

DEVELOPING MULTIMEDIA MATERIALS FOR CREATING ENSEMBLE

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Music academies are becoming increasingly aware of the need to provide their students with a greater variety of learning experiences in the area of ensemble music. The development of multimedia materials to support flexible modes of learning must be grounded in a secure theoretical base. Previous research (Reid, 1997) has described musicians' experiences of the world of music in three distinct ways. This research was used in developing the interactive multimedia package *Creating Ensemble*, which was developed to allow students to explore the notion of ensemble using various media. During the development, professional ensemble members were interviewed about how they understood and created meaningful ensemble. The performers' experiences became integral to the design of the package's learning environment. This paper argues that multimedia developments are enhanced by a focus on learning, a strong theoretical framework, and a detailed analysis of the participants' experiences in their professional roles.

Music academies and institutions are becoming increasingly aware of the need to provide their students with a greater variety of learning experiences, particularly in the area of ensemble performance. Typically, students have studied in studio and ensemble situations where the focus of learning has been on the *instructor's* musical experience (Persson, 1996). Recent research has shown that these instructors' experiences constitute an important part of the content required for student learning (Reid, 1996; Foster and Stephenson, 1998; Hughes, 1998). Such experiences developed from professional work situations can be used as building blocks for flexible learning materials, providing students with a choice of what is learned, how it is learned and where and when it is learned (Ellington, 1996). However, there is a basic practical problem when it comes to applying these ideas to ensemble playing: it is rare to be able to get instruction, demonstration and insight from a complete ensemble.

In the search for solutions to this problem, one increasingly common choice is the development of self-paced learning materials, particularly multimedia materials. However, to be successful, such multimedia materials in support of learning must be grounded in a secure theoretical base. The theory un-

derlying such developments needs to acknowledge research in student learning (Ramsden, 1992), the design of multimedia experiences (Laurillard, 1993) and research related to teaching/learning and to the content of the discipline (Reid, 1997). Understanding these theories enables developers of multimedia packages to design individualized student centered learning experiences that encourage autonomous learning (Alexander, McKenzie and Geissinger, 1998).

In this paper, we report on the design and use of a multimedia package entitled *Creating Ensemble*, which was developed to allow students to explore the notion of ensemble using various media supported by a professional ensemble's insight. The package consists physically of a set of scores, a workbook, a performance video, and an interactive CD-ROM. It is based around five contemporary Australian compositions for recorder quartet. Recorders were selected for their familiarity, availability and potential usefulness for a wide range of students. We start by discussing the theoretical basis for the package and show how the performers' experiences became integral to the design of the learning environment of the package. Then we present *Creating Ensemble* in more detail, giving background, content, methods of use, and even a web location for a demonstration of the package. Finally, we discuss users' reactions to *Creating Ensemble* and generalize to the place of multimedia materials in music education.

The Theoretical Basis

Research relating to the teaching, learning, and content of instrumental and vocal music underpinned all stages of the pedagogical design of *Creating Ensemble*. Musicians' professional experiences are recognized as the traditional content of music teaching and learning (Bruhn, 1992; Persson, 1996). Recent research has described musicians' experiences of the world of music, that is, the *music entity*, in three distinct ways: *extrinsic technical*, *extrinsic meaning*, and *intrinsic meaning* (Reid, 1997).

The extrinsic technical dimension is constituted from a viewpoint that music is external to the player. Music is understood as a series of technical and notational elements that are joined together physically on an instrument. The extrinsic meaning dimension describes a more integrated view of music making where the focus is the production of meaningful musical sound for communication. Instrumental and technical elements are incorporated into this dimension as the means to the end of discovering the music's meaning. In the intrinsic meaning dimension, music is seen as a vehicle for expressing personal artistic truths. This view of music includes the extrinsic elements of instrumental technique and inherent musical meaning but incorporates them within the broader framework of personal interpretation and meaning.

The research groups from which the notion of the music entity emerged showed that ways of experiencing music are closely associated with musicians' conceptions of teaching and learning. For example, students whose experiences of music are extrinsic technical would focus their learning on the technical aspects of the music and would gain little benefit from a tutor's

comments in the intrinsic meaning dimension. A student experiencing music at the intrinsic meaning level would gain most benefit from instruction at the same level, although they could also utilize instruction from other levels (see Reid, 1997, 1998).

During the development of *Creating Ensemble*, musicians who were members of the recorder quartet *Fortune* were interviewed about how they interpreted the scores, individually and as part of a group, to create meaningful ensemble. Their comments illustrated the three different ways of experiencing the music entity and demonstrated that the theoretical structure set up in the context of individual musical study and performance was equally valid in the ensemble situation. The performers described close relations between their understanding of music and the way in which they went about negotiating ensemble, developing and creating a coherent performance. Their experiences became integral to the design of the learning environment of the package, anticipating that students using the package would display a similar range of approaches to music making and ensemble playing.

