A terrible honesty: the development of a personal voice in musical improvisation

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It is only relatively recently that it has been possible to study African-American music, or jazz, in Australian tertiary music courses. The Sydney Conservatorium offered a single study in jazz in 1973 and its first award degree was the Associate Diploma which was begun in 1977. The Victorian College of the Arts followed in 1980, offering a three-year Diploma in Jazz Studies. Over the next decade courses began in all other states and by 1996 twelve institutions offered degrees in which students could specialise in the performance of African-American music. The styles of music within these range from 'trad' jazz to fusion, with most courses emphasising the reproduction of the music as it was developed in the United States of America in the 1950s.

The course at the Victorian College of the Arts, however, has a different emphasis. Although African-American music forms the foundation, its philosophy is that Australian students in the 1990s should endeavour to develop a personal 'voice'. This commitment to the concept of a personal voice was manifested in the decision taken in 1987 by the head of department, Brian Brown, to change the title of the course from Jazz Studies to Improvisation Studies. This occurred because of a perception that there were people who did not have a background in African-American music but who wished to express themselves in sound. The emphasis on improvisation which does not have the performance of bebop or Swing as its *raison d'être* also reflects the philosophy of the senior members of the VCA staff.[1] All are performers of a type of improvisation which may contain jazz elements but invariably is influenced by a variety of musics of the world, and all endeavour to personalise their sounds with their own voice.

That the majority of Australian improvisation courses are based on American jazz styles is perhaps not surprising. Artists such as Louis Armstrong, Charlie Parker and John Coltrane have made a profound contribution to a genre described by Christopher Small as the 'major music of the west' in the twentieth century.[2] The spirit of these musicians to forge new styles in the face of obstacles including racism, commercial exploitation and physical abuse has been a source of inspiration to many.

However a major impetus to the widespread performance of African-American music has been the development of systematic teaching programs. These came into existence through the codification of the music into a range of prescriptive texts and courses of study worldwide but particularly in the USA. Writers and educators in that country led the way in developing instructional texts for African-American music, those whose works are most widely disseminated in Australia being Jerry Coker, David Baker and Jamey Aebersold.[3] The basis of these is the practice and precepts of bebop, including the transcription and analysis of recorded solos, selected discography and biographical data of musicians including their 'genealogy' in terms of those who were their musical influences as well as those who were influenced by them. Thus, through the codification of the language, and particularly the provision of 'play-along' records, it became possible to facilitate the learning of African-American music through a system which was accessible to all.

One effect of codification was the establishment of bebop (or bop, as it is often called) as the embodiment of modern 'classic' jazz.[4] For many performers the acquisition of this language is their ultimate goal; however, there are others who believe that there are attendant problems in this codification. The English improvising musician Derek Bailey has stated that bebop, with its 'stylistic rigidity [and] its susceptibility to formulated method', has proved to be a 'pedagogue's delight'. The result has been 'perhaps the first standardised, non-personal approach to teaching improvisation', one which is easily taught and subsequently a reason why so many young musicians want to play it.[5] Commenting on the revival of bop in the 1980s, Bailey wrote:

> The mechanics of the style are everywhere; of the restlessness, the adventurousness, the thirst for change which was a central characteristic of the jazz of [the bop] period there seems to be no sign at all.[6]

The Australian musician and historian Bruce Johnson has long been a critic of courses of study in Australia which have adopted the rules and practices of bebop as their basis. He has argued that the preference for modern American styles also reflects the predisposition of Australian academia to train musicians to be competitive for professional performance at the highest international level. He believes that as long as the criterion of the superiority of 'internationalism' in African-American music prevails, the importance of instrumental execution and the attainment of a mas-

tery of contemporary conventions will dominate the learning process, to the exclusion of all else. As a consequence, the traditions out of which a society's cultural practices grow are suppressed, 'highlighting instead an institutionally engineered community which has only oblique continuity with the individual student's origins'.[7]

Interest in improvisation, particularly the notion that improvising musicians should reflect their own culture, has been at the centre of my teaching and research at the primary and secondary level of schooling for the last thirty years. Thus, when an opportunity was provided to investigate tertiary students enrolled in a course of improvisation with an emphasis on the development of a personal voice, it was seized with alacrity. Due to the limited nature of research into a personal voice in improvisation, however, it was necessary to determine specific areas in literature and research which could illuminate the investigation. Writings by musicians, including anecdotal accounts, provided some direction, as did research into the work of visual artists and dancers.

