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Time–space structuring in spontaneous play on educational percussion instruments among three- and four-year-olds

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This article reports on a study which investigated the spontaneous instrumental music-making[1] *of three- and four-year-olds in typical pre-school educational settings in London, UK. It argues that many prior studies of children's music-making have analysed and evaluated such activity against models drawn from the practices of Western art music and its conventions of analytical theory, and suggests that this approach has certain drawbacks. The study adopted a grounded theory methodology moving through three phases in different nursery classrooms. Each phase was characterised by successive focusing and refinement of methodological tools in response to the emerging findings. Data were collected on videotape which was then repeatedly reviewed, transcribed and categorised. The children's music-making was analysed as relational processes in time and space involving the two-way interplay of child and instrument. Structures in space delineate the child's movement within the spatial potentials and constraints of the instrument design. Structures in time describe how movements and movement ideas were strung together in ever-lengthening portions.*

Introduction

Most three- and four-year-olds in nursery education in the UK are provided with the opportunity for self-initiated play on musical instruments. Typically, one area is set out with a range of educational percussion instruments. In the free play times of the nursery children can visit the music area to play as they wish. This provision is based on the view that self-directed music play is a natural, intuitive behaviour that can, and indeed should, be part of pre-school music education (*cf*. QCA, 2000). The study reported here set out to observe children's self-initiated play in music areas with a view to discovering some of its fundamental features and characteristics.

A review of earlier studies revealed a prevalent notion: that the spontaneous instrumental music-making of three- and four-year-olds consists of little more than a preliminary phase of random exploratory behaviour. It would appear that this notion has become embedded in music education thinking, receiving strong support from general theories of children's learning derived from developmental psychology. As a consequence, young children's activity has received only passing attention from music education research which has tended to focus on older children, when more 'mature' versions of music-making are considered to emerge. I maintain rather that, if viewed from reconsidered theoretical perspectives, young children's musical activity will reveal complex forms of organisation

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underpinned by certain competences. Work in other domains of early childhood activity has led the way by revealing hitherto unrecognised competences in young children's activity when viewed from revised perspectives (e.g. Matthews, 1984; Athey, 1990).

In examining the theoretical frameworks that underlie prior studies of young children's play on instruments, it was found that the practices of adult musical activity are taken, often implicitly, as models to guide the research process and as conceptual frameworks for the analysis and interpretation of young children's behaviours. So, for example, researchers may design tasks with the inbuilt expectation of collecting completed and defined 'pieces of music', which are then conventionally notated and analysed according to pitch and rhythm structures drawn from the practices of adult Western art music. While this approach reveals important information about how children might progress towards the acquisition of conventional musical skills, it carries assumptions about the nature of young children's musical activity (Young, 2000). To build an understanding of the processes of children's music-making, a perspective based on adult musical practices may not allow for versions of music-making which lie outside the predetermined norms it implies (see Pond, 1979, who argues similarly). Moreover, a number of writers concerned with general issues of early childhood research (James & Prout, 1997; Christensen & James, 2000) have cautioned that, when measured against adult standards, young children's activities tend to be seen in diminished status.

Review of prior studies

In several previous studies investigating young children's music-making on instruments, the methodological approach was to set up situations in which children undertook a predetermined task. While there may have been some freedom within the task – for example, the activities were loosely prescribed and improvisatory (e.g. Flohr, 1981) – nevertheless the expectation was that children would arrive at a musical outcome. In these studies the tasks and outcomes vary: the children worked at a compositional task as part of normal lesson activities (Barrett, 1996), they undertook a number of commissioned tasks which took the form of instant improvisations (Tillman, 1987, 1989), or they participated in improvisation activities with an adult who guided them (Flohr, 1981). The problem with such approaches is that what the adult considers to be an appropriate task for children may not coincide with the child's conception of the activity, nor with their current competences and priorities.

