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ABSTRACT This article reports a quasi-experimental study of the effects of improvisation on the development of children's creative thinking in music. The study was conducted in a primary school classroom with two matched groups of 6-year-old children over a period of six months. The music lessons for the experimental group were enriched with a variety of improvisatory activities, while those in the control group did not include any improvisation, but instead were didactic and teacher-centred. Children in the experimental group were offered several opportunities to experience improvisation through their voices, their bodies, and musical instruments. Webster's Measure of Creative Thinking in Music – MCTM II (Webster, 1987, 1994) was administered before and after the six-month teaching programmes (i.e., pre-test and post-test) to assess children's creative thinking in terms of four musical parameters: extensiveness, flexibility, originality, and syntax. Analysis revealed that improvisation affects significantly the development of creative thinking; in particular, it promotes musical flexibility, originality, and syntax in children's music-making.

KEYWORDS: *child development, creative thinking, improvisation, training*

Introduction

Creativity tends to be associated with imagination, the unconscious, our intrinsic free spirit. It is a means of expression not only for skilful professionals, but also for any human being. Creative thinking in music is 'a dynamic mental process that alternates between divergent (imaginative) and convergent (factual) thinking, moving in stages over time' (Webster, 1990a, p. 28). Musical creativity has been associated with children's cognitive and emotional development and its value is increasingly acknowledged in psychological and therapeutic studies. The importance of creativity has been stressed by many researchers and has been acknowledged in many different fields, including psychology, sociology, and education. It can contribute to the development

of decision-making and problem-solving abilities, it can have positive effects on intelligence (Gruhn, 2005), and it can promote mathematical ability (Fox & Gardiner, 1997). Moreover, creativity is important for the advancement of children's understanding and appraising of music. Pratt (1995) suggests that through musical creativity pupils develop not only their personal creative skills, but also 'their ability to appreciate and evaluate the compositions of other people' (p. 11).

One view is that creativity is involved in every kind of music making, from the very first sounds that children produce during their play up to famous musical masterpieces (e.g., Davies, 1992; Young, 1995; Barrett, 1997; Glover, 2000). Another is that children have to be able to demonstrate a high level of musical structure within their music making in order to be regarded as creative, and assessment should be based on predetermined achievement targets (e.g., Swanwick & Tillman, 1986; Kratus, 1989). In the present research, musical creativity is defined as a natural response of children to music, which can be observed from their infancy and can differ according to their age, their musical experience, and various socio-psychological factors that can affect their development. Improvisation, as a particular form of musical creativity, is defined as children's spontaneous music making, using their voice, movement, or musical instruments.

The term 'creative thinking', rather than 'creativity', will be used throughout the article so as to place the emphasis on the creative process (exploration of musical ideas and experimentation with musical sounds) rather than the product, which can be seen as the outcome of that creative thinking. Children's music making at an early stage is characterized by an effort to express themselves without conforming to any specific rules, in terms of musical structure, character, or styles. Creativity in such cases can occur naturally and does not depend on any kind of previous schooling, past knowledge, or practised skills. At later, more advanced stages, creativity often requires the involvement of more intellectual skills and strategies; improvisation, in particular, becomes product-oriented rather than process-oriented (Hickey, 1995; Daignault, 1996).

Research suggests that with experience children's creative products are characterized by more advanced use of musical elements, originality, and syntax (e.g., Flohr, 1985; Swanwick & Tillman, 1986; Kratus, 1989; Reinhardt, 1990; Gordon, 1997; Brophy, 2002). The conclusion that children's creative ability improves with experience gave rise to the question of this study, which is whether improvisational experience can affect children's development of creative thinking. This quasi-experimental study takes a detailed look at the mechanisms by which improvisation might promote children's creative thinking in music using a pre-test, post-test design (pre-test, post-test randomized controlled trial). The study addressed the following questions:

- Are there any differences between the creative products of children who are engaged in an intervention improvisation programme and those who are not? Will children who experience improvisation demonstrate higher levels of creative thinking ability in music?
- If so, to what extent are various dimensions of creative thinking promoted – namely musical extensiveness, flexibility, originality, and syntax – as measured by Webster's Measure of Creative Thinking in Music II (MCTM-II; Webster, 1994)?

Children's creative thinking will be assessed based on their ability to manipulate music in terms of extensiveness (duration), flexibility (pitch, tempo, dynamics), originality, and syntax (patterns of repetition, development, and contrast). Children's chronological age and average level of cognitive, emotional, and artistic development will be taken into consideration when evaluating their creative products in music.

Theoretical background

Sternberg (1988) suggests that 'people are creative by virtue of a combination of intellectual, stylistic, and personality attributes' (p. 145). However, the nature of creativity is still a controversial issue: is creativity an inherent or acquired capacity? Plato, the ancient Greek philosopher, regarded creativity in the arts as a 'non-ordinary' phenomenon, which occurs due to divine inspiration. Similarly, there used to be a general assumption among authors that creativity is a gift for the few, the elite, and that it can only be found in prodigies. The great composers of the 18th century were believed to be such examples and their compositions often became the focus of the literature on creativity.

However, this view started to shift in the middle of the 20th century, with researchers assuming that activities that facilitate self-expression and the development and implementation of original ideas during childhood are likely to have a positive effect on the development of creativity in adulthood (Yamamoto, 1967; Torrance, 1967, 1975). Recent research has cast new light on the issue, suggesting that 'creating music is no longer seen as reserved for geniuses, but as an activity in which everyone can participate' (Folkestad, Lindström, & Hargreaves, 1997, p. 1). Everybody has the potential to be creative in music; the extent to which this potential will develop depends both on 'a predisposition towards exceptional skills in a particular field as well as the appropriate environmental conditions and stimulation' (Hargreaves, 1989: 13). Literature has generally shifted from an elite definition of creativity to a more democratic definition that suggests that everyone is capable of being creative in some area (NACCCE, 1999).

Balkin (1990) defines creativity as 'an acquired behaviour – learnable, teachable, tangible and crucial to human development' (p. 29). Hence improvisation, as a basic form of creativity, should be regarded as very strong support to creative thinking because it motivates children to use their imagination and their decision-making to create music that is original and, depending on their age, displays an analogous level of musical structure. Kratus (1991) suggested that 'improvisation can be divided into seven levels of musical behaviour' (p. 36): exploration, process-oriented improvisation, product-oriented improvisation, fluid improvisation, structural improvisation, stylistic improvisation, and personal improvisation. These levels are developmental but do not refer to specific age groups; they rather refer to the gradual development of improvisation skills, which is supported by the simultaneous improvement of the child's instrumental technique, the advance of musical knowledge, and the adaptation of musical styles. All the above imply that improvisation, as a certain form of musical creativity, is not an inherent skill, but a high-level teachable skill that improves with intellectual development, learning, practice, and experience.

Improvisation and composition are the basic forms of generating new ideas in music, although research nowadays has broadened towards additional forms of creative behaviour, such as creativity in music listening and in performance. Improvisation can be defined as 'the process of generating new ideas in music without any censorship or editing ... improvisation is regarded as a spontaneous instrumental performance, while composition can involve transcription, arrangement, and scoring' (Hargreaves, 1999: 29). Young children's music making cannot be treated as composition because they are not yet generally able to notate their music using musical symbols, nor to re-arrange it and repeat it, because of lack of musical experience and adequate cognitive skills. Pratt (1995) incorporates improvisation into the wider term of composition by distinguishing three different levels of composing activity: improvisation (spontaneous music making), refinement of original ideas to a finished state, and rearrangements of existing music. Pratt's (1995) distinction of different levels of composition, among them improvisation, would thus be the most appropriate way to approach children's creativity in the first years of primary school.