Of major importance in the history of African-American music has been the production of unique and innovative musical voices; indeed, in many cases the development of this music centred around the sounds of a single person. In this regard, the chapter on musicians in Joachim Berendt's definitive work, *The jazz book*,[8] includes only those in whom the history of a style is involved, amongst them Louis Armstrong and New Orleans jazz, Duke Ellington and orchestral Swing, Charlie Parker for bebop and modern jazz itself, Ornette Coleman and John Coltrane in the jazz 'revolution' of the 1960s, and Miles Davis in the development from cool jazz to music of the 1980s.[9]

An important characteristic of all these players was their ability to transcend their dependence on previously known styles of African-American music. Arguably the most famous of these was Miles Davis, who in a career of nearly fifty years was involved in a variety of stylistic phases. He performed bebop with Charlie Parker from 1945 to 1948, was instrumental in establishing the cool jazz movement in the late 1940s, initiated one of the first hard bop bands with John Coltrane in 1955 and was a major contributor to the styles which incorporated modal influences in the late 1950s and electronics from the end of the 1960s. Throughout the 1970s and 1980s Davis performed jazz-rock—he has been described as its 'outstanding father figure'[10] —as well as music which borrowed increasingly from pop music, including the use of electronic treatment devices played in conjunction with his trumpet.

To Davis the importance of an individual voice was a major aspect of his musical philosophy. In his autobiography he wrote: 'Just like Trane's [John Coltrane] style was his own, and Bird's [Charlie Parker] and Diz's [Dizzy Gillespie] their own, I don't want to sound like nobody but myself'.[11] However, it was his first teacher, Elwood Buchanan, who was instrumental in inculcating in Davis the belief that he could develop his own style. While at high school the young musician had incorporated a vibrato into his playing in imitation of the trumpet players to whom he was listening at the time. He described an incident which occurred while playing in his school band and which was a turning point in his life:

> One day, while I was playing in that style, Mr Buchanan stopped the band and told me: 'Look here, Miles. Don't come around here with that Harry James stuff, playing with all that vibrato. Stop shaking all those notes and trembling them, because you gonna be shaking enough when you get old. Play straight, develop your own style, because you can do it. You got enough talent to be your own trumpet man'.[12]

The notion of independence was also seen as important in research into visual artists undertaken over thirty years by Mihályi Csikszentmihályi. In an early study with Jacob Getzels,[13] Csikszentmihályi found that an important reason for visual arts students choosing to paint or sculpt was a desire to control their medium. This was denoted by the researchers as 'problem discovery', as opposed to 'problem solution' or the working-through of tasks presented by other people. The authors wrote that this was concerned with

> the rewards that the artist obtains from the use of his talent, the ability to control his materials, the pleasure he derives from making something that did not exist before; and more, the use of this talent in a free rather than an assigned way.[14]

A second characteristic which appeared to be an important aspect in the development of a personal voice was the notion of risk-taking. An example was the saxophonist Steve Lacy, who noted that for him music had to be 'on the edge—in between the known and the unknown and you have to keep pushing it towards the unknown otherwise it and you die'.[15] Lacy, who worked with Cecil Taylor and Mal Waldron, whom he described as 'the radicals', found that performing with musicians whose styles were re-creations of the past 'never worked out'. He has said that this occurred because

