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Web-based Composition: Removing barriers to increase composition opportunities in upper primary classrooms

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Abstract

In recent years there has been a trend towards music curriculum documents giving emphasis to composition in upper primary school levels. This emphasis is consistent across current national documents of Australia, Canada, England, New Zealand and the United States. However, while this trend is prevalent, there are counter trends that pose barriers for classroom implementation of composition opportunities for students. These include low primary teacher music confidence and competence, a rarity of specialist music teachers in primary schools, and a lack of time allocated for music education in the primary school programme. The focus of this presentation is an investigation into a proposed approach to resolve these counter trends through a web-based system.

The approach involves a New Zealand project called 'Compose'. The project is a three-way web-based partnership of composition learning and teaching between a music specialist/composer, a generalist teacher and participating students.

An initial study has been undertaken to evaluate 'Compose' as a way to increase composition opportunities for year 8 (twelve-year-old) students. Pre- and post-data were gathered that estimated the effects of the 'Compose' project, using quantitative and qualitative measurements.

Data analyses showed increases occurred in student composing opportunities. A specialist's provision of resources and support strategies enabled the involvement of the generalist teacher in appropriate ways, and acquisition of composition skills and knowledge led to improved student attitudes and confidence about capacity for composition. The flexible delivery afforded by the web-based system contributed to increasing composition outcomes.

The initial data indicate that the 'Compose' project offers a potentially viable way to increase composition opportunities. Further testing of the project's viability and wider application is planned. Additional aspects to be examined are the infusion of the project

into teacher education by having student teachers work alongside the specialist as co-mentors to the school students, and the role of the specialist/composer as perceived by the school students.

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Perspective and Purpose

Music Education is recognized worldwide as being able to provide students with opportunities for self-expression, creativity and development of potential. Within music education, composition is acknowledged as a core activity that helps to achieve such opportunities. This emphasis is consistent across current national documents of Australia, Canada, England, New Zealand and the United States. The common intent is that children in upper primary school should have quality ongoing opportunities to develop their composition skills in their schooling. However, so far in the case of New Zealand, national monitoring data (Flockton & Crooks, 2005) resulting from three studies in 1996, 2000 and 2004, of year 8 (twelve-year-old) students, indicate little or no increase in composition progress. Similar trends have been reported in England by Barnes (2001) and in the United States by Reese (2001).

Reasons for the lack of progress appear due to several barriers. Specifically documented relevant international issues include low primary teacher confidence and competence in music (Young, 2001), the decline of pre-service primary music teacher education (Bolton, 2002; Doddington, 2004; Stevens, 2003) and a lack of time in the primary school programme for music education (Barnes, 2001; Doddington, 2004; Stevens, 2003).

Innovations are needed to increase composition opportunities for children. This paper reports on a proposed New Zealand approach to resolve issues through a web-based

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partnership of composition learning and teaching between a music specialist/composer, a generalist teacher and participating students. Data about the effects of the project are presented and indicate robust viability of increased learning and attitudes of students.

Defining the problem: The case of New Zealand

The case of New Zealand (NZ) can bring a perspective to the international problem. There are three general barriers to composition opportunities occurring in NZ upper primary classrooms.

One, primary school music is for the most part delivered by the classroom, generalist teacher. While some of these generalist teachers instigate very effective music programmes, many undertake the minimum of music delivery (Education Review Office (ERO), 2004). Activities often centre around singing with composition clearly under-represented (Flockton & Crooks, 2005). The continuing demise of NZ pre-service generalist music teacher education (Bolton, 2002) has meant there is little chance of most new generalist teachers having the desirable level of skill and knowledge required to offer appropriate compositional programmes in their classrooms.

Two, there is low priority for the provision of specialist music teachers in primary schools. Where specialist music teaching (ie. teaching delivered by people with music skills and pedagogical knowledge) has occurred in primary schools it has often produced quality, varied music experiences for children (ERO, 2004). These improved opportunities occur on an 'ad hoc' basis however, and are unequally accessible by many schools.

Three, there is a lack of allocated time for music education in the primary school programme. An increasingly crowded primary school curriculum, an expansion of the traditional arts curriculum delivered (music and visual art) to multiple arts (eg. addition of

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dance and drama) and increasing prominence given to numeracy and literacy learning all contribute to a lack of time for music education.