It is generally acknowledged that in order for a human activity, behaviour, expression, or product to be described as 'creative', it has to demonstrate a certain level of originality. Gutman (1967) suggests that 'creative behaviour consists in any activity by which man imposes a new order upon his environment. It is organising activity. More specifically, it is the original act by which that organisation is first conceived and given objective expression' (p. 5). As stated by the National Advisory Committee on Creative and Cultural Education (NACCCE, 1999) regarding musical creativity, it can be difficult to assess originality when referring to pupils' music making: Is a pupil's work original in relation to their own previous work, or in relation to other pupils' work? Or is it original in relation to work that has gained public recognition? Based on the distinction between psychological and historical originality (Boden, 1990), originality can be studied from different perspectives: in relation to the previous creative behaviour of the person (psychological originality), or in relation to what is socially and culturally believed to be original (historical originality). It may be more appropriate to consider or evaluate children's musical originality from a psychological perspective.

Assessment in the arts has been accused of restraining 'imagination', 'freedom', 'fairmindedness', 'passion', 'enchantment', 'musing', and 'sensibility' (Ross, 1986, p. 92), while the assessment of creativity is generally believed to be 'more difficult than testing factual knowledge' (NACCCE, 1999). However, given that creativity can be nurtured and developed during the lifetime, the need for the measurement of creativity is summarized by Mooney and Razik (1967):

> When creativity is equated with genius and the process of creation is thought to be wholly mysterious, there is no need to develop the measurement of creativity. But when creativity is taken to be a valued potentiality of all men and its development a valued social aim, then measurement becomes important. (Mooney & Razik, 1967, p. 217)

Several attempts to measure creativity took place in the 1960s through experimental studies that used psychometric tests to assess creative thinking (e.g., Guilford, 1967; Torrance, 1979) and the relationship between creative thinking and factors

such as intelligence, personality, motivation, and environmental stimulation. The Torrance Tests of Creative Thinking (TTCT; Torrance, 1974) have been widely used and have influenced similar approaches in other fields. The results of these approaches were re-considered in the following decades in terms of their level of validity and correspondence to real life. Hargreaves, Galton and Robinson (1989), in a discussion about assessment in the Arts, concluded that 'the traditional psychometric approach, in which the tester makes a detached and objective appraisal of the subject's abilities or progress under standardised conditions, is inadequate in the arts as well in other areas of the curriculum' (p. 156). However, quantitative assessment becomes essential in cases where we have to assess the influence of different factors on creativity. Research designs that are based on experiments and testing of participants are the only ways to achieve this, by providing specific results and conclusions for large samples of participants.

Webster (1983) developed a measurement of creative aptitudes, the Measurement of Creative Thinking in Music (MCTM), aiming to reveal some developmental changes in children's creative ability in relation to their chronological age. The MCTM was refined in 1987 (MCTM-II). Webster describes the measure in the 'Administration Guidelines' (Webster, 1994) as follows:

> The MCTM uses three sets of instruments: (1) a round 'sponge' ball of about 4" in diameter that is used to play tone clusters on a piano, (2) a microphone that is suspended in front of the piano and is attached to an amplifier and speaker, and (3) a set of five wooden resonator blocks. There is a brief warm-up period that is not scored and that is designed to familiarize the children with the simple techniques necessary to play the instruments. All activity takes place in a private room with only the child and the administrator. All tasks are videotaped unobtrusively and scored at a later time. It requires about 20 to 25 minutes to administer per child.
>
> The measure consists of a series of 10 scored tasks, divided into three parts: *exploration*, *application*, and *synthesis*. The tasks begin very simply and progress to higher levels of difficulty in terms of divergent behaviour. The atmosphere is game-like in nature, with no indication that there are any right or wrong answers expected. The text used by the administrator is standardised for all children and few models of performance are given.
>
> The *exploration* section is designed to help the children become familiar with the instruments used and how they are arranged. The musical parameters of 'high/low', 'fast/slow', and 'loud/soft' are explored in this section, as well as throughout the measure. The way the children manipulate these parameters is, in turn, used as one of the bases for scoring. Tasks in this section involve images of rain in a water bucket, magical elevators, and the sounds of trucks.
>
> The *application* tasks ask the children to do more challenging activities with the instruments and focus on the creation of music using each of the instruments singly. Requirements here ask that the children enter into a kind of musical question/answer dialogue with the mallet and temple blocks and the creation of songs with the round ball and the piano and with the voice and the microphone. Images used include the concept of 'frog' music (ball hopping and rolling on the piano) and of a robot singing in the shower (microphone and voice).
>
> In the synthesis section, the children are encouraged to use multiple instruments in tasks whose settings are less structured. A space story is told in sounds, using line drawings

> as a visual aid. The final task asks the children to create a composition that uses all the instruments and that has a beginning, a middle, and an end. (Webster, 1994, pp. 3–4, underline in original)

A summary of the MCTM-II music tasks can be found in Appendix 1.

Various factors might play a role in the development of children's creative thinking and a variety of research projects are needed to cover all its areas. One obvious factor that was considered to be playing an important role was the actual use of creativity in the classroom. Children's experiences of creativity vary within different teaching contexts and approaches to the music lesson. The level to which children develop their creative potential could be linked with the opportunities that the school and the teachers provide for creative expression.

Most research on musical creativity has adopted qualitative approaches and has attempted to describe and explain the different achievements of children at different age phases. Although great emphasis has been placed on the investigation of musical creativity, no previous empirical studies have linked research on improvisation with children's creative development. The role of creative experience – in particular the experience of improvising – in the development of creative thinking in music has not been sufficiently investigated. The present study suggests the need for more empirical research to be carried out in the field, which would link improvisation and children's musical and creative development and would suggest ways in which children's creativity might be promoted.

Method

The question that this article addresses is based on the cause–effect relationship. The experimental method was regarded as the most suitable to answer this question because it provides an assessment of the effectiveness of the 'treatment' (Robson, 2002). The study adopted a quasi-experimental design. The term 'quasi-experimental' is used because not all conditions of a true experiment were fulfilled. Random assignment of the groups was not feasible, although the children in each group had been randomly selected. Although the experiment was the principal method, methodology was mixed to a certain extent. Analysis of the tests (pre- and post-tests) was qualitative, while the results were presented in a quantitative way and analysis of the final scores was undertaken through statistical analysis.

SETTING AND PARTICIPANTS

The programme designed for the quasi-experimental study was conducted in the ordinary classroom setting of a primary school, with two groups of children: one group was enrolled in an improvisational training programme during the weekly music lessons. The participants for the experiment were drawn from pre-existing classes in the school. There were two groups of 6-year-old children in this primary school, which was very suitable for the study since two groups were needed. The children in each class had been randomly selected before the beginning of the experiment. One class (control group) consisted of 13 children and the other (experimental group) of 12; the two classes were randomly assigned to the 'control' and 'experimental' conditions.

