ISSN 2435-6220

Institute of Creativity in Music Education
Tokyo, Japan
https://www.icme.jp/en/

International Journal of Creativity in Music Education

Special Issue: Creative Music-making and Improvisation

Vol. 11
August 2024

About Cover Photo

In the summer of 2023, ICME organized a workshop with the MUKUNA Band musicians, mainly from Congo. Many participants, including music teachers and musicians, came from all over Japan.

International Journal of Creativity in Music Education vol. 10

ISSN 2435-6220

Published by the Institute of Creativity in Music Education

151-0071　1-26-2 Honmachi Shibuya-ku Tokyo, Japan

https://www.icme.jp/en/

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Vol. 11 Special Issue: Expanses of Creativity in Music Education

Preface

This journal primarily includes articles relating to creativity in music education. The Institute of Creativity in Music Education, the publisher of this journal, was founded for researching Creative Music-making over 30 years ago. Today, we continue to host online seminars and face-to-face summer workshops. The journal is published approximately once a year. Submission guidelines can be found in the Contribution section of the ICME website (https://www.icme.jp/en/). We invite a wide range of researchers involved in music education and creativity to contribute to the journal in the future.

The papers in this journal cover practices in various educational settings, from kindergartens to primary and secondary schools, as well as schools for special needs students. Additionally, our work extends into community music programs. Creative Music-making is not limited to certain styles; it encompasses all genres of music. It can be based on music that has no beat or tonality, such as contemporary music, world music with diverse characteristics and even improvisation. The practices covered not only foster creativity but also collaboration.

In vol.11, two of the papers focus on the practices for special needs students: one addresses those with physical disabilities, and the other focuses on those with intellectual disabilities. The other two papers explore the integration of music into non-music disciplines. Both analyze unique and interesting activities. One examines foreign language (English) acquisition, highlighting the deep connection between music and language. The other paper investigates how children make music using the three-dimensional object of the LEGO brick, incorporating an interesting visual component.

I hope this journal will continue to be a foundation for research in music education and creativity, and that it will continue to grow.

Yukiko Tsubonou
Chief Editor of the International Journal of Creativity in Music Education
Director of the Institute of Creativity in Music Education (ICME)

Musical transformation through improvisational performance activities in children with physical disabilities.

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Abstract

This study aimed to examine how performance expression transforms among pupils with limb disabilities through an improvisation activity in a music class at a special needs school. The research utilized an improvisation activity involving piano pieces, analyzed through four approaches: 1) assessment of performance expression scores; 2) examination of rhythmic patterns, melodies, and chords; 3) textual analysis of expert impressions; and 4) analysis of student impressions. The results of the analysis of the rhythmic patterns, melodies, and chords played by the students, along with the textual analysis of expert comments, suggest an improvement in the students' performance expression. Additionally, findings indicated the potential for altering students' perspectives and thoughts while listening to music, though not necessarily in performance expression.

Keywords: Special needs education, Physical disability, Improvisation

Musical transformation through improvisational performance activities in children with physical disabilities.

The musical expression of students with physical disabilities presents two significant challenges. First, their physical disabilities make self-expression through singing and playing musical instruments difficult. Many students with speech and breathing difficulties are enrolled in special needs schools for the physically challenged. Some of these students must constantly wear corsets to prevent scoliosis, making it a challenge for them to extend the length of a note or produce a loud voice during activities that require inhalation and singing. In Japan, the recorder is one of the most frequently used instruments in elementary and junior high schools, but it is unsuitable for students with physical disabilities due to the importance of hand coordination. According to a report by the Special Needs Education School for the Physically Challenged at the University of Tsukuba (2008), even students without upper limb paralysis experience difficulty playing a piece of music according to the score due to the need to cover all sound holes, remember finger placements, and control breathing.

The second issue is the lack of diverse experiences in everyday life, which adversely influences expressive abilities. For example, students using wheelchairs may find it difficult to move around on a beach and thus cannot experience listening to the sound of the waves ebbing and flowing. The “Songs of the Beach” from Japanese music textbooks include piano accompaniment and lyrics that express the waves coming in and going out. The Special Needs Education School for the Physically Challenged at the University of Tsukuba (2011) reported that "children may have difficulty understanding various scenes more deeply due to a lack of experience, such as not having played in places rich in nature or having ridden on swings.” This lack of experience may make it challenging to understand the composer's intentions and the scene of the piece, thereby hindering expressive performance

Given the physical challenges presented and the lack of experience, improvisation is a necessary approach to resolve difficulties in performance expression. Eeva Siljamäki and Panagiotis A. Kanellopoulos (2020) advocate for improvisation not only as a pedagogical impetus fostering music comprehension but also as a conduit for nurturing creativity. Their hypothesis postulates that integrating improvisational activities within music education modules has the potential to augment and transform the performance expression of students with limb disabilities.

Objective

This study aims to investigate how the performance expression of students with physical disabilities is transformed in music classes at special needs schools.

Method of Practice

In the early part of a 45-minute class, improvisation activities using four hands were conducted using a piano. These activities involved one student and one teacher. The teacher performed the pieces “Magical Accompaniment” and “Magical Accompaniment 2” by YouTuber Zusshi, as well as my composition "Let's Play the Piano with Sensei!" The students participated by playing along using only the black keys of the piano. The choice of these pieces was based on their visually simplicity, as the students used only the black keys, and they did not create dissonant sound relationships between the melody and the accompaniment in the pentatonic scale.

Table 1

Each Session Accompaniment and Condition

	Accompaniment	Condition
1st session	Magical Accompaniment 2	freestyle
2nd session	Magical Accompaniment 2	using both hands
3rd session	Magical Accompaniment	with awareness of forte and piano
4th session	Magical Accompaniment	with awareness of rhythm
5th session	Magical Accompaniment	with awareness of rhythm (Showing the model)
6th session	Let's play the piano with Sensei!	with the sense of endings
7th session	Let's play the piano with Sensei!	using only single notes
8th session	Magical Accompaniment 2	freestyle

Performance Results

1st Student A

https://youtu.be/jgzPOd16uzA

1st Student B

https://youtu.be/vznQ8qhqFW8

1st Student C

https://youtu.be/vqpy4zbWe5M

8th Student A

https://youtu.be/w_Vtv7NzBc8

8th Student B

https://youtu.be/XGBVsz1LGDY

8th Student C

https://youtu.be/ZeEeNtJJ2qA

Method of Analysis

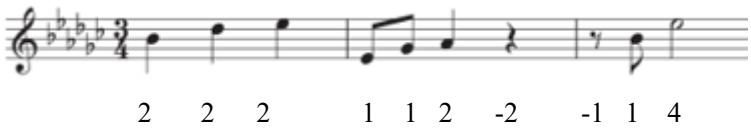
The analysis focused on the first and eighth improvisation activities were analyzed as follows:

1) Nine music experts, including music teachers from elementary, junior high, and special needs schools, as well as university teachers specializing in music education, listened to the performance without knowledge about the performers. They were asked to rate the richness of the musical expression on a scale of 1 to 10. The results were analyzed using the Wilcoxon signed-rank test. .