In contrast to the task-designed studies, a few researchers have observed children in self-initiated play in environments where instruments were made available. In these situations children had more control over the nature and direction of their playing. Pond *et al*. (Moorhead & Pond, 1941/1978) observed and documented children's self-initiated music play in a nursery setting which was well stocked with a range of instruments in spacious surroundings. Dilkes (1998), similarly, made video recordings of four- and five-year-olds' self-initiated music play in a nursery context and then invited children to review these recordings and comment on them. Both studies describe an ongoing musical activity in process, tied into the social and material environment, and show how the music-making arose as an integrated component of a generic play activity. In neither study does it appear

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that children intended to produce music that could be separated from its situation of making, yet in the prescribed tasks this assumption was implicit.

In the light of these findings it is valuable that some researchers have seen analysis of the process of young children's music-making as more revealing of its characteristics than analysis of the product (e.g. Kratus, 1994; Wiggins, 1994; Marsh, 1995). But analysis of the process *per se* is no more satisfactory, if the search is still for musical features as derived from the formal analysis of musical products detached from the situation of making. Kratus (1989), for example, time-sampled children's music-making in process into categories of 'repetition and development'. However, these categories specify content-derived structural features which had been previously applied to analysis of children's completed and collected compositions. The time analysis simply identifies the 'product' categories at the point of making rather than from the collected outcome.

It is, therefore, the notion of process itself that needs to be reconsidered (Maus, 1999). Conceiving of children's music as detachable from the general processes of play, and therefore as separable from their bodily actions and interactions with surroundings of people and things, results in conceptions of process as something abstract and objectified. Thus I suggest that it is not the relative merits of the study of process or product that should concern us (cf. Barrett, 1998), but questions at the deeper level of the nature of musical process itself, and particularly how it pertains to young children's music (cf. Young, 1999a; also Maus, 1999: 181).

In order to further this investigation of musical process in young children's music-making it is useful to look more closely at findings from the Pillsbury studies (Moorhead *et al*., 1951/1978). Profiles of three children, in which descriptions of significant observations are collected, track their activity over some months. The final summary of one child's profile, Roy, aged four years and two months, which takes the form of a series of jottings, provides a representative sample from the profiles:

> *April*
> Regular unaccented beat adopted
> Drumbeat agrees with marching, accent with right foot
>
> *May*
> On small instruments, eight notes used
> On high drum, sweep of arm used; regular accent with right hand; left hand varied; primitive rhythmic effect
> When marching, step adapted to 3/8 drumbeat
> 3/8 movement of another child reproduced on drum
>
> *June*
> Drumming varied by alternate patterns, and by diminuendo, accelerando, crescendo, decrescendo; expressive performance
> When marching, drum patterns freer
> Patterning in sound itself, less physical basis
> Ensemble relationship felt. (ibid.: 100–1)

Roy's profile (Moorhead & Pond, 1941/1978; Moorhead *et al*., 1951/1978), derived from long-term observations, refers to patterning, to small-scale structures that arise from forms of body movement and from coordinations of playing with self-movement or the movement

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of another child. It is interesting to note, in anticipation of later discussion in this article, that the profiles provide evidence of forms that arise from the potentials of the instrument, as in a 'routine of striking each bar from top to bottom'. In addition, they describe forms of organisation that arise from movement and the structure of the instruments. In relation to the argument that it is inappropriate in the study of young children's music to collect discrete samples of music and subject them to conventional, abstract analysis, there is no mention in this profile of music made as pieces that stand alone, detachable from the moments of play.

The Pillsbury studies gave a methodological model for Cohen's (1980) long-term observational strategy of children's self-initiated music-making on instruments in a US kindergarten setting. From the observational phase she identified three categories of music-making: 'Exploration', 'Practice, or effort towards mastery', and 'Production of musical gestures'. She focused on the category 'Production of musical gestures'. The music-making of two selected case study children (one on bongo drums, the other on piano) is microanalysed to provide detailed evidence to support a theory of musical gesturing. Cohen argues that kinaesthetic gestures are the fundamental generator of young children's music-making on instruments. They are forms of organisation rooted in body movement shaped by the potentials and constraints afforded by the instruments played. The gestures are free-standing, sequenced within the ongoing flow of the child's music-making and relating only to the immediately preceding 'gesture'.