The results would be more reliable and valid if the two groups were strictly homogeneous; that is, if groups consisted of the same number of pupils, equal numbers of boys and girls, and children with similar chronological ages and intellectual levels. However, in real educational settings, researchers usually have to compromise by using existing groups.

The children who participated in the experiment were attending lessons at a private school. This type of school in England requires tuition fees, which implies that the children came from middle- and upper-middle-class backgrounds. Children's social backgrounds or family backgrounds in particular might have influenced their levels of participation during music lessons, their discipline, and their levels of engagement and enthusiasm during the music activities, and the same concerns could arise about their participation and co-operation during the tests. As for the children's musical backgrounds, the vast majority of the children were British, and they therefore brought to the classroom an understanding and experience of the same musical culture.

A music teacher with experience of using improvisation in the classroom was chosen to administer the programme. The two groups had the same teacher, so that other factors would not contaminate the final results, such as the teacher's personality or teaching ability. Permission for children's participation in the study was gained from the head teacher, the two groups' general teachers, and the parents. All of them were informed in detail about the content of the intervention programme, the tests, and the way in which the data would be used for the research, and they had to complete a participant consent form before the beginning of the programme.

INSTRUMENT

The method chosen was that of the pre-test, post-test quasi-experiment, and Webster's Measure of Creative Thinking in Music II (MCTM-II) was used as the basis for assessing the effect of the intervention programme. According to Webster (1994), the test has been tested for reliability and validity through data that have been collected in a number of studies (Webster, 1983, 1987, 1990b; Swanner, 1985; Webster, Yale, & Haefner, 1988). Content validity was established with a panel of music educators, composers, and psychologists who met on four different occasions to review the measure, audit pilot tapes, critique scoring procedures, and offer suggestions for improvement.

Many different criteria have to be taken into consideration when selecting a certain test as the basis for the assessment of creative thinking. According to Torrance (1975), who developed a well-established test for creative thinking (Torrance Test of Creative Thinking), a creative thinking test must fulfil the following criteria: relevant to creativity theory; relevant to adult creative behaviour; samples different aspects of creative thinking; attractive to all ages; open-ended, so that a person can respond according to individual experiences; instructions and response demands adaptable to the whole educational range; collects data that can be scored reliably for fluency, flexibility, originality, and elaboration; feasible for the test materials, instructions, time limits and scoring procedures to be used in schools; includes warm-up conditions prior to the tests; variations of the setting of the testing room when required; variations in time limits when required; applicable to different cultures; statistical

infrequency as the basis for the scoring of originality (p. 286). In terms of fulfilling the above criteria and adopting them for the measurement of creative thinking in music in particular, the MCTM-II was regarded as an appropriate and reliable test to be used for the present study.

Children's creative thinking in music is scored for such factors as musical extensiveness, flexibility, originality, and syntax. These factors 'derive from theoretical literature and from content analysis sessions with a panel of experts from the fields of music composition, music education and psychology' (Webster, 1994). The definitions of the above measures, as given by Webster (1994), appear below:

- Musical extensiveness (ME): The length of time involved in a musical response (in seconds).
- Musical flexibility (MF): The range of musical expression in terms of three musical parameters: dynamics (soft to loud), tempo (fast to slow), and pitch (low to high).
- Musical originality (MO): The way in which a child manipulates musical phenomena in a unique fashion.
- Musical syntax (MS): The extent to which the child manipulates musical phenomena in a logical and inherently musical manner, according to patterns of musical repetition, contrast, and sequencing.

DATA COLLECTION

The MCTM-II was first piloted with a child who did not participate in the experiment (age 7). The pilot test raised some mainly practical issues that had to be reconsidered, such as the placing of the microphone, the placing and position of the camera for better results when videotaping the tests, and the arrangement of the instruments in the space. The pre-tests were carried out in a friendly and comfortable environment that aimed to facilitate creativity, and a period of approximately six months elapsed between the two testing sessions.

The form of the programme of activities was designed in consultation with the teacher and with regard to the indications and suggestions of the National Curriculum for music (NC for England and Wales), so that realistic and approachable activities would be used to motivate children's creativity. It was also based on the teacher's aims and objectives for each lesson and the activities she had already used in her teaching and was familiar with. However, these activities were modified in order to apply to the experiment; some further activities were also added.

Children engaged in the improvisatory programme were encouraged to take part in several musical activities, in which they were able to explore musical instruments and to improvise freely or under their teacher's guidance. Children were also given opportunities to explore their musical expression through movement and dance, by using their bodies to produce different sounds, and by singing or producing non-pitched vocal sounds. The experimental group had the opportunity to explore many different musical instruments: pitched and non-pitched ones. This was well supported by the adequately equipped music room, which provided a strong potential for music making. Children were able to explore both rhythmic and melodic aspects in music. They made music in small groups, in pairs, or individually, and they were free to decide how they wanted to use the musical instruments.

Improvisation was sometimes used as free exploration of instruments, or sometimes in a more structured way, under the teachers' guidelines. Many improvisatory activities were developed as responses to visual, verbal, and audio stimuli. Children had to improvise sounds to describe pictures shown by the teacher, or to express themselves creatively as part of a story or a discussion about the different sound qualities. Audio stimuli were given by providing many opportunities for music listening: children could improvise movement according to the musical rhythm, or according to the different characters that a certain musical piece would involve. In addition, they were at times asked to extend musical ideas of familiar musical pieces through their own improvisations. Improvisation was also used as a means to show emotions, ideas, or themes; group improvisation was encouraged in these cases in order to help children share and exchange ideas with each other. Vocal improvisation was frequently used, starting with sol–mi and later based on a variety of simple intervals. Question–answer patterns were very frequently incorporated in the music activities.

The comparison group was not using improvisation during the lessons, and use of voice, movement, and musical instruments was made in a directed way, usually as a means of introducing a new musical concept or aspects of music theory. The children in this group were not asked to improvise at any stage of the lesson. Activities for this group were developed in parallel with the experimental group in terms of the basic ideas that were introduced and the teaching objectives. The same musical examples were used for music listening and the same materials (e.g., stories, pictures, musical instruments) served as the basis of various activities. During the activities, children were given certain rhythmical patterns, simple melodic contours, or sets of movements, which they were asked to reproduce. They were given no opportunities for adding any personal aspects in their performance. The time that was spent on creative activities by the experimental group was replaced here by more repetitions of teacher-led exercises. Most activities for the comparison group involved all the class together and only sometimes were children asked to respond to the teacher individually. Working in small groups was not encouraged, in order to avoid any interactions that would result in creative performances.

The programme was observed for both groups so that the researcher could control the progress and the content of the lessons for each group and contribute to any alterations that needed to be made. The need to modify the lessons appeared only in some cases, where the design of certain music activities was not clear enough, in order to apply to the control or the experimental group accordingly. The lessons were videotaped so as to enable the comparative analysis of music activities after the completion of the experiment and the observation of children's attitudes and progress throughout the programme. The tests also had to be videotaped, so that the examiner could observe and assess the way children used the instruments, the combination of various instruments they chose, their responses to the images, and their facial expressions and gestures.