In developing *Creating Ensemble*, we agreed that it was important to design the learning environment through the use of comments from the performers that demonstrated different aspects of the music entity. We believed that focusing on the different ways that musicians experience music making would make the issues of negotiating this experience within an ensemble situation transparent to the users of the package. The material in the package had to take account of the different views of the music entity that the performers, and hence presumably the users, understood.

For instance, the extrinsic technical dimension can be seen in this comment from a recorder quartet member:

At the beginning it's difficult for each individual part to keep in step with the others. The two bass instruments stay hand in hand playing much the same rhythm, but when you add the two top lines you end up with a haze of sound.

This comment focuses on the technical aspects of the ensemble. The performer discusses the individual technical difficulties and then relates this to the layering of other parts. The performer is aware only of instrumental technical aspects and of musical elements.

The extrinsic meaning dimension is shown by the following comments:

When you say a piece is about something, I always have to have an image, theme, or feeling, but usually it is a picture. In this case the image of an emu,

and

I think it is interesting when there's an anecdote behind the music, but in this case the music speaks for itself.

Both of these comments suggest an awareness of the meaning to be found in the music. The first suggests that an image, theme, or feeling is important for developing an understanding of the piece as a whole. The textual indications of the piece also have influenced the performer's understanding of the work. The second comment also focuses on the musical meaning but is more interested in what the music itself can say than in the textual inferences. The intrinsic meaning dimension, where the focus is on developing a personal meaning of the music, can be seen in the following comments:

I'm interested in what the composer has to say about it and what motivated them because you can learn something about a piece from that, but in our case our interpretation came from simply trying the piece and responding to what we heard in it.

and

You start to enjoy the effects you're making with the clashes. You start to perceive the shape from the chaos.

The music entity clearly plays an important role in each performer's understanding of the music to be played. For ensemble, however, it is also important that these variations are subsumed into the musical Gestalt. One of the performers suggested that:

One thing you discover when playing in any ensemble: No matter how good the players, people do hear rhythms differently. They count the beat differently and perceive it differently and you have to reconcile those things to the middle ground.

Reid's previous research interviewed practicing musicians and students to discover the music entity. Similarly, we planned to interview the performers to discover the ways in which they experienced ensemble music making. The comments above show that performers experienced ensemble music in the same ways as musicians experienced solo music.

The Learning Package

The multimedia package *Creating Ensemble* was developed specifically for performance students at the University of Western Sydney. The students in the performance degree represent a variety of musical genres, with most specializing in instruments common to the contemporary music industry. The ensemble requirement of the course has often resulted in unusual combinations of instruments with these students rehearsing works from many styles. The students and even the tutors may have little previous experience with the ensemble music, and this can result in problems achieving a mature ensemble experience. As most Australian students have had some recorder experience in their primary and secondary schooling, the multimedia package focuses on the use of recorders as ensemble instru-

ments. Using recorders allows the students to focus on negotiating the qualities of ensemble and musical performance without the stress normally associated with rehearsing within their own instrumental environment. It also recognizes that many students may find careers as music teachers where the use of recorders is an inexpensive medium for teaching the basics of music. Using relatively soft and balanced instruments such as recorders in an ensemble also enables students to develop fine listening skills, which are essential for ensemble playing.

Creating Ensemble is designed around five modern Australian compositions for recorders that were commissioned or arranged specifically for this project. The five pieces were chosen to allow students to develop understandings of different styles, problems and techniques in creating ensemble music. The aim was to create an environment where performance students can explore the notion of ensemble using various media supported by a professional ensemble's insight. *Doves Around* (Dulcie Holland) is the most traditional piece, in the English bucolic tradition with much passing of single-line themes between instruments. *Frogs* (Lance Eccles) uses minimalist techniques and illustrates problems of ensemble tempo changes. *Beebopaloobopawopbamboom* (Diana Blom) is written in the jazz idiom and asks each line to improvise breaks using specified scales. *The Great Emu War* (Benjamin Thorn) contains tricky cross-rhythms in 7/8 time and illustrates modern techniques such as flutter tonguing and overblowing for harmonics which can dramatically increase the range and volume of sounds from the ensemble. *Disjointed Quartet* (Ros Bandt) for "improvising, theatrical, black-tie recorder consort" gives players the experience of improvising from a graphic score, in this case on various parts of their disassembled instruments.