In summary, the review of earlier research into young children's instrumental music-making revealed two main approaches: either researchers collected samples of children's music from task-designed studies, or they observed children playing according to their own choices in environments set up with musical instruments. The collected samples of children's music were then subject to formal methods of analysis which mainly served to highlight the absence of structural features in young children's music. Developmental models from psychology have tended to ascribe the activity of the youngest children to phases of random, exploratory play. The findings from musical analyses were strengthened by being congruent with the developmental expectations. However, those studies that have observed children in more naturalistic, play-based surroundings have drawn attention to the situated, context-embedded nature of children's play with instruments and highlighted the kinaesthetic, body-based forms of structuring in interaction with the potentials and constraints offered by the instruments. It appeared that a study set up with similar methods and with similar observational priorities might better serve the aim here, to discover fundamental processes in young children's music-making.

Method employed in this study

For the study reported in this article, the decision to adopt an open-ended methodology within an interpretative paradigm appeared to be the most suitable. The fieldwork fell into three distinct phases, each phase being carried out in a different nursery with a new group of children. Findings that could not have been anticipated in advance emerged while the study was in progress and led it in reconsidered directions. Each phase was launched by some redefining and narrowing of the research focus. Most significantly, early in the fieldwork it was discovered that the children barely played in the music area set out for

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them. This discovery began to turn attention to those features of instruments that appeared to stimulate play, and to the way in which adult involvement encouraged more sustained play. As is often the case in research, the realities and initial experiences of the fieldwork fed back into revisions of the theoretical basis and a rethinking of the research procedures (cf. Eder & Corsaro, 1999: 524–5).

Although each phase of fieldwork was carried out in typical nursery environments, the study design was not strictly 'naturalistic' (Denzin & Lincoln, 1998) because the instrumental set-ups were partly imported and sometimes further contrived or manipulated. However, the research was carried out in an everyday setting familiar to the children and the data collected in situations that blended across many features with the nursery environment.

Sample

The study's priorities suggested that small-scale sampling in which children could be studied in detail would be appropriate. The expansion of the study into a different setting for each of its three stages allowed the research to become more focused and, at the same time, advantageously broadened the study to a wider number of children and to different nursery contexts. The total sample of children across the three nurseries numbered 95. This size of sample ensured variety of response and strengthened claims for representativeness to a larger population. The grounded theory methodology and relatively generous sample enabled a variety of strategies to be adopted, from detailed microanalysis of selected cases to broad, criteria-driven analysis of larger groups.

All three nurseries are located in south-west London. Nursery A is a private day-care centre for university staff and students. Nurseries B and C serve an area of high-rise and low-rise flats and small housing which are mostly rented from the local authority.

Choice of instruments and collection of data

A selection of educational percussion instruments was made available to the children in both Phase 1 and Phase 2, in keeping with usual early years practice. However, during Phase 2 the original decision to offer a range of instruments was reconsidered. The variations of instrumental structure and ways of using the body to produce sounds introduced many possibilities. First attempts to make sense of children's activity on a range of instruments were frustrated by this complexity.

The xylophone[2] was selected as the focus instrument of the study. It is too cumbersome to be easily carried by young children, therefore children's movement can be considered in relation to one set of fixed spatial dimensions. Videotape recording was facilitated by the fixed position. Introducing the xylophone into the nursery setting as a novel instrument for the duration of visits appeared to provide an instrument which had enough interest and potential to sustain play among the children and yet lay comfortably within the capabilities of their motor skills.

Ten weekly visits were made to nurseries B and C. Visits to Nursery A served initially as a pilot study phase and then merged into commencement of the study. The children's activity in the music area was recorded on videotape for a continuous period of one hour.

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Irrespective of whether children were playing in the music area or not, the camera ran continuously.

Transcription and analysis

The full video data from Phases 1 and 2 were reviewed and transcribed. Using a jog-shuttle for slow playback, often viewing frame by frame, the children's playing activity was noted across 30-second intervals. This was not a time-sampling technique, simply a means for mapping across time and locating events within each hour of video data. One column of the transcription noted interpersonal interactions, another column described the child's activity in relation to the xylophone, and a further two columns indicated which children played and the instruments they used.

