

CMPCP Cambridge Conference Paper - Learning Jazz Improvisation from a schema context July 12th 2011

Introduction - This paper is written from the perspective of a player and teacher; it is a work in progress that seeks to understand the complex nature of the adaptive and dynamic skill of jazz improvisation as it naturally occurs in the real world and in real time. Specifically, it is undertaken to improve my own creative practice as player and to facilitate that process in others as a teacher. It is therefore essentially a practical undertaking underpinned by a strong theoretical ground.

Overview - The paper is organised into three distinct sections: the first discusses the historical context of jazz education as it was learned within a community of practice and latterly in the academy; the second looks at a cognitively based schema theory framework that I have used to try to understand the improvisation process. The third part briefly describes and evaluates a year-long, teacher action-research project that I carried out at Leeds College of Music with 2nd year BA jazz students, interrogating elements of the theory and comparing the relative effectiveness of a typically academic and prescriptive teacher-led approaches to learning jazz improvisation with more autonomous student and peer led activities.

Historical context

Experiential learning and enculturation

Prior to the mid to late 1960s and before jazz was formally taught in the academy, jazz musicians learned their craft and art autonomously through a rich mix of enculturation, transcription from recordings, informal performance opportunities, peer learning, and chance encounters of the jazz kind. Much depended on luck where you were, who you heard and met and when. The responsibility for learning was placed entirely on the novice who had to find the requisite information by themselves, in an organic and largely haphazard way, that has more in common with Gibson's notion of information pick-up in an ecological perspective. Novice improvisers learned within what Paul Berliner (1994) calls the 'jazz community' made up, primarily of jazz musicians but also including record shop and jazz club owners, interested family members, peers, musical press, sheet music publishers and so on. From the mid 1920s to the mid 1950s onwards, jazz music was also the popular music of the day and widely available on radio, cinema soundtracks, in dance halls. So the sound and form of the music was absorbed non-consciously through enculturation in a way that is no longer possible due to the

fragmentation of mainstream musical media. Because development was relatively slow, jazz novices developed their own unique styles and sound by mainly emulating their idols and practicing their learning on a bandstand. The sound of many of the jazz idols was so distinctive that they can be identified after a couple of bars purely by the timbre, time feel and phrasing. The experiential and informal learning process was similar to how Lucy Green describes pop musicians' learning today, except with slightly more 'tradition'; with a depth of field of more experienced players and a more complex musical framework. It was essentially an aurally learned and transmitted music so that each generation absorbed and build upon a strong tradition which required that players 'paid their dues' acknowledging the work of their idols, learning it arduously and then moving on. This is not to say the academic work was eschewed - many players had formal lessons at music schools or studied from schooled musicians - rather, there was no curriculum or formal set framework. Novices copied solos from their idols - for example, Charlie Parker wore down the grooves of his Lester Young records taking down the sextet recordings and in his own early recordings the influence of Young is clearly heard especially in the angular and displaced phrasing.

Jazz in the academy

From the mid 60s onwards, jazz entered the academy at a time when jazz had ceased to be the popular music of its day and when many small jazz venues and jams closed up and with them a whole range of opportunities for listening, performing and trying jazz improvisation out. One of the early jazz education books by Jerry Coker, actually states in the introduction that it is intended to take the place of the closing jam sessions- which represents a change from aural and performing tradition to a literary and notated form. There began a formalising of jazz education, led primarily by David Baker expressly to codify and learn the be-bop 'language' that was up until that point in time, regarded as the high point of jazz development. Coming from a technician perspective, this approach involved defining and exploring every interval in every key and endless patterns for jazz, (based on standard harmonic progressions), before any meaningful improvisation could take place. It was also a written down version of improvisation that George Lewis describes as Eurocentric, by which he means literary, analytical and explained in words, as opposed to an Afrocentric perspective which is essentially aurally based. And so we have a major change in the way jazz is learned from an aural basis to a notated one and moving from autonomous learning to a fixed, taught curriculum. The homogeneity of jazz education in the US led