Proposed solution: A design to increase composing opportunities

ICT developments

Running parallel to the series of issues for music education and composition outlined above is the increasing prominence given to ICT resourcing in NZ primary schools (Ministry of Education, 2005).

This trend, along with the acknowledged disposition of NZ children towards such technology (Dye, 2005) is making for some successful web-based projects of learning in science, social sciences and technology curriculum areas (Learnz, http://www.learnz.org.nz; Trewern & Fry, 2001). Some success is also being achieved with web-based, interactive professional development initiatives for primary teachers (Trewern, 2001).

The continuing emphasis given to ICT work in NZ primary schools presents potential for the development of better composition opportunities in our classrooms.

The ability to be equipped with computer technology means primary schools potentially provide access for students to music composing software. Accumulated international literature indicates that music computer technology can make composition more accessible for children (Blane, 2003; Ellis, 1995; Hickey, 1997; Ho, 2004; Jennings, 2003; Reynolds, 2002; Stauffer, 2001; Webster, 1998). It has been recognised that children have minimal difficulty in operating/navigating a computer and software for composition (Hickey, 1997; Stauffer, 2001) and that children are highly motivated to work autonomously on computer-based composition with teachers in more facilitary roles (Jennings, 2003).

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There is also increasing evidence internationally, that meaningful web-based partnerships in music composition learning can exist for students (Reese, 2001; Reese & Hickey, 1999; Vermont Midi Project http://www.vtmidi.org).

Three-way partnership: A web-based system

A range of the positive developments in ICT were combined with specific attempts to address some of the composition issues. A project called 'Compose' was the result. The web-based system had three online components: the specialist, the generalist and the student composers as represented in Figure 1.

Online specialist composer
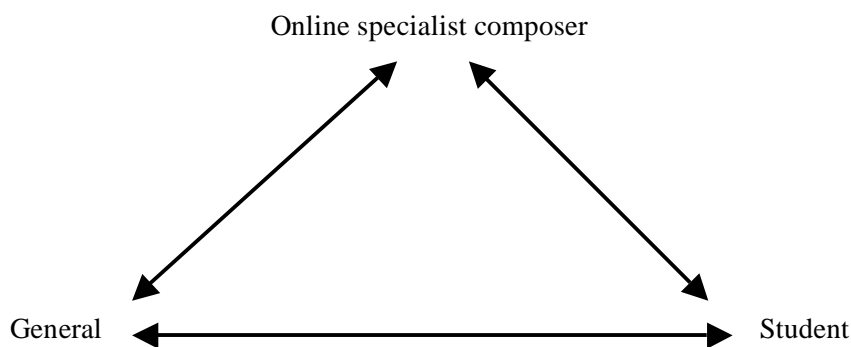
General   Student

Figure 1: 'Compose': a three-way online partnership of learning and teaching

The project was implemented over approximately twenty school weeks. It involved year 8 students and their generalist teacher exploring at flexible times within a school day, compositional techniques with an online, asynchronous specialist music composer/teacher through a specially designed web-based teaching and learning music programme and the Apple software *Garageband 2*. Students created their own compositions using *Garageband 2*, facilitated and mentored by the ongoing relationship with the online specialist and assisted by their generalist teacher. Students' own compositions eventually contributed to a school production. The production also consisted of music especially created by the composer involved in the project.

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The web-based interaction occurred through two 'vehicles': (1) learning material, discussions, feedback and emails were communicated through *Learn OnLine* (Victoria University of Wellington College of Education's e-learning platform) where all 'Compose' participants were grouped like a class in a course; and (2) student compositions were placed as full *Garageband 2* files in iDisk (Apple server storage) where the specialist had a public folder accessible to the students and their teacher. Files were shared between all participants in 'Compose'.

Central to the design of the project (and what appears to be an innovative approach in NZ music education) was the support by a *virtual* music specialist of the generalist teacher in the classroom. The specialist support included providing all learning resources, encouraging participation in the same skill building that the students were experiencing and continuous engagement in 'discussion' of issues with solutions offered.

There were four other key aspects to the project's design and implementation: easy web accessibility for the students to the specialist teacher; the establishment of a positive specialist teacher-student relationship; the use of a user-friendly, intuitive music software program such as *Garageband 2*; and a carefully structured, sequential, interactive program of composition learning.