> they knew all the patterns and I didn't...I knew what it took to learn them but I just

didn't have the stomach for it. I didn't have the appetite. Why should I want to learn all those trite patterns? You know, when Bud Powell made them, fifteen years earlier, they weren't patterns. But when somebody analysed them and put them into a system it became a school and many players joined it. But by the time I came to it...the thrill was gone...It got so that everybody knew what was going to happen and, sure enough, that's what happened.[16]

A third factor which was important in the development of the personal voice of many musicians was that of musical relationships. There have been many examples of relationships which have contributed to the development of new musical sound, one of the more famous being Louis Armstrong's effect on the members of the Fletcher Henderson band in the mid-1920s when musicians with only fair performance skills were 'pushed' to higher musical levels.[17] A more recent example was given by the American pianist McCoy Tyner, who visited Australia for the Montsalvat Jazz Festival in 1995 and who described his participation in the John Coltrane Quartet as 'a constant challenge' which hastened the development of his own style as a pianist.[18]

These three factors of—independence of style, risk-taking and relationships—seemed, from preliminary observation of aspects of the VCA course, to provide some means of monitoring the development of a personal voice in a controlled study. From observation of several end-of-year recitals, it was clear that most students had particular musical preferences, while several recitals involved artistic risk-taking including the use of unconventional instruments and a performance on a shipping platform in the middle of the Yarra River. There was circumstantial evidence that there were strong musical relationships between the students, with several groups consisting of the same people, across all year levels, performing in each others' recitals.

For the purpose of observing independent musical thinking, two categories of musical style were defined; conventional and unconventional. Styles which were denoted as conventional were blues, bebop compositions, conventional modal pieces such as Miles Davis' *So What*, Latin-based pieces, jazz standards and ballads. Unconventional forms were modifed modal music, which might include a non-structured form or a harmonic structure using a single chord, and free-form, fusion and contemporary pieces.[19] Within the study risk-taking included performing in an unconventional style and playing original compositions. The type of referent used as the basis of a piece was also seen as indicative of risk-taking, with a pre-deter-

mined chord sequence being possibly less 'risky' than a more abstract referent such as a mood. With regard to musical relationships, it was clearly necessary to be aware of a performer's preferred musical partners, evidence which would be gathered at interviews.

From these preliminary observations a simple causal framework (Figure 1) was designed to show the possible development of a personal voice.[20] This framework suggests that students enter the VCA course with a variety of musical, educational and cultural backgrounds. Within the course they are involved in a range of musical experiences which can influence them in their stylistic choices, experiences in which risk-taking plays a major part and through which musical relationships, such as those described above, are formed. The musical sounds which result from the students' performances can be identified from within a network of musical characteristics out of which the personal voice of the musician is established.
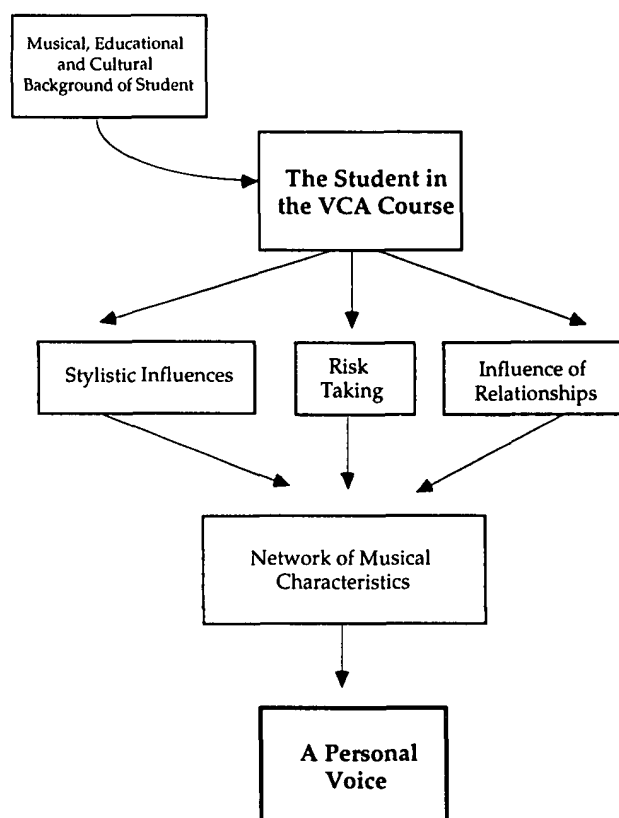