2) The musical performances of the students were notated and analyzed for rhythm, melody (pitch sequence), and chords. The analysis was conducted utilizing the method developed by Mikamoto, Ide, and Deguchi (2006) for identifying rhythmic and melodic patterns. Rhythmic patterns were analyzed converting note values into numerical representation (e.g., a half note as 4, and a quarter note as 2) and then categorizing them into patterns spanning one, two, and four bars. The types and frequencies of rhythmic patterns were also examined. Special focus was given to rhythmic patterns with four consecutive dotted half notes or full note rests within a phrase of four measures. These analyses were conducted for both the first and eighth performances (see Figure 1).

Figure 1

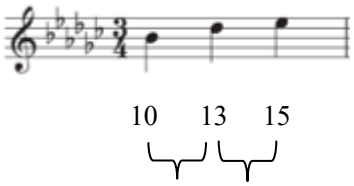
Examples of Rhythmic Pattern Analysis



To analyze melodic patterns, the lowest note played by the three students, D♭4, was assigned a value of 1, with each semitone increased by an increment of 1. The highest note, B♭6, was as assigned a value of 34. Sequences of the three consecutive notes were then extracted, and their intervals were calculated based on the differences in their numerical values. For example, if (B♭4 D♭5 E♭5) was played, they would be represented as (10 13 15). The interval variation of this three-note melody, consisting of a minor third and a major second would be extracted as (3 2). The types and frequencies of these three-note melody patterns were analyzed (see Figure 2). Similarly, four- and five-note melodies were analyzed. For chords, the occurrences and frequencies of bichords and triadic chords that emerged during the performances were determined.

Figure 2

Examples of Melody Analysis



3) The same nine experts who evaluated the performances in 1) were asked to provide their impression of each performance through free writing. Their impressions of the first and eighth performances were then analyzed using KH Coder, a free software for quantitative text analysis or text mining.

4) Three students listened to each student's performance and wrote freely about their impressions. The content of these writings from the first and eighth impressions was analyzed.

Result

Change in the richness of performance expression

The results of the richness scores of the first and eighth performances, evaluated by the nine music experts, demonstrated that the mean scores for Students A and C increased from 7.11 to 7.78 and from 5.50 to 6.67, respectively. However, the score of Student B decreased from 7.50 to 6.57. A Wilcoxon signed-rank test was conducted on the first and eighth scores of all three students, and no significant differences were found.

Table 2

Average Score for Expressive Richness

	1st average (SD)	8th average (SD)	p
StudentA	7.11(1.753)	7.78(1.727)	0.125
StudentB	7.5(2.059)	6.57(2.160)	0.25
StudentC	5.5(2.966)	6.67(2.702)	0.125

Analysis of rhythm patterns performed by students

When the types of rhythm patterns within a bar were tabulated, an increase in the number of rhythm patterns was noted for the three students. Student A played five and seven rhythm

patterns in the first and eighth performances, respectively. Student B played four and five rhythm patterns, while Student C played four and six rhythm patterns in the two performances, respectively.

When the types of rhythm patterns within two bars were tabulated, the number increased for Students A and C but decreased for Student B. Specifically, Student A played nine and eleven rhythm patterns in the first and eighth performances respectively. Student B played six and four rhythm patterns, while Student C played five and six rhythm patterns.

For four-bar rhythm patterns, the number increased for Students A and C but decreased for Student B. Students A and C played the first and second rhythm patterns in the first and eighth performances, respectively. Student A played ninie and twelve rhythm patterns in the first and eighth performances, Student B played seven and four rhythm patterns, and Student C played six and seven rhythm patterns (see Table 3).

The common pattern among all three students was that the dotted half note or full rest was the most frequently played rhythm pattern in both the first and eighth performances. The analysis also showed that the frequency of the dotted half notes or whole rests played in four consecutive measures decreased for all three students in the eighth compared to the first (see Table 4).

Table 3

Type of Rhythm Pattern

	A1st	A8th	B1st	B8th	C1st	C8th
Type of rhythm pattern for one bar	5	7	4	5	4	6
Type of rhythm pattern for two bars	9	11	6	4	5	6
Type of rhythm pattern for four bars	9	12	7	4	6	7

Table 4

Percentage of Dotted Half Notes or Whole Rests

	A1st	A8th	B1st	B8th	C1st	C8th
【1 bar】Percentage of dotted half notes or whole rests	73.21429	53.84615	93.75	89.58333	91.66667	85.41667
【2 bars】Percentage of dotted half notes or whole rests	64.28571	26.92308	87.5	79.16667	83.33333	75
【4 bars】Percentage of dotted half notes or whole rests	42.85714	15.38462	91.25	75	66.66667	58.33333

Analysis of three-note melodic patterns

Student A played 74 (first performance) and 69 (eighth performance) three-note melodies, with 55 and 48 types of three-note melody patterns, respectively. Student B played 62 and 50 three-note melodies, with 54 and 48 types of three-note melody patterns, respectively. Student C played 50 and 55 three-note melodies, with 36 and 42 types of three-note melody patterns, respectively.

The numbers of melody patterns where the same three-note melody was repeated twice were 6 and 10 for Student A, and 8 and 2 for Student B in the first and eighth performances, respectively. Student C played 11 and 8 for the first and eighth performances, respectively. For three-note melody patterns repeated three times, Student A played 5 and 4 patterns, Student C played 1 and 2, and Student B had none in the first and eighth performances, respectively. Student A also exhibited one three-note melody pattern repeated four times in both sessions, while Students B and C did not demonstrate any patterns repeated four times (see Table 5).

Table 5

Analysis Three-note Melodies

	A1st	A8th	B1st	B8th	C1st	C8th
Number of three-note melodies	74	69	62	50	50	55
Types of three-note melodies	55	48	54	48	36	42
【three-note melody】1 repeated melody pattern	43	33	46	46	24	32
【three-note melody】2 repeated melody pattern	6	10	8	2	11	8
【three-note melody】3 repeated melody pattern	5	4	0	0	1	2
【three-note melody】4 repeated melody pattern	1	1	0	0	0	0

Analysis of four-note melodic patterns

In the first and eight performances, Students A to C played 73 and 68, 61 and 49, and 49 and 54 four-note melodies, respectively. The numbers for types of four-note melody patterns in each performance, respectively, were 69 and 63 for Student A, 59 and 49 for Student B, and 46 and 53 for Student C. For four-note melody patterns repeated twice, Student A had 2 and 5 patterns, Student B had 2 and 0, and Student C had 3 and 0 in the first and eighth performances, respectively. For four-note melody patterns repeated three times, only Student A had one melody pattern with the same four-note melody repeated three times in the first session. None of the students played repeated patterns four or more times (see Table 6).