to criticisms by the jazz press, audiences and academics that young players were coming out of jazz schools all sounding the same and 'playing by numbers'. Whilst, this is still leveled from time to time (Stuart Nicholson had another go recently in his book- Is Jazz Dead?) it is clear that the 21st century incarnation of jazz education in the conservatoire, is producing more and more creative players than ever at a younger age. In the UK, for instance, players such as Gwilym Simcock, Kit Downs, Laura Jurd, Jasper Holby are entering the jazz scene in their early 20s as fully formed improvisers and involving themselves in adventurous and unusual projects. In the age of informal learning, aside from the odd prodigy such as Charlie Parker, most players were 30 at least before they were really becoming creative as improvisers.

Within jazz departments and conservatoires, there followed a gradual development of a canon of jazz works, created by teachers, academics and critics, from which many players were excluded (including women), and a fixed notion of what constitutes jazz playing and improvisation. Scott Deveaux challenges the widely held assumptions about the linear development of jazz, and questions whether the music of Louis Armstrong and for example, free improviser Evan Parker can be part of the same genre or tradition. The extreme form on this continuum is Wynton Marsalis and his Lincoln Center Jazz Orchestra that performs Ellington's and Armstrong's music, as per the record, including the original solos. It replaces improvisation as a creative art with a reproduction that is closer to classical music than jazz, and is a long way from Whitney Balliett's notion of jazz improvisation as 'the sound of surprise'. It is no accident that Marsalis has managed to sell Jazz as America's classical music and thereby accessed huge amounts of funding from rich donors.

Currently, from discussions with colleagues from the US and Europe, it is clear that the Americans still favour the Baker methodical approach, and really emphasise the need to understand and absorb the jazz tradition as they recognize it. Their curricula are based on the canon of works by such players as Louis Armstrong, Lester Young, Coleman Hawkins, Charlie Parker, and John Coltrane. Students learn set repertoire, transcriptions and then the whole craft of jazz music - composing, arranging, aural, harmony, and specific instrumental practice. Interestingly at the best US Jazz colleges, such as the Manhattan school, teachers no longer assess and mark final recitals, but record them at jazz gig and send them to a professional musician for peer feedback. They consider that the musical identity

and integrity of the performer is sacrosanct and recognise the problematic and highly subjective nature of assessing and marking creative improvised musical performance.

By contrast, jazz educators at European Conservatoires strongly believe that the US is no longer at the forefront of creative practice in jazz and that the most interesting jazz comes out of Europe. They cite players and composers like Bobo Stenson, Jan Garbarek, EST, Django Bates, John Taylor, Norma Winstone and Kenny Wheeler and the raft of free players and young up and coming improvisers who now seamlessly cross genres and create their own unique sounds that incorporate contemporary music of all types. Some European jazz educators think that the US tradition is now part of history and no longer important in order to become a contemporary jazz improviser. British conservatoires tend to combine both approaches by strongly focusing on certain elements of the tradition but also encouraging students to develop their own voice at an early stage. Finally, jazz education in the UK in the conservatoire, has also suffered from being bolted onto a classical model of learning, which has encouraged the canonical approach and has neglected more appropriate aurally based, collective and peer learning approaches. Thankfully this is changing with the advent of the IMP research from Graham Welch et al and is gradually being addressed: jazz should be taught and learned in an environment that supports and enhances it's aural beginnings - in a more jazz-like and improvised way.

Cognitive and schema based learning

Moving on to how jazz improvisation may be learned from a cognitive perspective - the theoretical framework that I feel is most useful to explore the process is that of schema theory. A schema is a dynamic, abstract framework in the mind/body that structures physical and mental experience and is structured by that experience. It is an old notion discussed by Aristotle in the *Metaphysics* and Plato in the *Meno*. In The Enlightenment, conceptual schemata were explained by Kant in his *Critique of Pure Reason* and how for example, the schema of triangle, as opposed to the image of a triangle, exists only in thought and can be used as a tool to create a different order of thinking. There are neural correlates for the schema, which Michael Arbib has been exploring in creatures since the 70s and indeed in the 1940s the neurologist Donald Hebb, in explaining how he thought the brain organized learning, described how learning to write one's name is schema based. Although we begin writing our name in small letters using our wrist and fingers and combining effortfully conceptual ideas of symbols and sounds and fine motor skills, once it