The transcription focused on the child's playing actions, reflecting the belief that a close reading of movement (Moore & Yamamoto, 1988) and other contextual detail (Miller *et al*., 1989) would offer insight into the processes of music-making that would have been lost by a focus only on the resultant sound. This process resembled the extended period of observation advocated by ethologists in which they aim to define behaviour units according to the bodily features of movement (Rolfe & Crossley, 1997). The aim was to describe everything perceived to be significant at that stage of the research with as little bias as possible (Bruscia, 1995: 321). Thus, the close review of the material necessitated by the transcription process allowed salient features to begin to crystallise from the unedited data.

There was also the difficulty of trying to get beyond what is, at first, fully recognisable and familiar as young children 'just playing' as they are wont to. There is a level of 'obviousness' that has to be challenged (Atkinson, 1993: 170). It is the failure to move beyond this level, I suggest, that has resulted in many researchers accepting the broad 'exploratory' descriptor unquestioningly for children's music play.

Portions of the original data were abstracted from the final total of 17 hours of videotape and collated onto one single edited videotape. Although there were many instances of more than one child playing together with the instruments, the complexity of analysing these social play episodes risked overloading the study. The single-child play episodes, taken from the original videotapes, were repeatedly reviewed for any regularities and patterns that might begin to emerge.

It would be misleading to suggest that the translation of collected data into a systematic understanding was a straightforward process. The aim was to retain the complexity of children's music play and the dynamic flow of events (Bruce, 1991), yet, at the same time, to conceptualise all dimensions closely and clearly enough for study and reporting. The non-verbal aspects of human behaviour and the non-sonic aspects of musical behaviour are largely non-formalised within their respective disciplines. Consequently, there were no ready-made analytical systems or sets of codes that could be adopted or adapted.

Other observers were not routinely involved in the process of reviewing and coding the videotape data. The evolution of categories of behaviours is a long process of constant comparison. One key outside observer with particular expertise in early childhood music education was invited to view large portions of the video

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data and to consider the categories and interpretations as they had evolved. This vetting and the discussion that ensued provided a safeguard against overly subjective interpretation.

Interpretations

Music play episodes

As a result of the unprescribed nature of the research procedures, children were free to come and go to and from the music area of their own volition. The notion of a 'music play episode' is a result of thinking in time-based spans of play in which the child is mostly intent on sound-producing play with the xylophone, in contrast to the commissioned 'pieces' of some prior studies. Some episodes were fleeting, little more than 30 seconds, while others would extend for several minutes.

In reviewing the data it was fruitful to begin to see dimensions of play within the music play episode. Other researchers have designated young children's music-making in broadly encompassing categories such as 'exploration' (Cohen, 1980; Kratus, 1994), 'experimentation' (Flohr, 1981, 1984) or 'materials' (Swanwick & Tillman, 1986). Within each of these overarching categories the children are assumed to be presenting one type of behaviour. A more discriminating analytical approach, particularly within categories hitherto described as 'exploratory', revealed a range of more complex behaviours. A single child playing with the xylophone engaged in object play, perhaps alone or with a listening adult in attendance, appeared to engage in complex families of different kinds of activity.

These complex families were grouped into three categories; 'instrumental music-making', 'hybrid instrumental music-making', and 'non-sounding play with the instrument'. Of these, non-sounding play can be set aside. It should, however, be recognised that adult priorities rarely coincide with children's and that a xylophone primed for educational purposes to promote musical activity will be appropriated by the child for diverse play purposes.

Hybrid instrumental music-making

Children bring all their resources to any new encounter and exploit what they have already acquired to make sense of new experiences (Athey, 1990). As a result, they hybridise their play, creating connections, blendings and fusions which extend what they are able to do. Some forms of hybrid musical play exploited cultural models, such as known song forms or the regularity, linear direction and accumulation of the number system. Other forms exploited choreographies arising from whole-body movement or narrative structures of story in role-play sequences. This hybridising appeared to be an intuitive process in which the instrument and the physical actions of playing with it triggered different kinds of cross-integration.

While these hybrid forms of instrumental music-making are interesting and deserve attention, the purpose of this article is to describe the more fundamental processes of time–space structuring.

