiating pedagogical and creative intent during composing experiences'. *Research Studies in Music Education*, 30(1), 43-58.