is learned, we can immediately write our name in the sand with a stick, or paint it vertically on a wall with a brush. This requires the instantaneous recruitment of new, larger muscle synergies (the arm and shoulder and back muscles) and completely different bodily orientation. Nikolai Bernstein the Russian physiologist also worked at length on the schemata of movement exploring in fact how all movement is adaptive and therefore schema based. From detailed, specific muscular and motor training, generalised adaptive and novel movements can be made. Richard Schmidt developed these ideas in relation to sports skills during the 60s and 70s. Jean Piaget too was interested in the schema in child development and understood that the schema was neither perceptible by the observer nor introspectible by the individual thereby making the study of them very problematic. Indeed they can only be perceived by changes in behaviour and this is the reason I think that research into schemas has been minimal.

To briefly mention the neurological basis for the schema - Arbib who has worked on it the longest, states that a schema constitutes the long term memory of a perceptual or motor skill or the structure of co-ordinating such skills, whereas the process of perception or action and the learning of the skills is controlled by active copies of the schema, called schema instances. Therefore as each new perception or action happens, then a schema is triggered into an instance which takes into account and adapts to the current situation, thereby enriching the long-term memory further and continuing the cycle.

So the schema or rather schema assemblage for the learning and performing of jazz improvisation is complex but essentially consists of aural memory and audition to motor process - that is: scales, patterns, motives, fragments of melody are heard within aural memory and then played via muscle synergies and motor programmes within the spacial confines of a musical instrument. By contrast, classical musicians learn to trigger motor schemas through the visual stimulus of notated music- they then learn the aural to motor programmes in order to memorise it. Certain kinds of instruments, piano for example, allow the musician to scaffold this process with visual schemata. All of this is underpinned by the conceptual learning of harmony, repertoire, and what is referred to in the literature as 'the language of jazz'. Then there are added social schemata around the conventions for playing and the communal support that jazz musicians supply each other within the musical context. For the purposes of this paper, my focus has been on the

aural memory and audition, to motor and spatial/kinaesthetic schemas. David Sudnow, in his *Ways of the Hand*, also emphasises the importance of creating the shapes, stances and body movements in order to improvise well. In past research projects I have tried to follow the development of the schema within a novice improviser and for the project I am about to describe, I wanted to continue this process, but also to compare the effectiveness of prescriptive teacher-led activities with more peer orientated and autonomous approaches. And by that means, to assess the pedagogical effectiveness of the typical jazz curriculum, with students own individually motivated study. Teacher action research methodology has been developed since the 60s when it was first advocated by Lawrence Stenhouse as a way of improving one's teaching and student learning through improved planning, observation, reflection and evaluation. Essentially, it accepts the dynamic and complex nature of the interactive learning situation as something that educators face on a daily basis, and seeks to improve what happens within it, through an interrogation of process, observation of behaviours, and awareness of learning outcomes over time. Within the conservatoire we tend to work in a collegiate way as most teachers continue to be performers and players and to develop as such.

Teacher action research project

The teacher action research project set out to follow the process of learning improvisation with three separate BA Jazz second year student groups over the period of a year. At the start, all the students (22 in total) improvised over the standard tune, All the Things You Are by Jerome Kern, which we had worked on over the previous semester. I wanted this to act as a base-line assessment and also to evaluate how much they had remembered after the summer gap and what kind of improvising schema they had already developed after a year at college. The same tune was played at six-week intervals to reassess it and also at the end of the second semester. In between we covered a range of areas and activities that were teacher led; the learning of important standard repertoire, developing aural to motor programmes using combinations of intervals within scales and using rhythmic changes to vary them; collective transcription from recordings; specific use of solfa and aural training for improvisers. They in turn worked on their own transcriptions and performed them in the class (as a highly motivating and interesting activity) and brought along their own tunes and things that they wanted to work on, some of which were related to other projects and lessons.