Research design and methodology

Implementation of the 'Compose' project was examined by the collection of pre- and post-test quantitative and qualitative data. The school participants were a non musically-skilled generalist teacher and eight of her ordinary year 8 students who chose to be involved in 'Compose'. There was no music programme operating in the classroom, only year-level, mass singing. A year 8, eight-student control group (not participating in 'Compose') from

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another classroom with similar characteristics was established for some data comparisons. The researcher was the specialist and composer.

The school was well equipped with eMac computers, a school network and broadband internet connection. It had one usb music keyboard shared around the computers.

Quantitative and qualitative data collected focused on learning and attitude benefits for students. Also examined were the potential empowerment of the generalist teacher and the impact of flexible delivery afforded by a web-based system on increasing composition opportunities. The methods of data collection were as follows:

Student learning and attitude

Three measurements were used:

Vocabulary test

A multi-choice, 33-item vocabulary test of musical/*Garageband*/composition terms was administered to both the 'Compose' and control groups, pre- and post-project, to measure possible knowledge gain. The project had not set out to teach this vocabulary as such. Rather, it was embedded in the experiences.

Self-concept rating and comments

Four different statements about self-concept in composing with computers were rated by both 'Compose' and control group students, using an 8-point rating scale (ranging from 0 'no idea' to 7 'really make it work'), pre- and post-project. Students had the opportunity to comment on each statement. Teacher observations were also sought.

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Student music opportunity rating

'Amount of in-school music opportunity received' was rated by both 'Compose' and control group students, using a 6-point rating scale (ranging from 0 'not at all' to 5 'a lot'), pre- and post-project.

Empowerment of the generalist teacher

Pre- and post-project, the teacher rated 'own composing skill level' and 'amount of opportunity to work with students making their own music' using a 6-point rating scale (ranging from 0 'no progress made' to 5 'considerable progress made'), and 'the extent to which she wished to familiarize other people with the progress and process of facilitating 'Compose' using an 8-point rating scale (ranging from 0 'irrelevant' to 7 'very true of me now'). Open-ended question responses were also gathered.

Impact of flexible delivery

This was measured in observations recorded by the classroom teacher and the specialist.

Data Analysis and Findings

Student learning and attitude

Vocabulary test

The mean scores obtained in the vocabulary test are shown in Table 1.

Table 1: Mean vocabulary test scores

	'Compose' group ($n = 8$)		Control group ($n = 8$)	
	Pre	**Post**	**Pre**	**Post**
Mean score	10.87	14.37	10.62	10.25
Difference	+3.50 (gain)		-0.37 (loss)	

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For the 'Compose' group, the 3.50 score increase was a gain in music vocabulary knowledge of 32%. The post-test difference between the 'Compose' group and the control group was 4.12. The statistical significance of this difference was evaluated by calculating the student's t value (Swinscow, 1983). The t value was 2.962 (14 degrees of freedom). We concluded that the main difference between the post-test scores was statistically significant with probability between 0.02 and .01. That is, the 'Compose' group had significantly greater post-test music vocabulary knowledge than the control group.

Self-concept rating and comments

The mean self-concept scores are shown in Table 2.

Table 2: Mean self-concept scores

	'Compose' group ($n = 8$)		Control group ($n = 8$)	
	Pre	Post	Pre	Post
Mean score	2.69	6.63	4.17	4.06
Difference	+3.93 (gain)		-0.11 (loss)	

The post-test difference between the 'Compose' group and the control group was 2.57. The statistical significance of this difference was evaluated by calculating the student's t value. The t value was 2.57 (14 degrees of freedom). We concluded that the main difference between the post-test scores is statistically significant with probability between 0.05 and 0.02. That is, the 'Compose' group had significantly greater post-test self-concept than the control group. For the 'Compose' group, the 3.93 score increase was a gain in self-concept of 146%. The gain was substantiated by 'Compose' group comments such as the following:

> When I first started I didn't really know what to do but I think now I can do real well. (Student G)

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I am a lot better at composing now. Jan (specialist) has helped a lot with the Compose. (Student A)

I think that composing music with Garageband is fun. I think I learnt a lot. (Student C)

It was quite easy and it paid off with the work. I learnt it helps with a great teacher. She's cool. (Student D)

Gain in self-concept was also implied in the following comment about student progress from the generalist teacher:

They ('Compose' students) have developed into teachers as students from other classes who watched in the library during lunchtimes have asked them to teach them how to compose using Garageband. Also other students in the class have got into it in a more structured way, ie. some 'Compose' students have shown them how to add things one at a time, listening then adding more.

