

Music technology and gender: Implications for the music classroom

Clare Henderson

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Introduction

Several years ago, in a local co-educational school running a very progressive music programme, I observed that the girls were very reluctant to utilise the computer music programmes available for notation, recording and sequencing. The boys, on the other hand, needed little encouragement, monopolising the equipment whenever possible. Their teacher and I mused as to why such an imbalance had occurred. Was it simply because their teacher was a male, and being very conversant with computer technology as a practising commercial musician, was therefore a stronger role model to the males in the class? Or was there some deeper underlying issue which we, as music educators, should be aware of when introducing music technology to school students of either gender?

Given the strong push for technology across all curriculum areas in NZ, it seemed timely to research the use of music technology within the schools' music curriculum and to explore gender accessibility within this context. To this end, I investigated the experiences of females in computing and more specifically, their use of music technology for compositional purposes. Now, do not be alarmed. The point of this investigation was not to cast blame, but rather to discover if there are gender specific trends which may effect the accessibility of computer music technology for young women, or any other group like them in society. For surely, any group marginalised from equality of inclusion within a mainstream educational context needs to be targeted for attention. I hoped that the findings of this study would

provide an opportunity to facilitate the use of computers in the educational setting, rather than provide a barrier to student success, male or female.

So what do we know about gender and computing?

I discovered that alarm bells are certainly ringing in regard to the problem of providing equality of opportunity within school - based information-technology (IT). IT is seen as a masculine domain in schools and the workplace (Cole, Conlon, Jackson and Welch, 1994; Freedman, 1997; Frenkel, 1990; Ordige, 1996; Spertus, 1991). There is mounting evidence of a technological gender gap, leaving large numbers of girls unprepared for the technology of the future (Wiburg, 1994/5). Girls take fewer computer science classes than boys; are more likely to take data entry rather than programming courses than boys; and are under-represented in IT at universities and high level careers both in the UK, Europe and the USA (Freedman, 1997 and Ordige, 1996). In NZ, there is a paucity of statistics in this respect, but from data collated from the University of Waikato 1998, 66.6% of the students taking three undergraduate music and computer orientated courses were males.

Concern is also mounting that despite the meteoric growth of the Internet world-wide, it does not include an equal proportion of men and women (Shade, 1993). Males in NZ comprise the majority of users of computer networks. For example, 56% of the several thousand people surveyed on use of the Internet in NZ in 1998, were aged between 25 and 44 years, and 78% of these users were male (survey *www.consult*, 1998).

Boys exhibit higher self-



Clare Henderson
School of Education
University of Waikato

confidence, are more enthused and positive about computers than girls (Wiburg, 1994/5). Boys tend to dominate computers from preschool on and girls let them. Girls get less computer access and experience than boys and are likely to take a more passive role when working alongside them (Cole, Conlon, Jackson and Welch, 1994; Ordige, 1996; Ostermann, 1998). Computer classroom can be 'chilly' for females, who are often uncomfortable with the almost obsessive, highly focussed behaviour of the computer culture (Frenkel, 1990). Girls frequently feel discrimination and prejudice working in predominantly male environments like computer classrooms, which can affect their confidence and ability to perform (Mulaney, 1994; Spertus, 1991). Girls from minority groups (colour and race and socio - economic) suffer even more substantial problems in regards to inclusion (Frenkel, 1990).

Boys are much more likely to investigate their way around new software to familiarise themselves with it. In contrast, girls do not see the point of fiddling around with computers just for the sake of it (Freedman, 1997) and Ordige, 1996). Boys programme and problem solve with computers, whereas girls are

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more likely to use them for word processing. In a nutshell, women appear to see computers as tools; they want to know what it does for them and what steps they must apply to use it: males see them more as toys and are keen to investigate for themselves what it can do for them.

So, girls are behind the ace-ball when it comes to computer utilisation. Why? Perhaps the key is gender stereotyping.

Gender stereotyping

Apparently, gender-stereotyping starts early, with many activities being viewed by even young children as either exclusively the domain of boys or girls. From early on, boys show more interest in how things work than girls: that is, they lean towards science and technology, whereas many girls seem more interested in people and the human body (Ordige, 1996). It has been traditionally accepted that technical subjects are for boys and because computing is regarded as highly technical, it is not surprising that computing and computer magazines (which so often focus more on the technical aspects of computing, rather than on what they can do) will suit boys more than girls (Freedman, 1997).

It looks as if part of the problem is also in toys and games. Boys and girls are often treated differently in childhood, and this is especially evident in the sexual bias displayed in toys. Gift-givers apparently perpetuate this stereotyping giving more vehicles, technical and art educational toys to males, and

domestic related materials and dolls to girls (Spertus, 1991). One wonders if such stereotyping suggests that males are born to build and learn, whereas girls are born to dream about ballerinas, places to visit and things to wear?

The factors which influence the marketing and design of toys also effect computerised games as well. Computer games can help to demystify computers. However, while boys appear to like a game-like approach, girls prefer them to be a learning tool (Huff and Cooper Cooper cited in Frenkel, 1990). Much game software is based on traditionally male interests, such as war, and aggression: games that often exercise control and power, which may be alluring to boys, but are not as appealing to girls. (Freedman, 1997; Frenkel, 1990; Ordige, 1996; Spertus, 1991).