SCORING AND ANALYSIS PROCEDURES

Tests were scored according to the MCTM-II Administrative Guidelines (Webster, 1994); therefore, they were scored in terms of four measures: extensiveness (ME); flexibility (MF); originality (MO); and syntax (MS). A summary of the scoring procedures

can be found in Appendix 2. A mixed methodology was adopted for the analysis of the tests. Analysis of musical extensiveness and flexibility was quantitative, while analysis of originality and syntax combined qualitative analysis (video observation in order to create rating scales for each criterion) and quantitative analysis (use of rating scales for scoring). The final analysis of all the test results was achieved by the use of statistical tests, and therefore it was quantitative in nature. The tests consisted of 10 tasks. Table 1 shows which musical parameters each task measures.

The scoring of musical extensiveness was quantitative. Musical extensiveness concerns the actual time duration of the response, and this was therefore measured in seconds. Musical flexibility involved the range of musical expression in terms of three parameters: dynamics (soft to loud), tempo (fast to slow), and pitch (low to high). Scoring of flexibility, as well as for extensiveness, was straightforward and quantitative, since children's responses did not need any deep analysis and interpretation. Tempo, dynamics, and pitch are all musical parameters that can be objectively judged. A scoring system for flexibility was adopted for all tasks, based on a 0–2 point rating scale, as follows:

2: when the child gradually increased tempo (task 1), progressed from low to high register (task 2), or gradually increased loudness (task 3).
1: if the child shifted in any of the parameters (dynamics, tempo, pitch), without gradual increases or motion.
0: if the child did not increase at all the tempo or loudness, or did not change register.

Extra point: this was awarded if all five bass bars were struck.

Musical originality is a measure of unusual musical aspects of responses to tasks 4, 6, 7, 9, and 10. Originality was defined by the authors as unusualness in terms of 'statistical infrequency' (Torrance, 1975) in relation to the body of responses by all children that participated in the experiment. Some particular criteria to be taken into consideration were suggested by Webster (1994) as follows: changing and/or unusual metres; large and/or frequent dynamic contrasts; large and/or frequent dynamic contrasts; unusually large or small pitch range; unusual use of words or sounds; unusual use of the instruments; unusually large or small intervals; marked rhythmic complexity;

TABLE 1 Tasks and measures of MCTM-II

	ME	MF	MO	MS
Task 1 (rain bucket)		✓		
Task 2 (magic lift)		✓		
Task 3 (lorry)		✓		
Task 4 (robot song)	✓	✓	✓	
Task 5 (talking bars – responses)	✓	✓		
Task 6 (talking bars – stimuli)	✓	✓	✓	
Task 7 (frog music)	✓	✓	✓	✓
Task 8 (space pictures)	✓	✓		
Task 9 (space story)	✓	✓	✓	✓
Task 10 (free composition)	✓	✓	✓	✓

unusual musical combination and/or interchange between instruments; unusual use of the body in playing instruments; other musical aspects that seemed unusual or particularly imaginative. Due to the different levels of original aspects in children's responses a Likert rating scale of 0 to 4 (0 as the lowest and 4 as the highest) was used to rate the performance in terms of originality (Webster, 1994).

Musical syntax was measured in terms of the syntactical logic of the performance. The criteria to be considered as a basis for the assessment of musical syntax, as suggested by Webster (1994), are: return to a motive heard before; elaboration through sequence and/or repetition of a rhythmic idea or melodic contour; musical phrasing with spots of relative repose; complementary rhythmic or melodic motion; sensitivity to dynamics in relation to the whole; awareness of instrumental tone quality, and use of this awareness to shape the piece musically; sense of overall form; feeling of musical climax; sensitivity of musical materials to suit pictures; feeling of logical movement from one large event or set of events to another; other musical aspects that contributed to syntactical logic. Due to the different levels of aspects of musical syntax in children's responses a Likert rating scale of 0 to 4 (0 as the lowest and 4 as the highest) was used to rate the performance in terms of musical syntax (Webster, 1994).

Webster does not suggest which exact qualities of performance correspond to each score of originality and syntax. A rating scale is to be used for each of the criteria, but no information is given as to how each score should be designated. The rating scales for each criterion were developed by the authors after careful video observation of the responses. Most of the rating scales concern the frequency of appearance of certain criteria (points analogous to frequency). Some examples not related to frequency appear below:

Unusual use of words or sounds (MO)
Sounds not typical of the human voice, as well as words that implied imaginative situations or were original products of children's imagination, were described as unusual.

0: no use of unusual words/sounds.
1: rather unusual words/sounds.
2: unusual words/sounds.
3: very unusual words/sounds.
4: very unusual words/sounds, particularly those resembling a robot (task 4), an alien (tasks 8 and 9), or a character of the free composition (task 10).

Unusual use of instruments (MO)
After careful observation of all responses, the following were regarded as unusual ways of using the instruments in terms of originality: use of the beater on the wooden part of the bass bars, on the floor, or on the body; use of the ball on the body, or on surfaces others than the piano.

0: no unusual use of instruments.
1: use of one beater on the wooden part of the bars, imitating the examiner.
2: use of one beater on the wooden part of the bars, from own initiative.
3: use of both beaters on the wooden part of the bars, from own initiative, or use of the ball on surfaces other than the piano.
4: use of all the above or even more.

Sensitivity to dynamics in relation to the whole (MS)
The shift in dynamics had also been measured in terms of musical flexibility. This time it was examined in relation to the whole response, and also in relation to the task's context.

0: does not occur at all.
1: occurs only once or twice and not essentially with regard to the task.
2: occurs mainly at the beginning and end of the piece.
3: occurs in several parts of the piece.
4: occurs frequently and at the 'correct' points of the piece.

Feeling of logical movement from one large event or set of events to another (MS)
This occurred in the space story, where five different pictures were given as stimuli to the children. It could also occur in the free composition, since the instructions required the composition of a piece with three distinctive parts: beginning, middle, and end.

0: no logical movement.
1: if only verbally.
2: if it is shown through music but not very clearly.
3: if there is clear movement through events, but sometimes with gaps.
4: exceptional logical movement (combination of instruments and musical ideas without any gaps in between).

Scoring of responses led to a total of 50 sets of scores for each of the 25 children across both the experimental and control groups. Each set included the scores of the pre-test (25 scores for all tasks and four aggregate scores that corresponded to ME, MF, MO, and MS) and the post-test (25 scores for each of the tasks and four aggregate scores that corresponded to ME, MF, MO, and MS). According to the Administrative Guidelines (Webster, 1994), only the total scores need to be used, after they have been converted into standard scores (*z*-scores).

Results

When the experiment started, the two groups demonstrated almost equal levels of creative thinking, as shown by the mean pre-test scores. The mean score for creative thinking for both the experimental and the control group was 0 (0 = the actual score converted into a *z*-score). At the end of the experiment, there was a statistically significant change in the scores of both groups. In particular, the experimental group improved significantly in musical flexibility, originality, and syntax, whereas the control group demonstrated only a small change.

The children's average pre-test and post-test scores were analysed by a mixed between/within-subjects ANOVA test – i.e., split-plot design (Pallant, 2001, p. 209). The analysis showed that there were significant differences between the mean pre-test and post-test scores in terms of the aggregate scores on Webster's MCTM-II. The main effect for 'test' was significant ($F(1, 23) = 35.966$, $p < .001$). The main effect for 'group' just failed to reach significance; however, the interaction ('test' × 'group') was significant at $p < .001$ ($F(1, 23) = 29.29$, $p < 0.001$) (see Figure 1).