Table 6

Analysis Four-note Melodies

	A1st	A8th	B1st	B8th	C1st	C8th
Number of four-note melodies	73	68	61	49	49	54
Types of four-note melodies	69	63	59	49	46	53
【four-note melody】1 repeated melody pattern	66	58	57	49	43	52
【four-note melody】2 repeated melody pattern	2	5	2	0	3	1
【four-note melody】3 repeated melody pattern	1	0	0	0	0	0
【four-note melody】4 repeated melody pattern	0	0	0	0	0	0

Analysis of five-note melody patterns

Students A and B played 72 and 67 and 60 and 48 five-note melodies and 71 and 66 and 60 and48 types of five-note melody patterns in the first and eighth performances, respectively. Student C played 48 and 53 five-note melodies, with 47 and 53 types, respectively. The number of melodic patterns with the same five-note melody repeated twice was 1 in both performances for Student A, and 1 and 0 for Student C. Student B did not exhibit any twice-repeated melodic patterns. None of the students played the same five-note melody more than three times (see Table 7).

Table 7

Analysis Five-note Melodies

	A1st	A8th	B1st	B8th	C1st	C8th
Number of five-note melodies	72	67	60	48	48	53
Types of five-note melodies	71	66	60	48	47	53
【five-note melody】1 repeated melody pattern	70	65	60	48	46	53
【five-note melody】2 repeated melody pattern	1	1	0	0	1	0
【five-note melody】3 repeated melody pattern	0	0	0	0	0	0
【five-note melody】4 repeated melody pattern	0	0	0	0	0	0

Analysis of chords

The number of chords played by the students increased from the first to the eighth performances. Student A played 16 (first) and 14 (eighth) bichords and 0 (first) and 10 (eighth) triadic chords in both performances. Student B did not play any chords in the first performance but played 3 bichords in the eighth. No triadic chords were by student B in the first or eighth performance. Student C played 1 (first) and 3 (eighth) bichords and 1 (first) and 0 (eighth) triadic chord in both sessions, respectively (see Table 8).

Table 8

Analysis of Chords

	A1st	A8th	B1st	B8th	C1st	C8th
Bichords	16	14	0	3	1	3
Triadic chords	0	10	0	0	1	0

Comparison of the impressions of the nine experts

A co-occurrence network (Figures 3 and 4) was created from the textual analysis of the experts' impressions of the performance, and each community was labeled. The analysis demonstrated that the eighth performance had more varied and specific terms describing the characteristics and the musical theme of the performances, such as "diminuendo" and "motif." In describing the tunes, negative terms like "tragic," "troubled," and "standstill" were common in the first performance, while positive terms like "thrilled," "youth," "lively," and "shining" were prevalent in the eighth performance.

Figure 3

Co-occurrence Network of Impressions of the First Session Performances

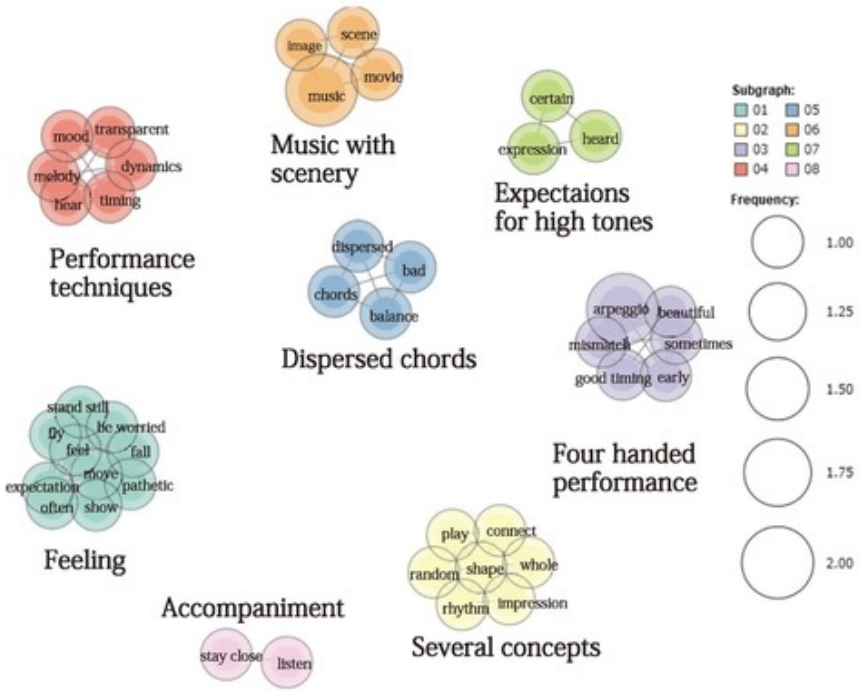
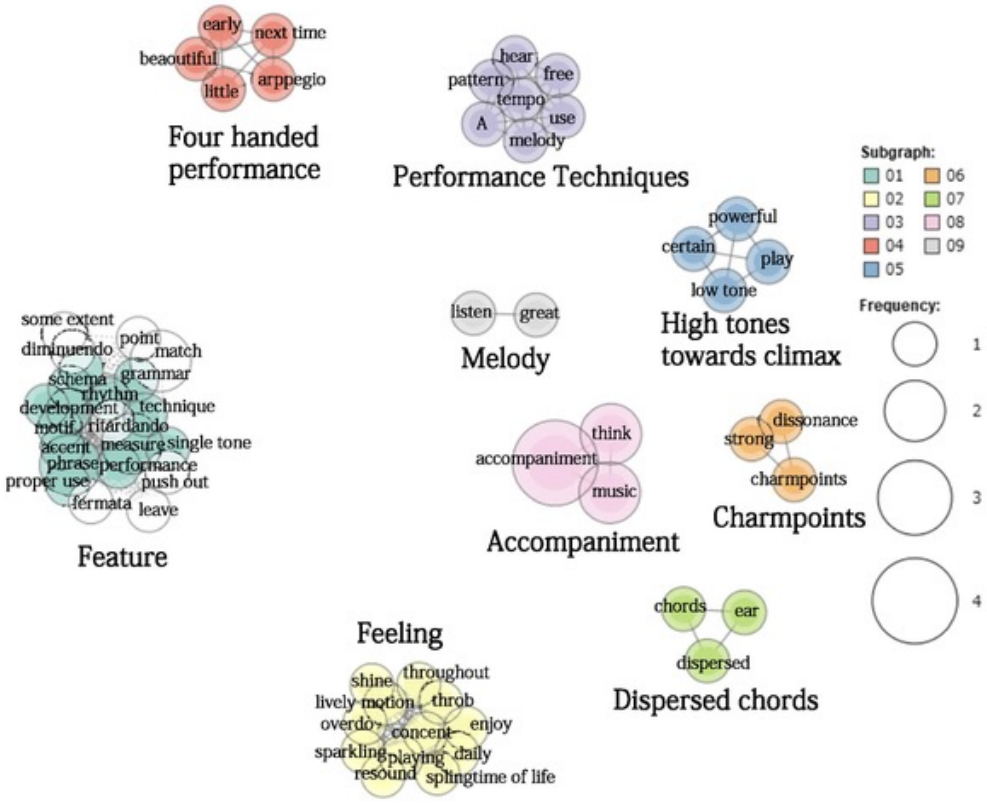