There is also an emphasis on step-by-step division of functions in the writing of computer programmes, something which may be more suited to a male thinking approach. This can cause women to lose interest and effects their motivation (Frenkel, 1991). Frenkel maintains that as a means of introducing computers and computing to women, the production of functional software



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packages is more advantageous to them, as it allows them to experiment and interact with the programme. By applying it to tasks, it allows them to understand the principles and their use.

Because assertiveness, confidence and high achievement can be considered consistent with masculinity, but not femininity, it seems that technical fields are often considered particularly unattractive for females. Therefore, if women are made to feel less feminine being in a male dominated field, they may avoid it. (Spertus, 1991).

Finally, women's reluctance to immerse themselves in technology is often attributed to limited access to the technology both at school and at home (the computer is still conceived of as belonging to the boy in many homes), and their lack of access to female role models in the world of science and technology (Freedman, 1997; Ordige, 1996).

The investigation

I was eager to see if these findings were confirmed by my investigations with the young women who shared with me their experiences of music technology.

I interviewed in a taped, group interview, 15 participants, all female and all studying music as an option in a co - educational secondary school context. The school had an established depth and tradition in music technology in its music programmes. The young women were asked open - ended questions based around their knowledge and use of the notation, sequencing and multi -tracking computer programmes available in their

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school. They were encouraged to reflect on who used the technology most and why, whether there were differences in competence or blocks, relative to gender. In data analysis, only trends of difference or commonality were noted.

So what were the findings?

In general, the girls were more hesitant than the boys to utilise technology for composition. Some girls admitted that they enjoyed experimenting with the music computer programmes, and certainly saw the benefits in terms of producing scores of a superior notational standard. But, almost all of them stated that they would not utilise the computer for composition unless they had to. This is despite the fact that they had been computer-literate from the third form. They recognised that their attitude was undoubtedly different from that of the boys, who they considered were naturally more interested in things technical. They did not question this gender stereotype, although they did say that they felt girls were equally capable of mastering technology, given the right incentive.

They displayed reluctance to utilise the four track recording facility and no one mentioned the practical usefulness of sequencing programmes in the production of compositions. The girls admitted to not knowing how to operate some of the equipment and that unless they could show immediate prowess

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within this sphere, very few would willingly take the risk, in case they looked stupid. They appeared confused about the different uses of this technology, and were not aware of its full potential. They indicated that unless the purpose of the programme or technology was made obvious, and was more useful than the tools already at their disposal, the disadvantages for mastering the programme outweighed the advantages.

They believed that the gender differences in technology usage centred around the differing performance interests, and therefore, requirements of the groups. They considered that rock/contemporary music requires technological input for its production and that the boys are "into" this genre, therefore requiring such technology to make the music. They felt that because the boys appear to have less traditional notational literacy skills, they are even more dependent on the technology. On the other hand, the girls considered that they are "into" traditional classical music, and as a result, had acquired notational literacy skills suited to this genre,

and therefore had less need of the technology.

Some of the girls expressed frustration over utilising the computer for composition, because they found it time consuming, and when they became stuck could not progress without substantial input from others (usually males). Access to computers was also of significance. Those who had computers with music programmes at home were more in favour of using computers as a compositional tool than the majority without ready access. The girls could see little point in having a musical idea at home and then having to wait until they could record it with the computer at school.

They indicated that a structured approach to the introduction of the technology equipment was necessary. Unless there was a beneficial purpose for the use of the equipment which was an obvious improvement on the tools already at their disposal, girls were less likely than boys to see the point of using it.

Finally, they stressed the importance of experiencing equality of access and the support and encouragement from the boys in the music department, if they were to develop within the technology area. They emphasised the need for girls to overcome their fear of making mistakes, if they were to embrace the technology fully, and acknowledged that girls must supportively buddy each other in order to develop confidence.

So what does this mean for us as music educators?

Arguably, the reality for secondary teachers is that most girls and boys do appear to have different attitudes and approaches to the use of technology. It is important that we recognise these differences as a type of learning style and cater for these as a means of increasing inclusion for males and females within the classroom, rather than marginalising any group further.

We need to recognise that the girls must see technology as a practical, purposeful tool, whose advantages outweigh the barriers to

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learning how to use it. In order to increase the accessibility of technology, we perhaps need to expose the girls to music-making situations that requires such skills, and forces them to widen their comfort zone. It is important that the purpose and potential of the technology is explained and made fully relevant to them through practical examples and tasks.

Given this knowledge, it is essential that music teachers ensure that young women are introduced to the computer equipment and programmes in a structured, packaged approach, which is purposeful and task orientated. On the other hand, recognition of the males' preference for exploring and tinkering with the technology must be accommodated within their introduction to the equipment. This should not be overlooked in an effort to make technology more accessible to young women.

We need to ensure that the equipment is accessible to all, and that no group monopolises the equipment to the exclusion of others. In a co-educational context, a supportive, valuing environment must be developed, which is conducive to new recruits making mistakes in a safe environment. If necessary, gender exclusive access times may need to be organised. We need to ensure that each student, male or female, has support to develop independent, trouble shooting skills to aid them when they are stuck. This could be achieved by designing very user-friendly manuals, or systematising a buddy support programme.

Given the emphasis on composition within the NZ contemporary secondary school music programmes, it is critical that the utilisation of music technology is inclusive, and not marginalising to any particular group in the classroom context. Teachers must be more cognisant of the gender differences that affect attitude to, and use of, technology for composition. We must develop strategies which foster greater accessibility and inclusion for all parties.



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