Scores for each factor (ME, MF, MO, MS) were analysed by four mixed between/within-subjects ANOVA tests. There was a significant effect of 'test' on MF, MO, and MS (see Figures 2, 3, and 4), with children of the experimental group scoring significantly higher scores in the post-test. Extensiveness was not significantly affected by the intervention programme.

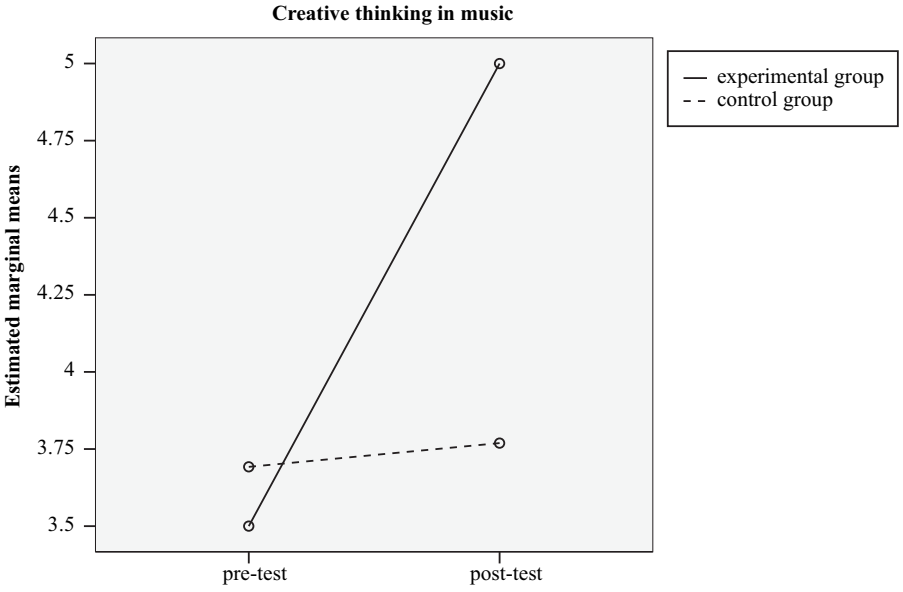

FIGURE 1 *Progress in creative thinking in music (total score of MCTM-II: ME+MF+MO+MS).*

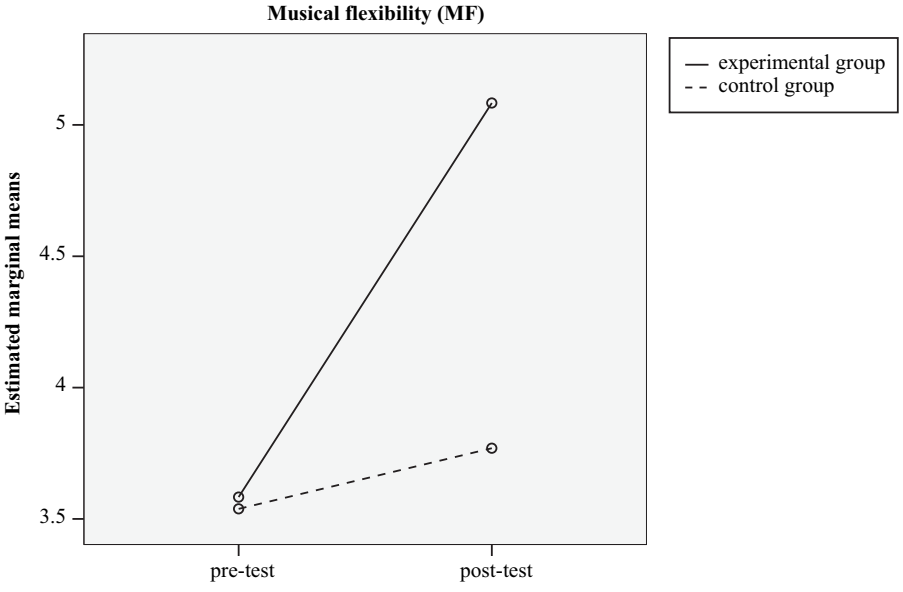

FIGURE 2 *Progress in MF.*

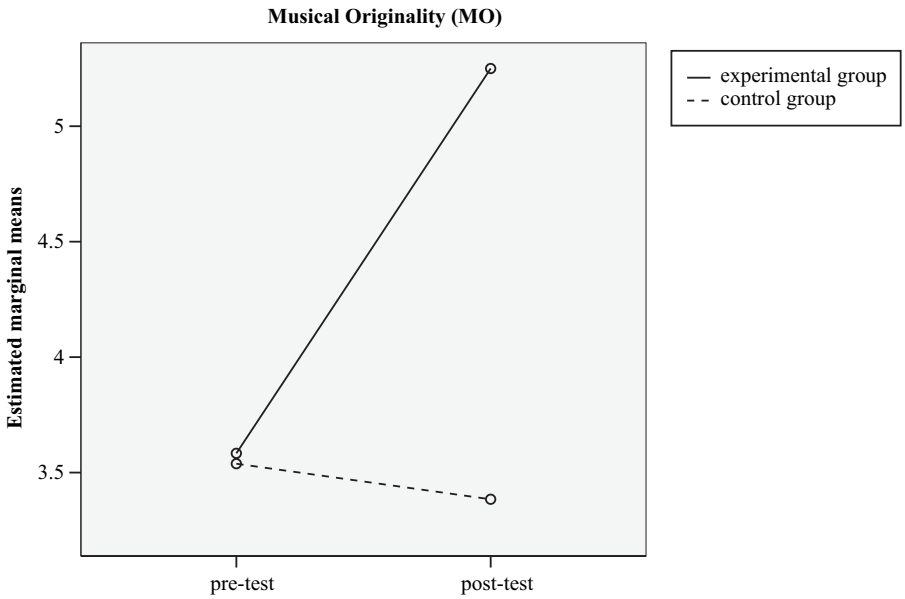

FIGURE 3 *Progress in MO.*

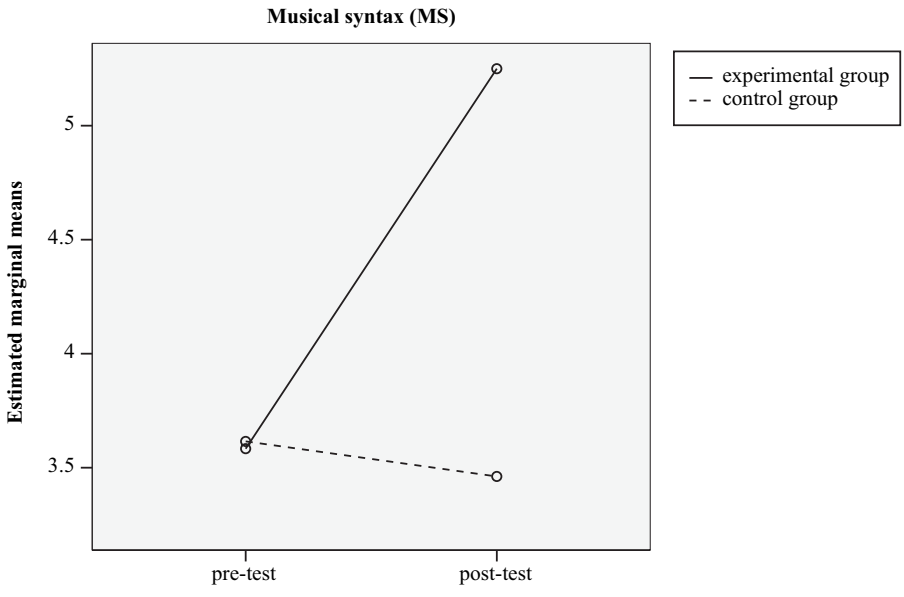

FIGURE 4 *Progress in MS.*

Table 2 summarizes the findings for the development of creative thinking and the four factors in particular for each group.