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Time–space structuring

The interpretation of instrumental music-making beyond the hybrid forms proceeded along two axes. The first was concerned with spatial structures – primarily the moving child and the instrument morphology in relation to one another. The second was concerned with time-based structures – the timing, clustering and contouring of movements to create effects in time. The two axes, time and space, are inevitably interrelated, so that distinctions are sometimes difficult to disentangle. So, for example, factors which define the spatial parameters such as the length of the beaters and of the child's arms, the size of the xylophone's playing surface, its distance from the child and the kinesphere around the child, create sets of relationships from stable spatial measurements which affect calibrations of timing. The beaters act as intermediaries between the hands and the instrument itself, further transforming the characteristics of the bodily movement in producing the sound. Bodily movements are spatially exaggerated and amplified by the beaters.

Structures of space

Trace forms

The xylophone construction provides a fixed horizontal surface comprising a deck of keys framed by two flat, wooden ends. It has directional possibilities to the left and right sides and less extensive possibilities to move from front to back. Very occasionally children maintained a regular striking in one position only, but usually they ranged their strikes over the instrument creating invisible but sounding 'trace forms'. This term is applied to dance movements by Barteneiff & Lewis (1980) to describe the patterns and contours of movements in space. In a similar way, children played with the instrument, creating spatial patterns arising from the placing of their playing movements in relation to the instrument structure. These trace forms were often marked out using horizontal, back and forth sliding movements, but they might also consist of a series of dabs or strikes purposefully mapped onto the instrument.

Pathways

Straight lines provide the simplest orientation in space. A common pattern observed among many children was to apply direct movements in a pathway moving from a starting point towards arrival at a fixed goal, typically either wooden end of the instrument. The children appeared to find satisfaction in exploiting kinds of logic which resulted when strikes were placed in an ordered way in relation to the xylophone structure.

The pathways were often extended in simple reversals, strike patterns up and down the xylophone or glissandi movements back and forth. The analytical focus on notated transcriptions of sound alone, rather than on the fusion of sound and movement, has directed researchers' attention away from these spatial movement structures and their extensions into simple sequences of exact or transformed repetitions. It has also obscured how they operate as a generative source in children's music-making.

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Action forms

In contrast to trace forms, which were predominantly spatial–visual in origin, action forms originated in the movement vocabulary of the child. The first playing action employed by children was the simple strike, either with one hand only, two hands simultaneously or two hands alternately. Clearly, the range of possibilities for playing actions is limited by the hand-holding of beaters and targeting actions to make contact with the instrument. (Very occasionally children would abandon the beaters and play using their hands.) Usually the beater was swung up and down with a regular momentum so that the sounds produced were regularly placed within a continuity of easy movement. However, sometimes children dabbed at the xylophone with smaller, quicker, more jerky and less regular movements.

Horizontal sweeping across the surface of the keys was usually the second movement to be exploited by the children, again in various combinations of single-handed or two-handed play. This glissando-producing movement had two forms, one of which swished back and forth and the other of which rotated. In the rotating version, the sound is always produced from the one segment of the circular movement that contacts the sounding surface. A faster zig-zag, scrubbing-like movement in which the beater never loses contact with the key surface also appears frequently. All these action forms consist of relative degrees of space, weight, time and flow (see Barteneiff & Lewis, 1980) and had corresponding dynamic, durational and timbral effects on the resultant sound.

Body sidedness

Two beaters were always available to the children and they made varied choices. Some chose to play with only one beater for some or all of the play phase, either not grasping the second beater, dropping it after a while, or holding one in their non-dominant hand[3] without using it. If, as most did, the children played with the two beaters, simple structures and movement patterns arose as a direct result of two-handed patterning and body symmetry.

Body sidedness is related to directionality. The body midline is an axis of body symmetry which marks the child's left–right dimensions. The child projects a double-sided body image into the playing space onto the xylophone. The width of the xylophone extended beyond the sitting child on both sides, so, if the child was sitting centrally then each hand had a playing area also symmetrically organised. Striking with both hands simultaneously or alternately were the simplest forms of such patterning to arise.

Crossing the midline

Later in a music play episode some children would start to explore the possibilities of crossing the midline. In one simple version, one hand dominates and travels into the territory of the other, passing over and beyond the midline in a movement which draws the arm across the front of the child's body. However, often this movement appeared to be driven more by a motivation to create spatial forms, a pathway from one end of the xylophone to the other, for example, than by a motivation to challenge the symmetries of two-handed play. Applying more complex movements, children did begin to exploit the crossover of hands so that each played in the opposite space. Thus, patterns arising

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from variations of two-handed play in relation to body sidedness would also operate as organising devices in the processes of music-making.