Figure 1: A tentative model of the development of a personal voice

Establishing the study

In November of the year prior to the formal commencement of the study, 225 people undertook an audition for entry into Improvisation Studies. Following the audition process twenty-two students were selected, five female and seventeen male. Their ages at the beginning of the course ranged from seventeen to

thirty-five years with an average age of twenty-three, which was relatively high for a first-year cohort. Only five were aged eighteen or under, the age at which most undergraduates commence tertiary education, while more than half the class was aged twenty-two years or older. A letter inviting them to participate in the study was sent to all the successful students; seventeen responded affirmatively. Ten students were selected, five of the males and all five females. The participants in the study are listed in Figure 2, together with the instruments played, ages and a brief description of the background of each.

Name	Instrument	Age	Background
Alex	Drum kit/percussion	25	BA [3 yrs]
Belinda•	Soprano saxophone	21	2 yrs BA (Music)
Cassie	Piano	17	School leaver
Damien	Trombone	19	Year at home after leaving school
Elly	Voice	18	School leaver
Fran	Piano	20	2yrs BA/BLaws
Gina	Alto saxophone	25	BMusEd [4 yrs]
Hugh•	Guitar	23	1 yr TAFE music course, 1 yr BEd (Music)
Ian	Acoustic bass	24	TAFE music course [2 yrs]
Jon•	Piano	19	Partial year TAFE music course

• Previously auditioned for the course
The number of years in brackets indicates a completed course.

Figure 2: Participants in the study

The creation of an extensive data base provided a foundation from which the key issues or research questions were pursued through data analyses. There were two foci. The first was to determine precisely what constituted the personal voice of each participant and the second was concerned with the way in which each subject approached the processes inherent in the development of this voice through the teaching of the VCA course. Analyses of the end-of-year recitals provided evidence of the developing voice of the participants, with particular attention paid to the three factors of stylistic influences, risk-taking and the influence of relationships. Ensemble Workshop classes provided the opportunity to observe the development of each participant's skills. From the transcriptions which were made of each week's analysis of and discussion on the performances by the lecturer and students, it was possible to see how the participants responded to the learning processes inherent in improvisatory activity.

The participants contributed further to the data through entries in journals which were analysed for evidence on responses to learning processes. Interviews throughout the three years of the course and a year after graduation provided details of the participants' backgrounds, their views on their own development and a range of other opinions including personal goals. Questionnaires provided more detail on the participants' backgrounds and their musical preferences.

Results of the investigation

It was evident that the three years of the course had assisted several of the participants to begin the development of a personal voice. Alex, Belinda, Fran, Gina and Hugh were all reflecting this by the end of Year 3. Cassie and Jon appeared to be more interested in refining their performance skills in conventional jazz styles, while Ian seemed ambivalent on the matter of a preferred style. Two others, Damien and Elly, had withdrawn from studies in Year 2.

Analyses of the performances indicated that a major contributor to the development of the personal voices of the five was the material they played. By Year 3 all were playing in free or contemporary styles, most of which was original music, indicating the importance of allowing musicians to control their musical output. In addition to the material they played, however, their instrumental 'sound' assisted in identifying a personal voice. The variety of instruments and of their methods of sound production meant that this was more easily attainable on some instruments than others.