Figure 4

Co-occurrence Network of Impressions of the Eighth Session Performances



Student's impressions

Student A's impressions of Student B's performances evolved from describing the number of notes played to touching on the musical ideas, while those for Student C shifted from focusing on the rhythmic stability of the notes played to distinguishing between the playing of single notes chords. Student B's impressions of Student A's first performance described the strength and weakness of the notes, while that for both Student A and Student C focused on the notes played in chords in the eighth performance. Student C's impressions described the first performances of A and B as vague, while impressions of the eighth performance focused on the fact that the notes were repeated for both students.

Table 9

Student's Impressions

	Student A's impressions		Student B's impressions		Student C's impressions	
	Performance of B	Performance of C	Performance of A	Performance of C	Performance of A	Performance of B
1st	Sometimes one note, sometimes two notes alternating.	Where sound is produced in a fixed rhythm and unstable rhythms.	It was getting smaller and smaller in the final decrescendo.	The notes are played discretely.	They played a combination of different sounds.	They played a lot of the same parts.
8th	Like stars at night. Occasional comets stream by.	Similar to Student B's, but played one at a time or all at once	When two or more notes are played, the notes are cut off.	The first part was played using more than three notes.	The sound was repeated in the second half.	He played one note over and over again.

Considerations

Based on the experts' scores for the richness of performance expression, it's challenging to determine the effectiveness of this practice. However, the observed improvement of two of the three students suggests that the improvisation activity may have been effective.

Analysis of the students' performances revealed that all three students employed more rhythmic patterns in their improvisations. This finding suggests that the students learned various rhythmic patterns through the eight activities. Additionally, the frequency of playing dotted half notes and whole rests in succession decreased, contributing to an enhanced sense of phrasing in the pieces. The analysis also showed an increased frequency of playing chords among the three participants, indicating a clear change in performance expression. Therefore, it can be inferred that the three students mastered performance expression and improved their expressive abilities through the eight activities.

Conversely, the results from the analysis of the three-note melody patterns did not show common changes among the three students. The number of melody patterns repeated twice or more by Student A increased, while those by Students B and C decreased. Thus, finding a common trend of variation in the number of melodic patterns repeated was difficult. This result may be attributed to varying levels of performance skills required for repeating the same melodic pattern during improvisation. Consequently, differences in musical development stages among the students likely influenced the results.

Comparing the experts' impressions of the first and eighth performances, their observations became increasingly specific about the characteristics of the pieces. One expert

almost in tune with the rhythm of the accompaniment, I had the impression that it was generally random. I felt it was random in general." However, in response to her comment on Student A in the eighth performance, she said:

> Not only did I match the rhythm of the accompaniment, but I also felt the cohesiveness of the measures and phrases. There seemed to be a certain amount of musical diction or schema in the performer, such as repeating motifs and then developing and expanding them, feeling big phrases of about 4 bars, and using heavy notes and single notes for accents. I also sensed some technicality, such as matching the ritardando and diminuendo of the accompaniment toward the end, and leaving one note at the end out of the accompaniment as if it were a fermata."

This suggests that the characteristic parts of the piece played by the student were expressed at a level that clearly communicated to the listeners.

The comparison of the students' impressions showed that their viewpoints underwent different changes. By comparing the first and eighth impressions, Students focused on different aspects of the performances and were able appreciate music from multiple perspectives. In particular, student C's impressions evolved to become as concrete as those of the experts. This indicates that through the improvisation activity, the students' way of looking at and thinking about music changed.

Conclusions

This study elucidated the transformation of improvisational performance in music classes at special needs schools, focusing on the expression of students with physical disabilities. The analysis of the performances and the impressions of the experts suggested an improvement in the students' expressive abilities. However, it is necessary to consider the performances differ according to the students' varying musical abilities. Moreover, analysing expressive abilities in improvisation from multiple perspectives is important. Therefore, evaluating whether a performance is superior or inferior is difficult when using only a single indicator. For instance, a player performing using a wide variety of keyboard types does not necessarily demonstrate high levels of expressive ability. Occasionally, a performance with repetitions and variations within a range of keyboard types can be perceived as more expressive. Furthermore, although it may not change performance expression directly, the activity could also promote a change in the way students view and think about music when listening to it.

As a future issue, this study only analysed the parts played by the students. We intend to continue researching the relationship between students' parts and the accompaniment, as well as the correlation between the experts' evaluations and the analysis results of the performance.

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Significance of Improvisational Creative Activities: Using Triangles Through Classes in Special Needs Education

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Abstract

This study explores creative activities for special needs school students in line with the government course guidelines established in 2018-2019. Recognizing creativity as crucial, rather than mere skill development, we designed and implemented creative music activities to address the needs of special education students. Emphasizing the principles of ‘leave no one behind’ and ‘Inclusive Education,’ as stated in SDGs Goal 4, we aimed to “Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.”

Twenty-three high school students with intellectual disabilities and learning disabilities participated in creative activities where students could freely play musical instruments while interacting with each other using triangles, desk bells, and a tradition Japanese koto. Triangles of different sizes. desk bell sets arranged in the pentatonic scale, and a modified koto were prepared the children to explore. Working in groups of two or three, the children reacted spontaneously to each other's music and created their own music.

After the class, the students reviewed the recorded performances with the music teacher and exchanged opinions. Through this process, they were able to delve deeply into creative development, drawing from their improvisational performances and musical interactions.

This study sheds light on the potential of creative music activities to enhance learning experiences for special needs students, emphasizing the importance of inclusive approaches in education.

Keywords: special needs schools, improvisational activities, triangle

Significance of Improvisational Creative Activities: Using Triangles Through Classes in Special Needs Education

For the first time, new courses of study were announced for special needs schools: ‘Music Making’ in 2018 (elementary school and middle school) and ‘Creative Activity’ in 2019 (high school). Due to the revision of the courses of study, changes in special needs schools started in 2021 for elementary and middle schools, and in 2022 high schools. However, there are only a few reports on practical research concerning music making and creative activities in special needs schools, with most focusing on rhythm play and sound selection (Oka et al., 2020).