Structures of time

Repeating

Very repetitive playing actions, usually a steady striking with both hands simultaneously at medium tempo, were observed in the playing of many children. This repetitious playing would often be sustained for a period of time. It was particularly noticed among children who played alone. These instances appeared to represent a class of movements on their own, set apart from those in which the children's actions were grouped or contoured. Since the children would continue with these movements for some time without pausing or resting, it can be suggested that they set up a comfortable momentum that was self-sustaining. The repetition created a co-resonance of multi-modal sensations of sound, movement and tactility. The children appeared immersed in the activity.

These repetitive movements have been noticed by other researchers and sometimes reported pejoratively with terms such as 'plodding' (Flohr, 1981) or 'banging'. Western art music is organised around the forward rhythmic momentum conveyed by melodic and rhythmic patterning, hierarchically organised into phrases and sections. Repetitive, more static musical structures are characteristic of other styles of music, examples of which would be minimalist styles, disco-beat styles or percussion ensemble styles from sub-Saharan Africa. This serves to illustrate a fundamental argument of this article, that broader, more inclusive conceptions of music and musical processing would encompass and recognise features of children's music.

Clustering

A single action, such as a vertical strike or short, horizontal sweep, could be repeated in a group, or cluster, of identical movements which was then followed by a pause. Painstaking analysis revealed that individual children often maintained a characteristic number of repetitions of the same discrete action within a cluster. So, for example, one child grouped in 9 or 10 actions per cluster, whereas another child grouped in 6 or 7 (the typical 'Twinkle' rhythm). An analysis of Cohen's data revealed similar groupings in the kinaesthetic 'gestures' (Cohen, 1980).

Informative work from studies of infancy suggests that the grouping of actions into what has been called 'burst-pause' patterns of about four to ten units, very similar to the grouping patterns identified here in children's music-making, is a characteristic even of newborn behaviours. Here the features of children's music are interpreted in terms of preceding behaviours in infancy rather than measured up against a set of hypothetical, future musical behaviours. This process of identification then raises interesting questions about the future progress of such forms of musical organisation. For instance, how might these apparently fundamental burst-pause patterns form a basis for emergent forms of structuring which connect with stylistically conventionalised forms such as the repetition and development of phrases?

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Chaining

Once a key spatial-action idea was established, such as a pathway of strikes, a cluster of dabbing movements or an energetic rotational movement, it would be repeated in sequence, or chain. Sometimes the successive versions were almost identical, sometimes they were varied in some way.

Points of transformation and phasing

Children often stayed with one idea, 'chaining' it for a period of time within the play episode, and then moved on to new ideas. Transformations marking the change from the playing out of one idea in a phase to the next phase came in many types. The change might be quite abrupt or gradual, occurring via a metamorphosis so that the new idea emerged from its predecessor. Alternatively, the transformation might occur as a result of incorporating another idea, returning to an earlier idea or moving to a new idea. One child played with three key ideas, a grouping of generous beater swings, a 'pathway', and a one-by-one number idea which tracked slowly up and down the xylophone. At certain points in the play episode she would return to earlier ideas or blend them to create something new. Transformations could arise from external resources, as a response to others, to the possibilities perceived in the beaters and the mechanisms of the xylophone, or they could appear to arise from internal motivations. Sometimes they were an adaptive response to interruptions or other intrusions to the ongoing flow of the playing.

The ability to absorb, adapt and be flexible to whatever presents itself, and to incorporate and blend it into the music-making, is a positive characteristic of children's play that is often not acknowledged. Music-making takes its shape in these varying instant decisions about how to proceed. However, in self-initiated music-making the children's play is not aimless or random, as many have implied, but played with a sense of their own purpose and direction – the 'intentionality' that Mialaret (1990) also identified. It would appear that young children have no difficulty maintaining a 'free-flow' (Bruce, 1991) of playing which has in-flight responsiveness to both their own internal ideas and the ideas thrown up by environmental encounters.