Reliability of the MCTM-II was investigated by the scoring of a sample of test items by a second independent examiner. Inter-scorer reliability was assessed for MO and MS scores, as these involved qualitative video observations and were less objective. Criteria for the scoring of ME and MF were objective and straightforward: ME was

TABLE 2 *Summary of findings (Koutsoupidou, 2006)*

	Within-subjects						Between-subjects		
	factor			factor*group (interaction)			group		
	df	*F*	*Sig.*	*df*	*F*	*Sig.*	*df*	*F*	*Sig.*
MCTM (all factors)	1	35.966	0.000	1	29.290	0.000	1	3.665	0.068
ME	1	3.939	0.059	1	0.223	0.641	1	0.000	0.985
MF	1	20.177	0.000	1	10.851	0.003	1	5.362	0.030
MO	1	22.875	0.000	1	33.127	0.000	1	11.745	0.002
MS	1	31.708	0.000	1	45.918	0.000	1	12.101	0.002

calculated by counting the actual number of seconds that a child was involved in a task; MF was assessed by a 0–2 system, which was clear about the points that should be given for dynamics, tempo and pitch. The reliability test demonstrated a strong positive correlation between the scores of the two examiners: at the 0.05 level for MO ($r = .937$, $p < .019$) and at the 0.01 level for MS ($r = 1$, $p < .000$), showing that the scoring procedure was reliable.

Discussion

The development of creative thinking is one of the main aims of the National Curriculum (NC) for England, as well as for most current music curricula in Europe. In music, in particular, the NC aims to develop children's performing, composing, appraising, and listening skills. Composing skills at Key Stage 1 (ages 5–7) concern the ability to 'create musical patterns' and 'to explore, choose and organize sounds and musical ideas' (DfEE/QCA, 1999). At Key Stage 2 (ages 7–11), pupils learn 'how to improvise, developing rhythmic and melodic material when performing' and 'how to explore, choose, combine and organize musical ideas within musical structures' (DfEE/QCA, 1999). It becomes clear that there is a close alignment between the NC and the MCTM-II, since in both cases great emphasis is placed on the development of children's creative thinking. The other aims of the NC for music – performing, appraising, and listening skills – can be supported during the process of creative development but are not assessed directly by the MCTM-II.

Before carrying out the experiment it was hypothesized that both groups would progress in creative thinking (based on the assessment of the MCTM-II) after the six-month period, but the experimental group was expected to demonstrate a higher mean score of creative thinking because of the intervention of the independent variable (improvisation). This study indeed revealed that improvisation had significant effects on children's development of creative thinking in music. The experimental group scored significantly higher in the post-tests. The control group, on the other hand, demonstrated only a small degree of progress in creative thinking, while they scored slightly lower in MO and MS in the post-tests. This could be explained as a result of the very teacher-centred approach that was adopted for the control group, which did not allow children any room for free, creative music making. Encouraging

children to be creative in the classroom can promote creativity, while preventing them from engaging in creative activities might inhibit their creative potential.

Musical originality, which is generally considered to be the most characteristic aspect of creative thinking, increased among the children of the experimental group, who participated in improvisation during the music lessons. During the post-tests, children of the experimental group generally demonstrated an advanced ability to manipulate the musical instruments in various ways; in addition, they were more willing to produce vocal sounds and to try different combinations of the available instruments. The control group demonstrated no improvement in the post-test, while some of the children scored lower than in the pre-test on certain tasks. However, children in the control group might have progressed in other areas that were not tested by the MCTM-II. This would be an interesting point to examine in future studies.

Musical flexibility and syntax were not expected to be highly affected by improvisation. Musical flexibility, which was defined as the use of dynamics, tempo, and pitch, was expected to develop at a similar level for the two groups, as an effect of music learning, experience, and maturity. The level of musical syntax, which is related to the use of repetition, contrast, and sequencing, was not expected to differ much between the two groups. However, the experimental group produced significantly better results than the control group on both of the above measures. This could be interpreted as an effect of the children's experimentation with the instruments during the intervention programme. Allowing opportunities for exploring sound and experimenting with their voices, bodies, and instruments through improvisation, children perhaps became more familiar with these musical parameters; in other words, they were encouraged to put theory into practice and to develop personal learning strategies.

Musical extensiveness was the only factor that was not affected by the intervention programme. Extensiveness can be conceived either as strength or weakness in a spontaneous creative product. Depending on the content of the musical creation, extensiveness can become a synonym of advanced and complex music making, or of mere exploration of the sound and instrument. The length of a response, moreover, is subjective, since it may vary due to various conditions (e.g., time, mood, emotions, fatigue, etc.). Kratus (1994) illustrates the variety of compositional processes that are used by children, and which can affect the extensiveness of the musical response:

> Sometimes the sound appears random without structure or focus. Sometimes a child will hit upon an idea, which may be a melodic pattern or a rhythm, and repeat it many times over. Sometimes a child will grab an idea, change it in some ways and then discard it. Sometimes she is simply trying to figure out which combination of movements on an instrument will produce a particular sound or pattern. Sometimes a child will stare at the instrument as if silently rehearsing the sounds inwardly. (p. 130)

The length of the response could depend on the amount of time spent on each of the above processes. It could therefore be argued that the quality of a response, in terms of its level of creativity, is not related to its duration. The value of extensiveness as a measure of creative thinking should be reconsidered if revisions to the MCTM-II are made in the future.

The analysis of children's responses demonstrated one more possible weakness of the MCTM-II: children were not generally able to include specific aspects of musical flexibility and syntax in their musical responses. With the exception of a minority of

cases, children showed a misunderstanding of what 'low' and 'high' mean in music. Most children associated 'low' with 'soft' and 'high' with 'loud'. The issue of verbal understanding is revisited here, reminiscent of the criticism that Piaget received over asking children to respond to ambiguous verbal questions (Hargreaves, 1986). Children's responses revealed that children aged 6 to 7 years do not yet have a clear understanding of what the different terms relating to pitch mean, although they are able to use them in their music making. Teaching them what each term means does not necessarily advance their understanding of the terms. Children's responses for the post-test still showed a poor understanding of 'low' and 'high', although they had been taught this during the programme.

Responses also demonstrated a lack of ability to make music with certain aspects of musical syntax, although various aspects occurred at a low level and were considerably improved in the post-tests. However, when melodic or rhythmic patterns were identified, they would be only repeated once or twice during the response and always in immediate succession. Repetition of patterns after a longer time intervention occurred only once and was not very clear. A sense of overall form was not generally evident in children's responses. Moreover, the form 'beginning, middle, end' that was required for the final task was mainly expressed verbally by the children. The aspect of logical movement was also problematic, especially in the space story and the free composition. Providing space pictures to be used as stimuli for music making enabled children to understand the movement from one event to another. However, this movement was not always logical and smooth. In some instances it was only attempted by the use of a different instrument, without any inner connection between the different events; more rarely it was verbal and not relevant to the musical performance.