In the case of the two wind players, Belinda and Gina, who physically produced their own sound, it was possible to hear distinct and identifiable characteristics in their tone, while Alex (drum kit and percussion) and Hugh (guitar) controlled their output through a combination of the timbral effects and electronic manipulation respectively. As the timbre of the piano is more predetermined, Fran had the most difficult task in producing an identifiable sound but succeeded to an extent through her selection of material, which included quirky chromatic harmonies, tritones and extended minor chords.

Risk-taking was manifested in the final recitals of all five, both through the use of their own composition and in their use of free-form music in at least one piece. Common elements included the use of music to express feelings and other aspects of their personal lives including family, a 'pesky' cat and an influential teacher. Thus, for all of them artistic 'making' was integrated with their lives. This finding was similar to that in

Getzels' and Csikszentmihályi's research, where the researchers found that it was not money nor fame nor even the prospect of making objects of beauty which attracted young people to art. Rather it was the attraction of discovering some meaning in life that appeared to keep these people involved in an activity described as receiving little external support.[21] In his studies of jazz musicians Paul Berliner also found that many were 'guided not only by purely musical concepts but by wide-ranging experiences that shape the artists' need for self-expression and infuse their creations with distinctive attributes'.[22]

The musical relationships established by all five were clearly important to the development of their personal voices. The musicians who formed the ensembles for all the performances had obviously been selected for their skills to contribute to the music and the spirit of the performance, and in general they were people with whom the participants were kindred spirits. There were other similarities amongst the five participants who developed a personal voice. None was less than twenty years of age at the start of the course and all had completed at least two years of tertiary study, three of them in music.

In contrast, four of the five who did not develop a personal voice were nineteen years or younger except Ian, who is discussed shortly. None had undertaken any tertiary study with the exception of Jon, who discontinued studies mid-way through first year. In their final end-of-year recitals none played with an identifiable sound. This was partly due to the conventional material they played but also because they did not seem particularly concerned with sound production. Cassie and Jon, like Fran, had to contend with the predetermined sound of the piano, but both also believed that it was important to develop skills in the playing of conventional jazz before attempting to develop a personal voice. Undoubtedly they admired the bebop 'heroes'—both named Miles Davis and Thelonious Monk amongst their favourite musicians—and clearly enjoyed emulating the sounds of the past. Most of the other participants also named performers of conventional styles amongst their preferred musicians; however, they did not let this control their output to the extent of making it the musical 'gaol' which Cassie and Jon seemed to have constructed around themselves. These two also took fewer risks in their final performances than all other participants. Both of them performed less than 50% original music, and those pieces which were original fell into the category of low risk-taking.

The problems of Damien and Elly, who discontinued their VCA studies, were different, and both ap-

peared to struggle through Year 1 due to a lack of specific skills. Damien's inexperience as an improviser was an initial hurdle, but at his mid-year interview in Year 1 he also admitted to a lack of practice, stating that if he were going to be a musician he would be 'a lot more committed to putting hours in'.[23] Elly's difficulties included a lack of music reading ability, an apparent inability to cope with the inevitable vicissitudes of the learning process and frequent health problems. She therefore experienced less practical music-making than any other student in Year 1.

While there were similarities between the group which developed a personal voice and that which did not, Ian provided an exception. In some ways he was similar to the group which developed a personal voice, being in the same age range and having studied at tertiary level. Unlike some in the group who did not develop a personal voice, he did not reject the notion of such a voice nor did he discontinue from the course because of a lack of skills. He was never critical of the course and formed personal and musical relationships with students at all year levels. He contributed to the life of the VCA in many ways, including a year's voluntary attendance at Year 1 Ensemble Workshop, in addition to his own Year 2 class, due to a shortage of bass players in the former.

With regard to musical relationships, it was apparent that even those who did not develop a personal voice selected people to accompany them who would contribute to the best possible musical outcome. Within this group Elly, Ian and Jon performed with kindred spirits in all their recitals. Cassie performed with friends in all her recitals except in Year 3 when she was accompanied by her Small Ensemble group, while Damien performed at his only recital with a professional trio because he had few friends amongst his peers. Thus, the value of supportive musical relationships seemed confirmed.