What I was looking for in terms of evaluation and process, was fluency within the solo and technical ability across the range of the instrument; a certain coherence of individual style - the beginnings of an individual improvising voice; melodic and rhythmic development of motives and ideas; an outlining of the harmony of the progression and a move towards more harmonic sophistication and chromaticism; expressiveness within the melodic line and also using timbres, time feel and ways of phrasing that expressed a feeling; a sense of the tradition within the solo and of authenticity to the personality of the student and their own likes; some element of communication or being able to follow the student's musical ideas at some level and finally, novel ideas or gestures - the sound of surprise. How novel ideas are created is at the essence of the schema theory for jazz - they come as a result of the generalising of specific instances or examples - by focusing on the musical detail of practice.

So within the teaching process my aim was to help the students to develop in those areas through specific exercises developing aural memory, extending ideas over longer progressions, using imitation and elements of the melodic and rhythmic energy of the tunes and so forth. Obviously their skills were not learned in isolation - they had instrumental lessons, work in separate aural and ensemble classes and theoretical support in harmony, composition and arranging. To incorporate the schema theory within the planning, notation was not used, so all of the exercises focussed on aural to motor process and the development of aural memory. We also spend considerable time working on small details and then generalising them. For example, transposing at will is an essential requirement for the improviser and novices tend to be poor at it. So tunes were learned off by heart and then immediately transposed to near and then further keys, also by ear, in an attempt to speed up the schema process and to extend the aural to motor connections using aural memory to drive it. As a challenge, I set them Chris Potter's 10 minute solo improvisation of All The Things You Are, played at a workshop to show what could be done in the area of exhaustively developing and executing an idea. It is almost like a theme and variations approach, where he extemporises around the tune, creates ideas, develops them, alters them rhythmically, changes the time feel and so on. The three students who learned the solo aurally seemed to be the ones who developed their jazz improvisation skills the most, perhaps because the technical challenges required to take down the solo, and then play it at speed, raised their game.

Outcomes and conclusions

I am still working on the analysis and outcomes of the data - all the lessons were recorded on DVD and there is a vast amount of rich data to contend with. However a number of elements have become clear and need further investigation.

The link to the experiential and autonomous learning of the early jazz musicians is strong in those students who are successful at becoming improvisers in the ways I have previously described. Those students who progressed the most were also those who did the most transcription and this is because they were coming into contact with the entire schema of a master player aurally and step by step.

The process is that the outline of the solo is first grasped by singing and then ever more subtle detail is absorbed and performed - the nuances of expression, the contours and dynamics of the phrases the varied articulations. The solo will have been the result of many years of practice and study by the performer and the novice is able to breathe it and live it in their body. By the end of the process, they will have improved their aural ability, technique, awareness of line, development of ideas, analysis of harmonic features and so on. It is also an autonomous process - students choose those improvisers that most inspire them and work at their own pace, often very slowly.

Peer learning proved to be a very effective way of working in the classes; students would show their peers what they had been working on or suggest different ways of practising that often had more impact than the teacher saying the same thing. The element of competition particularly among the lads naturally occurs in peer learning and they seem to challenge each other to play better in a supportive way. That I feel emulates the kinds of environments in which players learned originally.

The developing of students' improvisation through the framework of schema theory is fascinating and I have followed this through the performing and recording of *All the Things You Are*. At the start of the second year, their sound, phrasing and overall musical conception is already established and unique to each student and when for instance they are asked to play the same standard in seven instead of four, they are immediately able to alter their time feel and phrases to make musical sense of the new parameters - an instance of the adaptability of the schema. Over the course of the year, they become more fluent within their own particular style of improvisers-adding greater detail to the harmony, actively developing motifs and

ideas and using the sequential nature of the progression to lead the lines through the piece.

The implications so far are that jazz within a conservatoire setting should be taught in a more jazz-like way with a much greater emphasis on autonomous learning, a more flexible curriculum, peer learning and the slow development and nurturing of the individual player within a stronger community of practice.

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