Discussion

In the strand of the study reported here[4] the children's music-making was analysed as relational processes in time and space involving the two-way interplay of child and instrument. It is proposed that the children's self-initiated music-making, alone and on a xylophone, can be conceptualised as originating from two primary sources: the child's physiology and existing movement vocabulary in interaction with the play potentials of the instrument and its position in space, relative to the child. It is a method of understanding musical process also advocated by Baily (1985). Although, ultimately, the whole music-making activity is conceived as operating in an amalgam of interactive potentials originating from many sources, categorising, as presented here, is helpful to any process of analysis, explanation and discussion.

The children's extension of ideas in free-flow play into structures of repetition, clustering and chaining was discovered from the analysis of their action-based musical ideas directly

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from the video data, not from analysis of notated transcriptions. Considered from the child's perspective, the sounding result is inseparable from bodily involvement. The sounding ideas are perceived as analogues of their movement, one facet of an inter-sensory whole.

The analysis in dimensions of time and space reveals that there are forms of organisation underpinning the children's music-making. This presents a challenge to research outcomes that have characterised young children's instrumental music-making as exploratory or experimental. Exploration carries within it implicit beliefs of an unthinking randomness – at worst, a low-level activity akin to 'messing about'. Such descriptions offer little scope for the designing of effective models of practice and fail to challenge beliefs that these are preliminary, primitive phases which can be, indeed should be, passed through quickly. This, I suggest, has resulted in the widespread 'laissez faire' approach to young children's play in music areas where practitioners believe that exploration requires no adult interaction or intervention. It is important, therefore, that discussions of young children's musical activity in music education circles highlight the forms of organisation that are identifiable and the competences they imply, so that appropriate provision and pedagogical strategies can be designed.

Implications for practice

If young children's music-making is conceived as arising from the child's own proclivities and acquired experiences in interaction with the possibilities offered in well-equipped music play environments, then it focuses attention on the play potential of instruments and how they are set up. It is interesting that Pond equipped the Pillsbury experimental nursery with adult instruments, a donation of percussion from the Far East and Africa, and supplemented this with stringed instruments such as guitar and zither. He set them out in generous spaces. In contrast, contemporary early years practice provides 'children's' instruments, designed for educational purposes. Many of these are designed with economy and robustness uppermost in mind. They are often instruments which combine well with other players in ensemble playing, rather than offering up possibilities within their own structure for individualised play. It has been demonstrated in this article how the instrument itself is one source of generative ideas for children's music play – as, indeed, in all music.

Early years settings in England tend to be cramped, even cluttered, and the children's movements, at least within indoor spaces, are constrained. Active movement-based music play, and the resulting sound, can be successfully accommodated out of doors, but this represents a departure from usual practice for many early years practitioners.

Learning to observe, listen to and identify the forms of organisation that underpin children's music-making helps practitioners to evaluate it positively, and consequently to be affirming and encouraging in their attitudes. Perhaps most importantly, these approaches, of considering the play potential of equipment and how it is set up, and observing in order to understand children's activity on its own terms, represent general approaches which are familiar to early years practitioners from their work in other domains, and thus are easily transferable to music.

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Notes

1 The term music-making was adopted to denote self-initiated, playful activity on instruments among the children studied. I take the view that this form of music-making is a starting point for the production of original instrumental music by three- and four-year-olds in educational contexts and embraces activities which are (in educational practice) commonly termed either improvising or composing. Therefore, there is no requirement in this article either to engage in a debate about the differences between composition and improvisation, or to decide into which category young children's activity should be designated. Wolterstoff (1987) suggests that the evolution of music in an imaginary society would, first of all, have 'music-making' and, initially, no conception of composing or improvising. The three- and four-year-olds at the start of their formal education join Wolterstoff's imaginary society.

2 The xylophone was a Sonor palisono, tenor-alto (c′ - c′′′) single row C major scale (19 bars). Pairs of Sonor felt-headed mallets were also provided. These have the advantage of being shorter in length than other similar mallets.

3 The 'handedness' of children is based on assumption; no test was applied to check whether the children were left- or right-hand dominant.

4 Another strand of the study was the interpersonal dimension of children's music-making and an analysis of the interactional structures between a child and a play-partnering adult. See Young, 1999b, 2002.

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