We conducted distinctive practical research through creative activities using ICT equipment for students with intellectual disabilities, confirming efforts and identifying issues that contribute to the development of leaders who will create new music cultures (Fujihara et al., 2021). Examples include group activities such as music creation using slit drums, which focus on group dynamics (Oka et al., 2020).

In this research, targeting the high school music department, I conducted an interview with Mrs. H, a music teacher responsible for conducting music classes for the 1st to 3rd grades at Kochi University attached special needs high school. The interview, conducted on April 27, 2022, aimed to understand the activities and teaching policies of the school. A summary of the characteristics of the high school music activities (creations) at the school based on the content of the interview is as follows:

Teaching Policy of the Music Department

- In free-flowing musical activities, students can release and express themselves fully, aiming for emotional stability.

- Develop musical sensibilities, knowledge, and skills through various musical experiences, such as concerts and other live performances. For example, the teacher and other musicians perform a piano duet with commentary, or students make a simple trumpet out of familiar items.
- Nurture the desire and attitude to use of music in daily life, contributing to a bright and fulfilling life. With the revision of the guidelines, the teachers have recognized the importance of making music and engaging the students in creative activities.

Practices Related to Creative Activities

The following activities have been carried out so far:

1. Conducting creative activities linked with physical expression. For example, creating rhythm with creativity and expressing it through body percussion.
2. Creating a one-bar rhythm (4 beats) by connecting quarter notes, eighth notes, and so forth, and replacing it with body percussion and percussion rhythms.

Method

Participants

This research involved the class analysis of a practical “music making using triangles” session (2 hours) for 23 students in the 1st to 3rd grades of the special needs high school attached to Kochi University. The study aimed to understand the process of students’ music activities and musical growth and to clarify the characteristics and roles of “Every One Can Create Music” activities in special needs schools. Considering the goals of the SDGs, it is important to think about what further changes are necessary for future music classes.

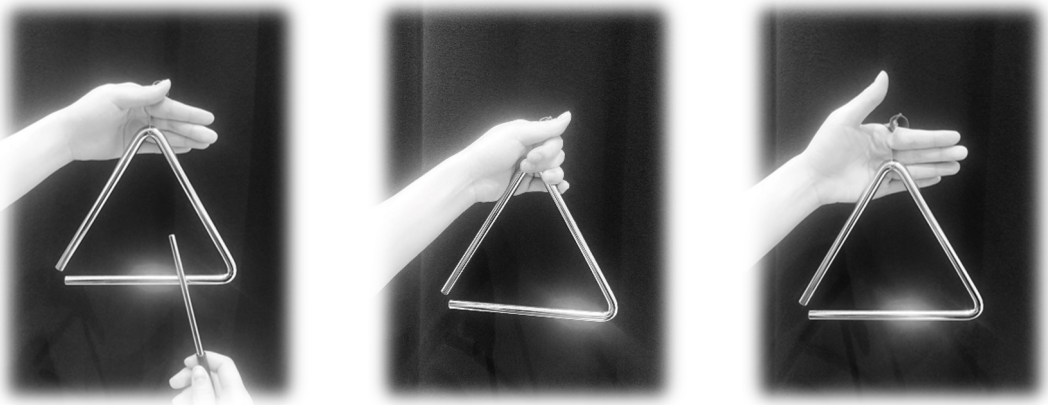
The research was conducted over two practice sessions on February 3rd and 10th, 2023, totaling 2 hours. The participants were 23 students from the special needs high school attached to Kochi University. The subject matter focused on timbre, specifically examining the differences in timbre depending on playing style. The theme for these sessions was "Let's play music with triangles."

Why we focused on triangles

Triangles are used not only in orchestras and brass bands but also when children play music in schools. There are typically as many instruments as there are students in a class in an elementary school music room. It is likely a familiar instrument that everyone has once held and played (see Figure 1). Here, creative activities using triangles were designed so that students with intellectual disabilities could experience the enjoyment of improvisational performances and be motivated to engage in learning.

Figure 1

How to Hold a Triangle



These activities were created with students from the early childhood education course who participated as supporters. I demonstrated how to hold and play the triangle to the students with intellectual disabilities and used visual aids to help them understand. We prepared different sizes

of triangles and various beaters, allowing students to choose freely. Additionally, we used a universal finger holder to prevent the rotation of the triangle, considering the educational needs of the students (see Figure 2).

Figure 2

Finger Holders Prepared for the Students

Instruction and Contents in Music Activity: Procedure

I held two 50-minutes classes focusing on ensemble activities using a trial session based on desk bells, a prepared koto, and triangles. Emphasizing the educational value of the pentatonic scale (do, re, mi, sol, la), high school students created music using various instruments (triangle, desk bell, koto). The participants were 23 students, aged 16~18 years old from a special needs high school in Kochi, Japan. The goal was to create error-free music, free of judgement regarding dissonance of rhythm.

The koto is a traditional Japanese instrument. For this activity, it was prepared by attaching various objects to the strings, inspired by John Cage's "Prepared Piano."

We used the pentatonic scale for the desk bells and the chromatic scale for the prepared koto (see Figure 3). I utilized clips, binder clips, clothespins, a ripped plastic bag, and bells to prepare the koto (see Figure 4). Its thirteen strings are tuned by placing bridges (called Ji) under the strings, giving graduated vibrating lengths. It is played with plectra attached to the thumb, index, and middle fingers of right hand (see Figure 5). For this practice, we attached the plectra only to the

thumb to simplify the preparation for the activity. The left hand varies pitches by depressing the string on the left side of the bridges to raise the pitch or by pulling the string to lower the pitch slightly.