The MCTM-II can be applied to children from 5 to 10 years old; however, although the nature of the tasks was well received by the children and engaged them in music making, the criteria mentioned above might have been unrealistic for 6-year-old children. The ability to make music with structure is observed from as young as 5 years in children's vocal improvisations (Dowling, 1988; Davies, 1992; Sundin, 1997; Marsh, 2000). However, the ability to structure music in instrumental music making is generally observed after age 7, according to some chronologically conceived developmental models (Flohr, 1985; Kratus, 1989; Brophy, 2002), and certain aspects that children incorporate into their music making are developmental (Swanwick & Tillman, 1986). Based on these findings, perhaps the criteria used for assessing these particular aspects of musical flexibility and syntax were misjudged in terms of what might be reasonably expected of children of these ages.

Another problem that occurred during testing was children's general reluctance to use their voices both in the pre- and the post-tests. This conforms to the common characteristic in western society of suppressing vocal expression, in contrast to several non-western civilizations in which singing is an everyday activity (Blacking, 1973). The reluctance of children to use their voices also implied the tendency of music education to focus on instrumental playing. However, children's preference for using the musical instruments much more than their voices could merely be part of their interest in experimenting with sounds and exploring the sound possibilities of each instrument.

Conclusions

Guilford (1975) argued for the need to identify 'children and youths who have unusual promise' (p. 49). The interest today, however, has shifted from the identification of the few to the encouragement of all children in order to develop their creative potential (Hargreaves, 1989; Folkestad et al., 1997). There will always be children whose personality demonstrates certain qualities that might enable them to become creative adults. The findings of this research, though, suggest that it is important to give all children opportunities to create and enjoy the benefits of improvisation in terms of their musical, psychological, and social development. Since the effect of improvisation was found to be significant for children's development of creative thinking, the music classroom should be a place of exploring and experimenting with musical ideas through enjoyable creative activities. Teachers should create a rich musical environment with many opportunities and stimuli for music making.

This study investigated a topic that has not been extensively researched. Future research could also continue a line of studies that will look at the teaching conditions which foster creative learning among children, since only very few studies have focused on the nature of teaching in music to foster creativity. This was the aim of the Secondary Schools Music Project led by Paynter (1981), but this strand of activity – specifically, action research projects in music learning – has not been pursued extensively. The effects of improvisation on creative thinking could be revisited through further experimental studies that involve different age groups in order to examine whether the input of formal instruction continues to affect children's development of creativity at older ages.

Studies conducted by Rauscher and Zupan (2000) on the relationship between music instruction and the development of different cognitive skills found that music instruction can affect the development of certain skills only at young ages (nursery school ages). Likewise, improvisation, as a particular form of musical instruction, might affect the development of creative thinking only in childhood. There could be a maximum limit to the adult influence on children's creative thinking in music, which Vygotsky defines as the 'zone of proximal development' (Veer & Valsiner, 1991). If this is the case, the importance of allowing children opportunities for engagement in creative activities in pre-school and primary education becomes even more vital.

The social perspective of music education has been the focus of many recent studies in music education research. Major emphasis has been given to the effects of the social background as well as children's social interactions on their musical development and on their music making in particular (e.g., Hargreaves & North, 1997; Folkestad, 1998; Hargreaves, Marshall, & North, 2003). Based on this new paradigm of research, some sociological factors involved in the realization of the experiment could be taken into account in future reapplications of the MCTM-II. The MCTM-II could be applied, for example, within group-testing procedures in order to examine the effect of children's interactions while responding to the tasks, since previous research suggests that children demonstrate different qualities of music making when making music in groups (Wiggins, 1999), or with their friends (MacDonald, Miell, & Mitchell, 2002). It would also be interesting to examine any possible effects of other children being present while a child responds to the tasks.

Further applications of the experiment could involve children in different geographical areas, in order to examine whether different ethnic backgrounds and their enculturation into different musical cultures and genres can affect children's performance in creative thinking tasks, and whether they can promote or inhibit the development of creative thinking. Finally, future research could examine the relationship between musical improvisation and the development of general creativity – not only musical creativity. In the same way that people can demonstrate different kinds of intelligence (Gardner, 1993), they might be creative in different domains. It would be interesting to investigate whether training in a certain domain (music) can affect the development of creativity in other domains. This would provide valuable information about children's creative development, and the findings might suggest ways of integrating school subjects in order to facilitate children's learning.

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Appendix 1: Summary of the MCTM-II (Webster, 1994)

Part I: Exploration

Task 1: Let's pretend that you are sitting next to the bucket for a whole storm. The raindrops begin to fall and little by little the storm begins to gather and get stronger until the rain is coming down quickly and heavily. What would that sound like on the temple blocks (or bass bars)?

Task 2: Now suppose that you were going for a ride on a magic elevator. When you get onto the elevator, your voice will be very low and gruff, and then as the elevator goes up the floors, your voice gets higher and higher and squeakier and squeakier. How would that sound on the piano with the sponge ball?

Task 3: Now pretend that you are listening to a truck coming at you from very far off. First, you just hear it in the distance and then it gets closer until it is right in front of you. Can you make some sounds into the mic with your voice that would sound like that truck?

Part II: Application

Task 4: Now, I wonder if we could make up a robot song?! I want you to pretend that you are the robot and that you are singing a song in the shower! Now, don't use words, because your robot does not know any words like you and I use, just use sounds like what a robot might use from another world!

Task 5: Let's play a game now with the temple blocks (or bass bars). In this game, we are going to talk to each other on the blocks. You are to listen as I play first. When I stop, it will be your turn to play to me. You do not have to play the same thing that I play. You may play something different if you want to. [Six stimulus patterns]

Task 6: Now you play some sounds to me and I will play some back to you. You can play anything you like. [Seven interchanges]

Task 7: Now it's time to make some frog music! I would like you to make up a piece of music that has jumpy sounds and smooth sounds, soft and loud sounds, and fast

and slow sounds. Feel free to use all the keys on the piano and to make your piece as long as you want. Now think about your frog music for a while and when you think you're ready, I would like to hear it. [Show a frog picture]

Part III: Synthesis

Task 8: Look at this picture [space creatures picture]. Can you think of some sounds that they might make? Use your voice in the mic to make up as many sounds as you can.

Can you use your voice in the mic and the sponge ball on the piano to make some sounds that go with this picture? [Picture of stars in space]

Here is a big space battle! Using your voice in the mic, the sponge ball on the piano *and* the temple blocks (or bass bars), can you make some sounds that go with this picture?

Task 9: Now let's make a sound story out of these pictures: (l) space ship taking off, (2) space creatures, (3) star scene, (4) space battle, and (5) space ship crashing.

I want you to tell me this story using sounds. You can use any of the instruments that we have been using.

Task 10: Now, you are going to make up your own story with sounds. The only thing I ask is that it have a beginning, a middle and an end. You can use all the instruments in any way you want. Now think about the music you would like to make and when you are ready, let me know.