Music opportunity rating

The mean music opportunity scores are shown in Table 3.

Table 3: Mean scores of 'amount of in-school music opportunity received'

	'Compose' group (*n* = 8)		**Control group (*n* = 8)**	
	Pre	**Post**	**Pre**	**Post**
Mean score	2.33	3.38	2.33	2.25
Difference	+1.05 (gain)		-0.08 (loss)	

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Given that the pre-test mean score was the same and the two groups were otherwise receiving very similar in-school music opportunities, the 45% gain made by the 'Compose' students was noticeable. Most of the 'Compose' students also post-test rated the 'Compose' project as their most-liked, in-school music activity.

Empowerment of the generalist teacher

The teacher's rating of her 'own composing skill level' increased from 0 to 3 and her rating of 'amount of opportunity to work with students making their own music' increased from 1 to 4. The teacher's rating of the extent to which she wished to familiarize other people with the progress and process of facilitating 'Compose' increased from 0 to 6. These increases were also evident in the specialist's observations of the generalist's activities.

The results indicate a gain in the teacher's composition awareness and are substantiated in the following, typically positive open-ended question responses she offered:

Learning alongside students was invaluable.

The confidence I have gained during this project has been considerable.
Next year it is my intention to continue with this type of composing.

Impact of flexible delivery

Observations recorded by the generalist teacher and the specialist are shown in Table 4.

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Table 4: Observations regarding flexibility of delivery

Composition work and its associated necessary web-based interaction occurred within varying times of the school day for different combinations of 'Compose' students while other class members continued with different schoolwork.

The computers were keenly sought at lunchtimes to continue composition progress and some students also chose to continue web-based interaction out of school hours at home.

The generalist teacher found she could offer some of her students quality music education experiences while simultaneously facilitating other subject learning.

The online specialist/composer could continue her university lecturing responsibilities in a totally different location, yet be a reliable, accessible teacher for the school students.

These observations suggest that the flexibility afforded by web-based learning/teaching contributed to increasing composition activity. The only issue cited by the teacher was the pressure placed on the availability of computer time for general student use when enthusiastic 'Compose' students increasingly used more than their share.

Discussion and Conclusion

International music curricula place priority on composition opportunities in children's schooling. However, there are barriers to upper primary classroom implementation of such opportunities. The 'Compose' project, described above, offered a proposed solution to the problem by focusing on removing three barriers to composition opportunities specifically identified in the NZ setting: (1) generalist teacher lack of music confidence and competence; (2) low level of specialist teacher involvement in primary music education; and (3) lack of time for music education in the primary school programme.

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Bearing in mind the small-scale nature of the study, the evidence showed that increases *can* occur in composing opportunities for students. The 'Compose' project led to students acquiring composition skills and knowledge, and improved attitudes and confidence about their capacity for composition. The project also led to an increased awareness of composition by the generalist teacher and a positive attitude towards facilitating compositional programmes in the classroom. The flexible delivery afforded by the asynchronous, web-based learning/teaching partnership was seen to contribute to increasing composition activity.

The results indicate that the combination of: (1) composition learning incorporating music software and structured, sequenced, interactive resources provided by a specialist; (2) a web-based partnership of learning revolving around a knowledgeable, empathetic, virtual specialist teacher; and (3) a generalist teacher who feels empowered to facilitate composition work at flexible times within the school day, is a potentially viable formula for increasing students' opportunities in composition. Further research is to be undertaken in other schools to confirm or otherwise, the viability of the project.

The research focus will be extended to include more data about the impact of the web-based partnership, as a way to address Rees' (2002) call for more substantive information about collaborative distance learning in music education. The intention is to also gather data about primary students' perceptions of working with a composer as a way to meet Sanderson & Savva's (2004) call to increase knowledge about children's perspectives of artists working in schools.

The role of the specialist is an integral, obligatory part of 'Compose'. If the project is to have effective wider application, it will be necessary to increase the 'pool' of specialist mentors. It is intended that future versions of the project will involve music teacher education students (including future primary generalist teachers) in a tutored co-mentoring role. Precedents for this model exist in the work of Reese & Hickey (1999) and

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the Vermont Midi Project. The asynchronous, online nature of the role means it can be carried out largely at a time and location that suits the student mentor. It is hoped the model could become one way of partially addressing both the low music confidence and competence of primary generalist teachers and the diminishing time given to music teacher education coursework.