These findings indicate that people who develop a personal voice are those who have the maturity to make independent choices in relation to their performance material, rather than exclusively using the sounds of existing styles for the development of their personal aesthetic and voice. It thus appeared that the participants who benefited most were those who used their music as personal statements, supported by musicians whose philosophy echoed their own, while the players and styles of the past were seen as models of creative endeavour rather than sources for imitation.

The results of the study showed that the tentative model (Figure 1), while largely accurate, required some refinement. As in the earlier model, the student enters the VCA course and encounters a variety of musical

experiences. These include exposure to a number of stylistic influences and encouragement to take artistic risks, while musical relationships are formed both within and outside the College environment. From the results of this study it was shown that these experiences are subject to the students' reception and response, which are manifested through a network of musical characteristics as a musical voice. Two types of voice are produced: a personal voice and a stylistically dependent voice. Figure 3 represents the model of this thinking.

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┌─────────────────────┐
│ Musical, Educational │
│    and Cultural      │
│   Background of      │
│      Student         │
└─────────────────────┘
            \
             \    ┌──────────────┐
              \   │ The Student  │
               ↘  │   in the     │
                  │  VCA Course  │
                  └──────────────┘
            ↙         ↓         ↘
┌──────────────────┐ ┌────────┐ ┌──────────────┐
│ Stylistic        │ │  Risk  │ │ Influence of │
│ Influences       │ │ Taking │ │Relationships │
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         ↘            ↓            ↙
          ┌─────────────────┐
          │  Reception and  │
          │    Response     │
          │     by the      │
          │    Student      │
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          ┌─────────────────┐
          │   Network of    │
          │    Musical      │
          │ Characteristics │
          └─────────────────┘
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┌──────────┐          ┌──────────────┐
│    A     │          │A Stylistically│
│ Personal │          │  Dependent   │
│  Voice   │          │    Voice     │
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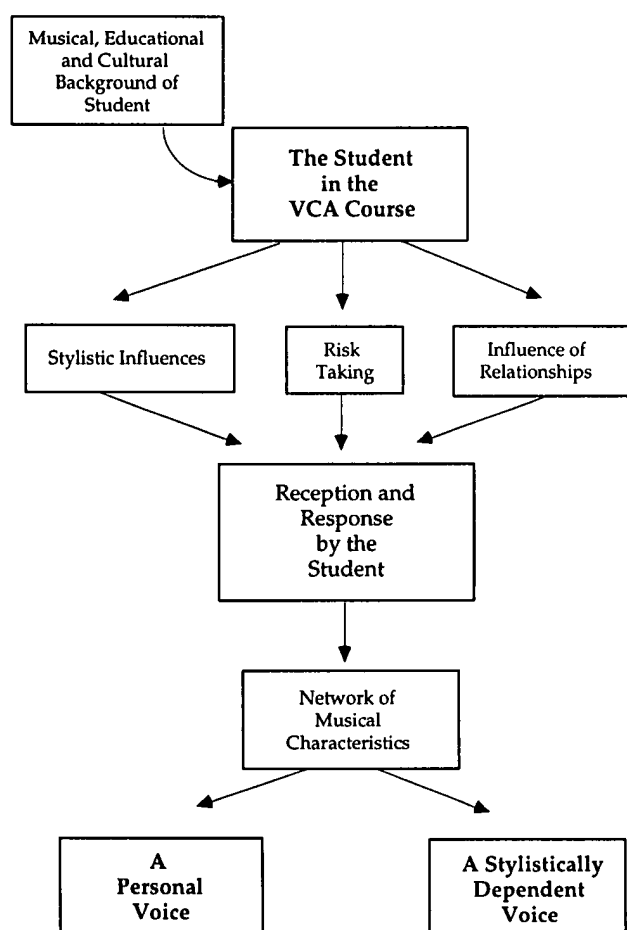
Figure 3: A model of the development of a
         personal voice