Figure 3

Chromatic Scale of Koto

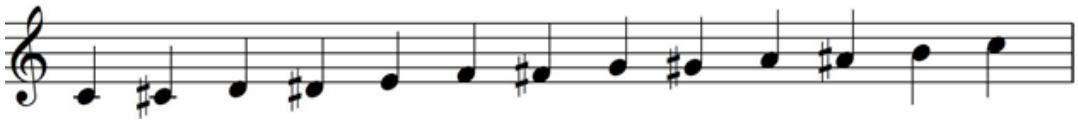
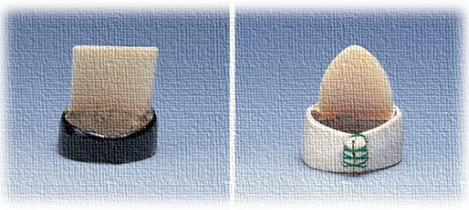


Figure 4

Image of the Bridge of the Prepared Koto

Figure 5

Two Kinds of Koto Nails



First activity: February 3rd, 2023（Wednesday, 9：00～9：50)

The following is a chronological list of events that took place in the first activity:

- Class opening
  - Listen to the sound of the triangle, and let's move the body freely
  - Listen to the sound of a variety of triangles, and move "only fingers~, only hands~, only head~"
- Triangle ensembles with students.
  - Explain simply how to hold and how to ring triangles
  - Play music in a circle
  - Try ringing your own triangle ＆ Try ringing the triangle of the person next to you
- "Amazing Grace" [1] on piano, accompanied by students
  - Play freely along with the piano
- Play with triangle and desk bell, impromptu musical conversation
  - Triangle ＆ triangle
  - Triangle ＆ desk bell

Second activity: February 10th, 2023（Wednesday, 9：00～9：50)

The following is a chronological list of events that took place in the second activity:

- Exploration of sound of the triangle
  - Create a variety of tones by devising different ways to play
  - Feel the interval：Ring the triangle once every 4 beats of "Stand by Me"[2]
- Rhythm play with using open and closed play techniques
  - Call and response with triangles in several ways
- While listening to "Scarborough Fair"[3] on the piano, play the triangle freely
- Enjoy improvisational performances using the prepared koto
  - Model performance（koto, triangle and desk bell）
  - Have a conversation with prepared koto, desk bell and triangle
  - Divide into grades and enjoy activities while following the leader's instruction
- One group from each grade presents in front of everyone

1 "Amazing Grace" was selected because it uses only five notes.

2 "Stand by Me" was chosen for its simple structure, with one triangle beat every four beats.

3 "Scarborough Fair" evokes nostalgia or a sense of mystery due to its use of the Dorian Mode.

Results and Discussion

The purpose of this research is to clarify the significance and challenges of a music workshop which was set mainly by improvisational performance (for special needs school students). For this, I analyzed and observed by focusing on the role of student supporter (called "facilitator") which supports students' learning and musical growth. During the class it should be analyzed by two aspects. First, what kind of approach does a facilitator make to encourage students' change of attitude? Second, how does a targeted student interact with others? In this project, to engage many students as much as possible, so I met beforehand with facilitators assigned for each grade and engaged them to help the students positively.

For the first activity of "let's move the body freely", each person learned how to ring and play the triangle (tremolo, open & close), and help them notice the change of sound of the triangle. It seemed that students at first relied on the facilitator's action for their own sounds and movements, but soon could act independently. In the "play with triangle and desk bell" activity, facilitators demonstrated how to interact by listening to their partner and attempting to communicate by sound and music.

Next, let's consider the targeted student's change of performance in detail and observe what kind of factors influence them.

I focused on the activity of 2nd-year student Mr. M. According to the Kyoto scale of psychological development 2020, Mr. M's overall ability is that of a for 4-year-old, with cognitive–adaptive abilities equivalent to those of a 6-years 3-month-old, and language–social abilities of a 2-year and 4-month-old. He excels in woodworking lessons and, with support, can participate in various activities positively. However, lectures that center on listening are challenging for him, and he often looks as though he wants to run away.

In an activity on the first day, the teacher played "Amazing Grace" on piano,

accompanied by students who rang their own and other people's triangles. Mr. M didn't join in and was ringing his triangle repeatedly and was just running around the gym (Video 1).

On the ensemble of using desk bell and triangle, his partner was calling him by ringing the triangle, but M ignored his partner and was just making sound without making eye-contact or listening to his partner's performance (Video 3).

On the second day, during the "Amazing Grace" activity, Mr. M looked calm compared to the first day. It could be said that he was more focused this day, as it was seen that he rang his own triangle and joined other participants in ringing each other's triangles. We felt that it seemed that he understood what he needed to do in the activity (Video 2). Mr. M didn't look like he was interested in this activity; however, he sometimes participated in earnest. And it could be said that the facilitators' support and the creation of a good atmosphere were factors that led to Mr. M's change of action.

The other students appeared to play each instrument without restrictions, while being conscious of their partner's movements, making eye-contact, and listening to their partners' performances. They maintained interest in the activity and expressed joy in playing music. Various music rhythms, such as imitation, call and response, and repeat and change, were observed during the ensemble practice. Additionally, Mr. M's movements while participating in the activity were recorded for analysis (see Table 1).

Table 1

Links to Video Recordings of Mr. M's Movements

Video1 https://youtu.be/LEh__1olevc
Video 2 https://youtu.be/UzD8V8-9O-g
Video 3 https://youtu.be/YYFzkNNC9rw
Video 4 https://youtu.be/PZ9OlvPaYjw

In the trio ensemble, by introducing a stringed instrument, we aimed to foster improvisational performances, encouraging students to notice the variety of sounds and echoes of the instruments. Support tailored to individual needs resulted in positive participation from the students. Activities not restricted by musical scores enabled students to enjoy music together. This embodied the concept of inclusive creative music-making. Students attempted to match each other's sounds by listening to each other's performances.

One supporter commented on the activity, "I found it difficult to be conscious of the surrounding sounds, (triangle, desk bell) because it is difficult to play the koto and concentrate on producing the sound. So, I think it would have been better to choose an instrument that is easy to play instead of the koto or take some time to experience playing the koto by touching it".

Conclusion

In this study, I proposed a musical activity based on error-free music and focused on improvisational performances, which were not limited by musical scores. We planned and conducted a program that allowed students from a special support school to engage in improvisational performances freely. We considered the environment and activities to ensure that 'Everyone can create music', and 'No one will be left behind'. Most students willingly joined the activities and created music using triangles. It should be mentioned that factors supporting the learning of children with disabilities include appropriate support and creative activities that lead from playing with sounds to choosing musical instruments. It should be emphasized that the facilitators play an essential role in this project.

The results of the analysis can be summarized in five points:

1. Spontaneous Music Creation: Through the practice with the Teacher-Assistant-Supporter (TAS) Model and a limited pentatonic scale, students spontaneously made music using their entire environment. This approach is meaningful as it reaffirms the value of creative music-making and educational programs.

2. Listening and Matching: Participants listened to each other's sounds and tried to match them, facilitating communication through personal expression by sound.

3. Non-verbal Communication: When students listened to other's performances and reacted, they were conscious of their partner's movements, not just the sounds, and engaged in eye-contact. This shows that many elements besides sound influenced their expression activities.

4. Rhythmic Interaction: In impromptu ensembles of two or three people, rhythm patterns such as repeat and change, call and response, and repetition and change were observed. These patterns likely stemmed from the expression activities that emphasized relationships among the students.

5. Inclusive Creative Music-making: For special needs school students, error-free performance must be assumed. It is essential not only to nurture students' musical creativity but also their personal growth and sense of community. Thus, improving musical skills is not the primary purpose of this project.