New Zealand is currently undergoing school curriculum review. In line with current international thinking, connectedness of learning and a move away from distinct curriculum subject delivery are favoured trends. Music education is required to make clear what contexts it provides for delivery of holistic key competencies such as 'making meaning' and 'using knowledge and information'. Perhaps a multi-faceted project like 'Compose' has the potential to not only provide such contexts but also still offer 'music specific' learning opportunities that most of us in school music education so desire.

Acknowledgements

References

Barnes, J.M. (2001). Creativity and composition in music. In C. Philpott & C. Plummeridge (Eds.), *Issues in music teaching* (pp.92-104). London: RoutledgeFalmer.

Blane, D. (2003, September 5). Rhythm without blues. *Times Educational Supplement*, 21.

Bolton, J. (2002). A multi-arts creative approach to music education: Its impact on generalist primary teacher education students' confidence and competence to teach

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music. In *A community of researchers. Proceedings of the AARME XXIInd annual conference* (pp.31-38). Melbourne: Monash University.

Doddington, C. (2004). Are we in time? Some comments arising from recent research into the initial training of primary teachers in the arts. *Music Education Research*, *6*(1), 97-100.

Dye, S. (2005, July 16). Kiwi children the world's greatest 'cyber athletes'. *The Weekend Herald*, A16.

Education Review Office NZ (ERO). (2004). *Quality of teaching in years 4 and 8: Music.* Wellington: Author.

Ellis, P. (1995). Designing sound: Developing computer support. *Research Studies in Music Education*, *5*, 11-23.

Flockton, L., & Crooks, T. (2005). *Music assessment results 2004*. (National Education Monitoring Report 32). Dunedin: Otago University, Educational Assessment Research Unit.

Hickey, M. (1997). The computer as a tool in creative music making. *Research Studies in Music Education*, *8*, 56-70.

Ho, W.C. (2004). The use of information technology and music learning in the search for quality education. *British Journal of Educational Technology*, *35*(1), 57-67.

Jennings, K. (2003). Toy symphony: An international music technology project for children. *Music Education International*, *2*, 3-21.

Ministry of Education. (2005). *Overview of ICT programmes in schools*. Retrieved 16 August 2005 from:

http://www.minedu.govt.nz/index.cfm?layout=document&documentid=7219&indexid=6919&indexparentid=1024

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Rees, F. (2002). Distance learning and collaboration in music education. In R. Colwell & C. Richardson (Eds.), *The new handbook of research on music teaching and learning* (pp.257-273). New York: Oxford University Press.

Reese, S. (2001). Tools for thinking in sound. *Music Educators Journal*, *88*(1), 42-46, 53.

Reese, S., & Hickey, M. (1999). Internet-based music composition and music teacher education. *Journal of Music Teacher Education, 9*(1), 25-32.

Reynolds, N. (2002). Computers, creativity, and composition in the primary school: An analysis of two compositions. *Australian Journal of Music Education*, *1*, 16-26.

Sanderson, P., & Savva, A. (2004). Artists in Cypriot primary schools: The pupils' perspective. *Music Education Research*, *6*(1), 5-22.

Stauffer, S. (2001). Composing with computers: Meg makes music. *Bulletin of the Council for Research in Music Education. 150,* 1-20.

Stevens, R. (2003). *National report on trends in school music education provision in Australia*. The Music Council of Australia with Australian Society of Music Education and the Australian Music Association. Retrieved 2 February 2005 from: www.mca.org.au/StevensReport.htm

Swinscow, T.D.V. (1983). *Statistics at square one*. London: British Medical Association.

Trewern, A. (2001). Classroom adventures: Supporting technology integration for classroom teachers with online collaborative projects. In K.W. Lai, (Ed.), *E-learning: teaching and professional development with the internet* (pp.129-154). Dunedin: University of Otago Press.

Trewern, A., & Fry, M. (2001). Venturing into uncertainty: Different perspectives on involvement in an online curriculum project - Rescue Me! *Computers in NZ Schools*, *13*(1), 11-22.

Webster, P. (1998). Young children and music technology. *Research Studies in Music Education*, *11*, 61-76.

17

Young, V. (2001). Teacher development in music. In C. Philpott & C. Plummeridge.

(Eds.), *Issues in music teaching* (pp.209-223). London: RoutledgeFalmer.

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