Appendix 2: Scoring procedures of the MCTM-II (Webster, 1994)

I. Part One: Factors of Musical Extensiveness (ME) and Musical Flexibility (MF)

Task 1 Rain Bucket

MF1: _____ (Total number of possible points: 2)

Task 2 Elevator

MF2: _____ (Total number of possible points: 2)

Task 3 Truck

MF3: _____ (Total number of possible points: 2)

Task 4 Robot Song

ME4: ____ sec

MF4: _____ (Total number of possible points: 6)

		Gradual Change
Soft/Loud	__	__
Fast/Slow	__	__
High/Low	__	__

Task 5 Talking Blocks (Responses)

ME5: ____ sec
MF5: _____ (Total of possible points: 7)

	Within Response	Gradual change	Response to response	
Soft/Loud	__	__		Five Blocks
Fast/Slow	__	__	__	

Task 6 Talking Blocks (Stimuli)

ME6: ____ sec
MF6: _____ (Total of possible points: 7)

	Within Stimulus	Gradual change	Response to response	
Soft/Loud	__	__	__	Five Blocks
Fast/Slow	__	__	__	__

Task 7 Frog Music

ME7: ____ sec
MF7: _____ (Total number of possible points: 6)

	Gradual Change
Soft/Loud	
Fast/Slow	
High/Low	

Task 8 Space Pictures

ME8: ___ sec (1__ + 2__ + 3__)
MF8: _____ (Total number of possible points: 17)

	PIANO Gradual Change	VOICE/MIC Gradual Change	BASS BARS Gradual Change
Soft/Loud			
Fast/Slow			
High/Low			Five Blocks Used

Task 9 Space Voyage

ME9: ____ sec
MF9: _____ (Total number of possible points: 17)

	PIANO Gradual Change	VOICE/MIC Gradual Change	BASS BARS Gradual Change
Soft/Loud			
Fast/Slow			
High/Low			Five Blocks Used

Task 10 Free Composition

ME10: ___ sec
MF10: _____ (Total number of possible points: 17)

	PIANO Gradual Change	VOICE/MIC Gradual Change	BASS BARS Gradual Change
Soft/Loud			
Fast/Slow			
High/Low			Five Blocks Used

II. Part Two: Factors of Musical Originality (MO) and Musical Syntax (MS)

Task 4 Robot Song

MO4: _____ (addition of the six below, rating scale: 0–4)

Listen for unusual musical aspects of the robot song. Consider:

1. Changing and/or unusual meters
2. Large and/or frequent dynamic contrasts
3. Changing tempi
4. Unusually large or small pitch range
5. Unusual use of words or sounds
6. Other musical aspects that seem unusual or particularly imaginative

For ratings of "3" or higher, briefly note the qualities that serve as the basis for your rating:

Task 5 Talking Blocks (Stimuli)

MO5: _____ (addition of the five below, rating scale: 0–4)

Listen for unusual musical aspects of the stimuli. Consider:

1. Changing and/or unusual meters
2. Large and/or frequent dynamic contrasts
3. Changing tempi
4. Unusual use of the instrument (i.e. special use of mallet(s))
5. Other musical aspects that seem unusual or particularly imaginative

For ratings of "3" or higher, briefly notate the rhythmic stimuli that are marked by their originality:

Task 7 Frog Music

MO7: _____ (addition of the eight below, rating scale: 0–4)

Listen for unusual musical aspects of the performance. Consider:

1. Changing and/or unusual meters
2. Large and/or frequent dynamic contrasts
3. Changing tempi
4. Unusual use of the instrument (i.e. special use of the sponge ball and/or use of the hands)
5. Unusual use of direction change
6. Unusually large and/or small intervals
7. Marked rhythmic complexity
8. Other musical aspects that seem unusual or particularly imaginative

For ratings of "3" or higher, briefly note the qualities that serve as the basis for your rating:

Task 7 Frog Music

MS7: _____ (addition of the eight below, rating scale: 0–4)

Listen for the syntactical logic of the performance. Consider the following:

1. Return to a motive heard before
2. Elaboration through sequence and/or repetition or a rhythmic idea or melodic contour
3. Musical phrasing, with spots of relative repose
4. Complimentary rhythmic or melodic motion
5. Sensitivity to dynamics in relation to the whole
6. Awareness of piano tone quality and this awareness used to shape the piece musically
7. Sense of overall form
8. Other musical aspects that contributed to syntactical logic

For ratings of "3" or higher, briefly note the qualities that serve as the basis for your rating:

Task 9 Space Voyage

MO9: ____ (addition of the eleven below, rating scale: 0–4)

Listen for unusual musical aspects of the performance. Consider:

1. Changing and/or unusual meters
2. Large and/or frequent dynamic contrasts
3. Changing tempi
4. Unusual use of the instruments
5. Unusual use of direction change
6. Unusually large and/or small intervals
7. Marked rhythmic complexity
8. Unusual use of words or sounds
9. Unusual musical combination and/or interchange between instruments
10. Unusual use of the body in playing instruments
11. Other musical aspects that seem unusual or particularly imaginative

For ratings of "3" or higher, briefly note the qualities that serve as the basis for your rating:

Task 9 Space Voyage

MS9: _____ (addition of the eleven below, rating scale: 0–4)

Listen for the syntactical logic of the performance. Consider the following:

1. Sensitivity of musical materials to suit pictures
2. Feeling of logical movement from one large event or set of events to another

3. Return to a motive heard before
4. Elaboration through sequence and/or repetition or a rhythmic idea or melodic contour
5. Musical phrasing, with spots of relative repose
6. Complimentary rhythmic or melodic motion
7. Sensitivity to dynamics in relation to the whole
8. Awareness of instrument tone quality and this awareness used to shape the piece musically
9. Feeling of musical climax
10. Sense of overall form
11. Other musical aspects that contributed to syntactical logic

For ratings of "3" or higher, briefly note the qualities that serve as the basis for your rating:

Task 10 Free Composition

MO10: _____ (addition of the eleven below, rating scale: 0–4)

Listen for unusual musical aspects of the performance. Consider:

1. Changing and/or unusual meters
2. Large and/or frequent dynamic contrasts
3. Changing tempi
4. Unusual use of the instruments
5. Unusual use of direction change
6. Unusually large and/or small intervals
7. Marked rhythmic complexity
8. Unusual use of words or sounds
9. Unusual musical combination and/or interchange between instruments
10. Unusual use of the body in playing instruments
11. Other musical aspects that seem unusual or particularly imaginative

For ratings of "3" or higher, briefly note the qualities that serve as the basis for your rating:

Task 10 Free Composition

MS10: _____ (addition of the eleven below, rating scale: 0–4)

Listen for the syntactical logic of the performance. Consider the following:

1. Sensitivity to the creation of three distinct parts
2. Feeling of logical movement from one large event or set of events to another
3. Return to a motive heard before
4. Elaboration through sequence and/or repetition or a rhythmic idea or melodic contour
5. Musical phrasing, with spots of relative repose
6. Complimentary rhythmic or melodic motion
7. Sensitivity to dynamics in relation to the whole

8. Awareness of instrument tone quality and this awareness used to shape the piece musically
9. Feeling of musical climax
10. Sense of overall form
11. Other musical aspects that contributed to syntactical logic

For ratings of "3" or higher, briefly note the qualities that serve as the basis for your rating:

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