In the future, I hope to create teaching materials that enhance the unique expression of students who need special support.

※The procedure was approved by the Kochi University Faculty of Education Bioethics Review Committee.

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The Effect of Visualization on Music Appreciation and Creative Music-making: Using Lego Bricks and Song Maker in Primary School Music Teaching

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Abstract

One challenge facing school music departments is how to enhance students' ability to use their sensibilities to express musical ideas and appreciate the merits of music. I link music listening and creative music-making through an activity in which children grasp the characteristics of music and exercise their sensibilities to translate their thoughts into music. Students listen to music, express its characteristics using Lego bricks, and create music using Song Maker based on those characteristics. The results demonstrate that effectively linking these visualizations encourages students to listen to and create music in ways that reaffirm the characteristics of the music.

Keywords: Creative music-making, visualization, Lego bricks, Song Maker

Challenges for the School Music Curriculum

The goal of school music education is to develop the qualities and abilities necessary for a rich relationship with sound and music in daily life and society. There are various sounds and types of music in our lives and social activities, however, children are frequently exposed to familiar music, such as from anime, games, and J-pop. One of the essential conditions for enjoying a rich relationship with all kinds of sound and music, including familiar music, is the ability to listen to the music repeatedly and feel and imagine something while listening to it. The goal of music classes is for students to deepen their music knowledge by relating what they feel or imagine to the musical elements and structures that

underpin those feelings. Japan's Central Education Council (Report) in December 2016 cited enhancement of this quality as one of the challenges for music departments at elementary, junior high, and high schools. In terms of musical expression, the report called on educators to enhance the students' ability to use their sensibilities to express musical ideas.[1]

Although the aim is for the students to exercise their sensibilities, current textbooks do not adequately encourage students to cultivate their musical sensibilities through their daily exposure to music. These textbooks include several activities for musical expression and listening based on Western music theory, which forms the foundation for a wide range of music and has served as the basis for music instruction. However, the music learned in these activities is far removed from the J-pop and other everyday music that children enjoy. Teaching musical expression based on Western music theory is challenging because musical expression requires not just sensory intuitions acquired from the everyday musical environment, but also knowledge and skills based on Western music theory. The challenge is compounded by the limited number of classroom hours devoted to music, which gives an advantage to children with musical experience outside of school. When I conducted a survey

[1] Japan's Central Education Council (Report) in December 2016 challenged music departments at elementary, junior high, and high schools to further enhance the following three areas – exercise one's musical sensitivity to create musical expression in collaboration with others and to listen to music with appreciation of its merits and value; become familiar with the traditional music of Japan and the local area to gain a deeper appreciation of its merits; and gain a deeper interest in and understanding of the role of sound and music in daily life and society, and the musical culture.

asking university students about the problems they faced in school music classes, the respondents frequently cited differences in musical knowledge and skills due to varying levels of musical experience.[2] Regardless of whether or not children have experience with music outside of school, they need activities that allow them to express their thoughts and intentions by making use of their musical sensibilities. To achieve this, making music with greater freedom can open up a wider variety of activities compared to the performance of pre-composed songs. However, several of the creative music-making activities in textbooks are explicitly designed to create music based on musical elements and structures and feature stereotyped modes of performance, such as creating melodies based on pentatonic scales or major triads.

Therefore, in this study, I propose a method to overcome the current challenges in music instruction in terms of both listening and expression. In terms of music listening, I propose a method for considering the feeling of listening to music in relation to musical elements and structures. In terms of creative music-making, I propose a method for exercising one's sensibilities more freely and creating music that reflects one's thoughts and intentions.

[2] Since 2002, I have been conducting a questionnaire survey of students who have taken my music classes for teacher training.

Connection with Visualization

When children interact with music, it is easier for them to relate to it when there are visual elements or stories involved, rather than just sounds and music. This is true of concerts for children, which often incorporate visuals and words, such as picture books and stories. When creative music-making activities were first introduced into school education, it was considered problematic that many of the compositions created by children ended up being sound effects or merely onomatopoeic. However, several activities were conducted to evoke sounds and music related to visual images, such as creating space music or ocean music or adding music to a story. Hence, visual elements are a means of connecting children with music. Since visual information is more diverse than auditory information, I believe that effectively linking visual elements can lead to creative music-making activities, instead of merely producing sound effects. In terms of listening activities, school education requires students to express in words what they feel when listening to music. However, in the commentary on the official Courses of Study curriculum guidelines, showing pictures and diagrams is explicitly included (Ministry of Education, Culture, Sports, Science and Technology, 2018, p. 135) and has been implemented in practice (Kojima, 2014). Melodic movements and rhythms, which are musical elements, are shown as lines and shapes and are incorporated into textbooks. Thus, in educational settings, visually related instruction has been used in both music listening and creative music-making. In an earlier work, I introduced

instructions aimed at broadening the learner's understanding of music by linking listening and creative music-making through the medium of vision. In these activities, learners listened to a piece of music, expressed its characteristics as an abstract three-dimensional model, and created new music based on that model (Kojima, 2016). One of these activities involved using Lego bricks to express the characteristics of music in three dimensions and creating music in Song Maker based on the Lego structure's shape. This activity takes advantage of the fact that both Lego bricks and Song Maker involve the manipulation of rectangular shapes and, thus, are visually related. By implementing this activity in a general education class for university students, I demonstrated that the students were able to generate thoughts and intentions about the music to be created, and could easily convert those thoughts and intentions into musical ideas and express them musically, regardless of their performance skills (Kojima, 2023).

Therefore, in this study, I implemented this activity with elementary school students to see if the same results could be obtained and whether they could successfully perform the first part of this series of activities, that is, listening to a piece of music and expressing its characteristics with Lego bricks.

Class Summary

Participants and Purpose

A total of 31 sixth-grade children attending elementary school "T" were participated in the experiment. The experiment took place on July 4, July 11, and July 18, 2023. The

purpose of this experiment was as follows:

1. To demonstrate that students can listen to music, notice the characteristics of melodies and rhythms, and express them with Lego bricks in a group activity.

2. To demonstrate that students can translate their thoughts and intentions into a variety of musical ideas by using Song Maker to create music based on their Lego brick models.