The need for more research in the area of improvisation which involves musicians expressing a personal voice is clearly evident. In particular, useful study could be undertaken into the link between aspects of personality and musical outcome. The possibility also exists for fruitful research in the area of cognitive and generative processes. Writers who have been concerned with cognitive processes include Jeff Pressing and Phillip Johnson-Laird,[24] while generative processes have been a concern of E.F. Clarke, Geoffrey Smith and Johnson-Laird.[25] In particular, the concept of audiation or pre-hearing—or, to use Pressing's term,

'feed-forward'[26]—is inherent in all improvisatory practice to such an extent that an investigation of its role in relation to a specific group of people such as students of improvisation would be valuable.

Many of these topics offer directions for research which could well provide significant findings for educational practice in general, and music education in particular. Improvisation is an aspect of some music programs at all levels of education in Australia but it is not widespread. This occurs for several reasons, a major one being a lack of understanding of improvisatory practice and the notion of a personal voice. This is largely due to the dominance of music of the Western classical tradition in teacher training programs. As a result there is a belief by teachers that improvisation is synonymous with jazz, a specialised area of performance, and thus beyond their ability. However, when improvisation is regarded as an approach to music-making found in all of the world's musics, including African-American music, non-Western musics, contemporary 'classical' music, rock and 'pop', the opportunity exists for everyone to partake in improvisatory practice.

The title of this study 'A terrible honesty' was chosen to identify the nature of music-making in which personal artistic activity is at the centre. It was derived from a statement written by one of the participants in the study, Alex, in a rueful comment made after a performance frustrated by a lack of 'confidence, skills and comfort'. Noting how easily his weaknesses were observed by both lecturer and peers, Alex wrote: 'Improvisation is terribly honest about how and who people are, as trained ears can analyse while naive ears can still sense and make judgments'.[27]

Undoubtedly, all the participants discovered a 'terrible honesty' in being at the cutting-edge of personal music-making, far from the safety of re-creating the notated music of another. Yet music is a living language and new forms must constantly develop. This is something which other artists, including visual artists and dancers, have no trouble accepting; indeed, new perspectives are expected by discerning audiences. Support for improvising musicians who break new ground is needed from a variety of sources, of which the most immediate is fellow musicians. The strength of such relationships has sustained many improvisers to continue the quest to find a personal means of expression.

End Notes

1 Capitalisation (or otherwise) of the different styles of African-American music is in accordance with the practice adopted by Joachim Berendt in *The jazz book*, rev. G Huesmann, trans. H. and B. Bredigkeit with D. Morgenstern and T. Nevill

(New York: Lawrence Hill, 1992). Thus, the style known as Swing is given a capital letter, whereas styles such as bebop, cool and free jazz are not.

2 Small, *Music of the common tongue: survival and celebration in African-American music* (London: John Calder, 1987), p.4.

3 Coker, *Improvising jazz* (Englewood Cliffs, NJ: Prentice-Hall, 1964); *The jazz idiom* (Englewood Cliffs, NJ: Prentice-Hall, 1975); *The complete method for improvisation* (Lebanon, Ind.: Studio P/R, 1980).

Baker, *Jazz improvisation: a comprehensive method of study for all players* (Chicago: Maher, 1969); *Arranging and composing for the small ensemble* (Chicago: Maher, 1970); *Jazz pedagogy: a comprehensive method of jazz education for teacher and student* (Chicago: Maher, 1979); *David Baker's jazz improvisation: a comprehensive method for all musicians* (Van Nuys, Ca.: Alfred, 1988).

Aebersold, *A new approach to jazz improvisation: for all instruments* (New Albany, Ind.: Jamey Aebersold, 1972–88).