The elements of *Creating Ensemble* are a set of scores, a performance video, and an interactive CD-ROM which links video, scores, audio information from performers and composers, and textual information such as a glossary of terms. This multimedia package is constructed to facilitate effective study using self managed learning materials in a flexible learning context. Rather than merely presenting information, it is designed around an iterative discovery process where students can sequence their own progress through video, score, sound, and so on. Students are encouraged at all times to reflect on their own ensemble and performance experience and relate these experiences to the comments of the performers and composers in the package. There are also opportunities for students to experiment with the musical works and to discuss their learning and understanding of the issues. The package can be used individually or as part of a group learning activity. A demonstration of the package can be found at <http://www.inhouse.com.au/2000/ensemble/ensemble.html>.

The learning is guided by trigger questions and suggestions for student activities, supported by comments from composers and performers. The piece which generated the responses in the previous section, *The Great Emu War*, was supported by questions such as follow. "What sorts of things could

be done to ensure the rhythm is 'tight'?" "What feeling do you get playing a 7 rhythm? Try playing in varying patterns." "What is the story you are trying to communicate?" The questions associated with *Frogs* included: "What sorts of moods would you try to create for an audience?" "How would various instrumental groups produce this feeling?"

The different aspects of the music entity discussed earlier were used to inform the design of the package. When a user of the CD-ROM clicks on the face of one of the performers in the video, audio and written comments from that performer illustrating his or her understanding of the music are presented. When they click on one of the marked places in the music score, written comments on some technical aspect of the music at that point are displayed. When they click on a picture of the composer, audio and written comments on the composer's intention for the music are presented, which of course may be quite different from the performers' experience.

The essential design of the package can be seen in Figure 1. The score at the bottom of the image can be used to follow the musical performance. The student can start and stop the performance at any time to replay or jump forward through the piece. Boxed areas in the score indicate that interesting aspects of performance are being discussed by the ensemble. Clicking on the image of the performer will also allow the students to hear more about the performer's interpretation and ensemble experience. Navigation buttons in the center of the screen help students further develop their understanding of the music and the implications for ensemble performance for each piece. For instance, clicking on the Learning button will bring up a series of challenging and prompting questions that can form the basis of the students' own rehearsal of the works. Clicking on the Composer or Performers buttons will enable the students to hear additional comments about the works. There is also a Library section that explains terms used by the performers and composers as well as terms found in the music.

The CD-ROM is only one aspect of the multimedia experience available to the students. The students can explore ideas found in the CD by rehearsing the works themselves using the scores and the workbook. The video component can be used by groups of students as a prompt for analysis of aspects of ensemble playing such as non-verbal cues and interactions between players. The component parts of the multimedia package can be used to support different aspects of the students' learning environment.

Conclusion

Informal comments that we have received from users of *Creating Ensemble* generally have been positive. One formal review, written for the Tasmanian Department of Education and available on-line (O'Toole, 2000) notes that the package is "an interesting resource for secondary music teachers ... best suited to able students grade 9 upwards [age 14 years]. It's not for beginners, nor strugglers." The reviewer also writes:



Frogs



Frogs was originally written as part of a three-movement piece called *Things that jump*. The sound of the music is intended to reflect the title.

Library | Menu | Composer | Performers | Learning

Video Controls

▶ ◀ ⏪ ⏩ ⏮ ⏭ ⏯ ⏸

Jump to Bar 1 165

1 *Staccato*

Treble

Tenor 1

Tenor 2

Bass

For more video and details, click in the area marked like this

Figure 1. An image from the CD-ROM

The performers discuss how each approached the piece, and how the ensemble overcame the difficulties presented by each work. The comments from the composers, as well as shedding light on the ensemble considerations of the work, would be of interest to students engaged in composing or arranging tasks. The writing style is consistent and clearly directed to students. It shouldn't require teacher interpretation. Worth a bit of homework for high school and secondary college teachers.

Although this paper has focused on the development of multimedia materials based on pedagogical research, it is important to remember that multimedia can only be part of the students learning environment. There has been a tendency to see new learning tools as new ways of learning. However, using new media for learning should always been seen within the context of the actual learning. If the learning context supports students by providing a student-focused environment, then students should be free to use a variety of learning tools that enhance their own view of learning. Providing variety for students in terms of providing variation in the ways they can learn or move through a course of study can enhance their learning. Race (2000) suggests that "As the proportion of mature and nontraditional entry learners increases, we need to complement traditional teaching and learning approaches by creating additional flexible learning pathways, and to replace entirely some traditional approaches disliked by mature learners." This suggests that tertiary learning institutions need to focus on providing learners with a variety of learning experiences including multimedia.

Multimedia developments such as *Creating Ensemble* are enhanced by a focus on learning, a strong theoretical framework, and a detailed analysis of the participants' experiences in their professional roles. An awareness of the ways musicians experience the professional world, and how this is constituted as something to be learned, enable musicians and music educators to create effective experiences for their students.

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