4 Berendt, *The jazz book*, p.19.

5 Derek Bailey, *Improvisation: its nature and practice in music* (New York: Da Capo, 1992), p.49.

6 Bailey, *Improvisation*, p.50.

7 Johnson, *Jazz: a test case for popular culture in the Australian academies*, Occasional paper 3 (Liverpool: University of Liverpool, Institute of Popular Music, 1993), p.14.

8 pp.63–146.

9 Berendt's list also includes Bessie Smith (blues and jazz singing), Bix Beiderbecke (Chicago style), Coleman Hawkins and Lester Young (combo Swing), John McLaughlin (fusion music of the 1970s) and David Murray and Wynton Marsalis (jazz classicism of the 1980s), p. 63. However, there is much dispute as to whether the development of jazz ended with the beginning of the free jazz era, with further developments regarded as 'adulterated forms' (see Bailey, *Improvisation*, pp.48–50) or whether these developments are part of the natural evolution of the genre (see Berendt, *The jazz book*, pp.45–52).

10 Berendt, *The jazz book*, p.109.

11 Miles Davis, *The autobiography* (New York: Picador, 1989), p.389.

12 Davis, *Autobiography*, p.22.

13 Getzels and Csikszentmihályi, *The creative vision: a longitudinal study of problem finding in art* (New York: Wiley, 1976).

14 Getzels and Csikszentmihályi, *Creative vision*, p.23.

15 Quoted in Bailey, *Improvisation*, p.54.

16 Quoted in Bailey, *Improvisation*, pp.54-55.

17 Gunther Schuller, *Early jazz: its roots and musical development* (London: OUP, 1972), p.91.

18 Quoted in Adrian Jackson, 'McCoy Tyner: reaching higher', *Age* [Melbourne] 24 Jan. 1995, p.19.

19 'Contemporary' is a vague term which Jerry Coker has defined as 'anything that is relatively recent and does not resemble a bebop, standard, modal, blues, ballad or free form tune' (*Complete method*, p.75). Coker believed that the term would eventually become obsolete because more consistent traits would develop in the music denoted as this. However, in the mid-1990s the term is still widely used for any improvised music, apart from free and modified modal, which is not in a conventional jazz style.

20 M.B. Miles and A.M. Huberman, *Qualitative data analysis* (Thousand Oaks, Ca.: Sage, 1994).

21 Getzels and Csikszentmihályi, *Creative vision*, p.23.

22 Berliner, *Thinking in jazz: the infinite arts of improvisation* (Chicago: Chicago UP, 1994), p.91.

23 Personal interview, 24 July 1992.

24 Jeff Pressing, 'Cognitive processes in improvisation', *Cognitive processes in the perception of art*, ed. W.R. Crozier and A.J. Chapman (North Holland, Amsterdam: Elsevier Science Publishers, 1984), pp.345-63; 'Improvisation: methods and models', *Generative processes in music: the psychology of performance, improvisation and composition*, ed. J.A. Sloboda (London and Oxford: OUP-Clarendon, 1988), pp.129-78.

Phillip Johnson-Laird, 'Jazz improvisation: a theory at the computational level', *Representing musical structure*, ed. P. Howell, R. West and I. Cross (New York: Academic Press, 1991), pp.291-325.

25 E.F. Clarke, 'Generative principles in music performance', *Generative processes in music*, pp.1-26.

Geoffrey Smith, 'In quest of a new perspective on improvised jazz: a view from the Balkans', *World of Music* 33.3 (1991), pp.29-52.

Johnson-Laird, 'Reasoning, imagining, and creating', *Bulletin of the British Psychological Society* 40 (1987), pp.121–29; 'Reasoning, imagining and creating', *Council for Research in Music Education* 95 (1987), pp.71–87; 'Freedom and constraint in creativity', *The nature of creativity*, ed. R.J. Sternberg (Cambridge: CUP, 1988), pp.202-19.

26 Pressing, 'Cognitive processes', p.356.

27 Journal entry, 7 April 1992.