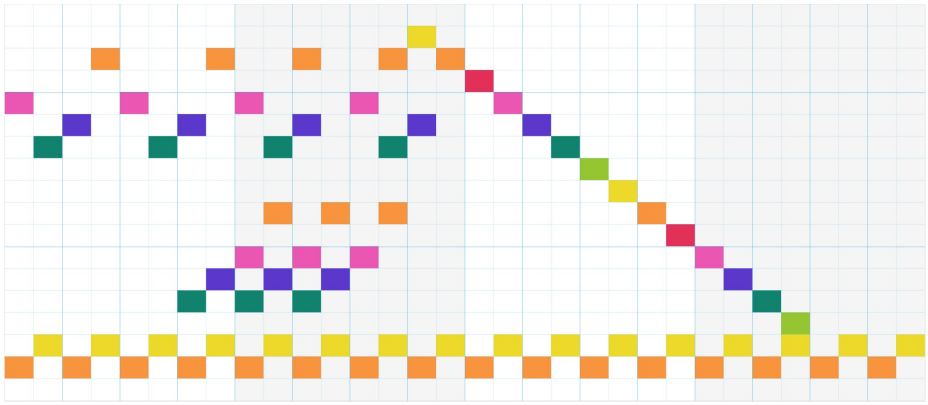
Contents

The class lasted for three hours. The assigned music teacher taught the class, while I participated as an advisor, whenever appropriate. In the first hour (Hour 1), to help the children get used to listening to music and expressing its characteristics with Lego bricks and to learn the features of Song Maker, I implemented an activity where the children used Lego bricks to express the characteristics of a song I had composed in Song Maker. The music had easy-to-understand melodic repetition, with ascending and descending lines, and was easy to translate into a representation using Lego bricks (Figure 1). The Lego brick activity was conducted in six groups of 4–6 children per group.[3] While listening to the song on a loop on Song Maker, the children used the Lego bricks to express its musical characteristics. Each group presented the concept of the finished work and shared it with the rest of the class. While listening to the song, the children looked at Figure 1 projected on the screen and compared it to the characteristics of the music and their Lego brick models.

[3] There were 31 students in the class, but the group sizes varied due to varied absences from the three class meetings

Figure 1

Music that I Created for the Introductory Lesson in Hour 1

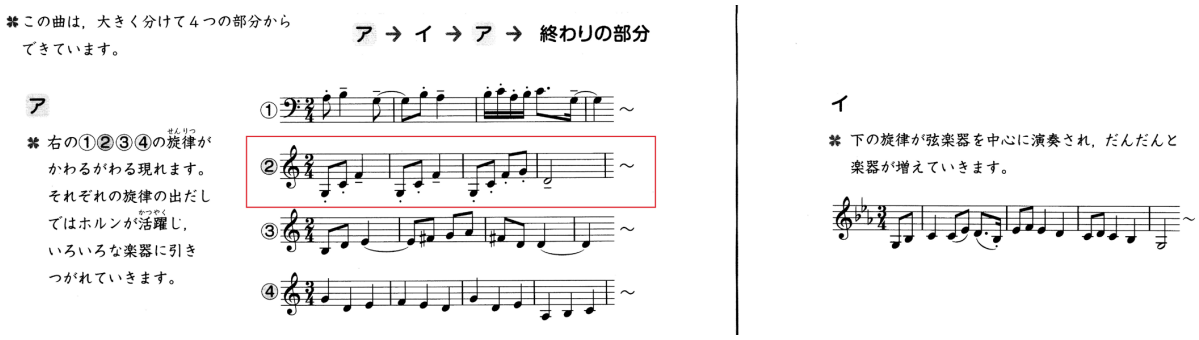


(https://musiclab.chromeexperiments.com/Song-Maker/song/6745204644904960)

In the second hour (Hour 2), the children listened repeatedly to a section of "Jupiter" from Holst's suite, "The Planets," which is included as a music appreciation piece in the 6th-grade textbook. They once again used Lego bricks to express its characteristics. The textbook states that the structure is "A → B → A → End section," where "A" consists of four melodies (Figure 2).

Figure 2

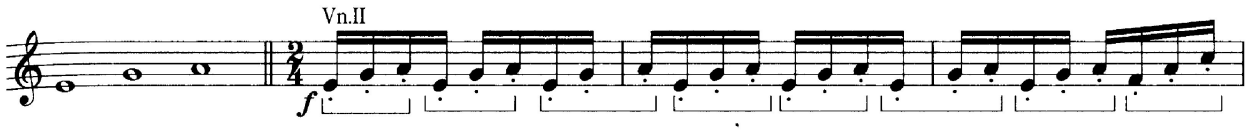
The Structure of "Jupiter" in the Textbook (Ohara et al., approved 2019, published 2020, pp. 16-17)



Tamura (2004, p. 73) argues that if "unification of diversity" is a condition for a masterpiece, "Jupiter" meets this condition because its opening figure (Figure 3) is the source of most of the main themes. This figure, especially the section of "A" labeled as ② (red frame in Figure 2), is frequently used in various registers. While listening to Section A ② repeatedly, I noticed the repetition and changes in this figure and thought that it might be possible to express these characteristics through Lego bricks. In the class, we first listened to the "A→B" part, then repeatedly listened to Section A ②, and expressed the characteristics of that section with Lego bricks. This activity was carried out in groups, similar to Hour 1.

Figure 3

"Jupiter" Opening Figure (Tamura, 2004, p. 79)



In the third hour (Hour 3), while looking at the Lego brick model created during Hour 2, the

children made music in Song Maker, based on the characteristics represented in their model. Although the music was supposed to be based on the Lego brick model, the children were permitted to deviate from their model during the music creation process. This activity was done privately. Song Maker allows you to save the completed song online and open the corresponding URL to listen to and modify it repeatedly. When the children completed their compositions, they were instructed to send the URL to the destination specified by the teacher, who opened the URL on her computer and projected the graphic score onto the screen. Three of the completed works were shared with the whole class, and, in the end, the children listened to the complete song "Jupiter."

Results

Hour 1

In the music used to introduce the activity (Figure 1), the first half featured two types of repeating ascending melodies set against a repeating bassline, while in the second half, the melody suddenly shifted to a sequentially descending pattern. The way the children listened to the music and expressed its characteristics through Lego bricks varied, with some groups constructing two-dimensional models and others constructing three-dimensional models (Figure 4). However, all the groups used ascending and descending shapes to express ascending and descending melodies, respectively. One group noticed the repeating bassline and found a way to express it (Figure 5).

Figure 4

Example of Model in Hour 1 (three-dimensional model)

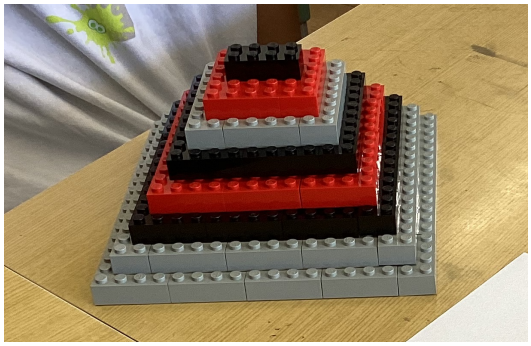


Figure 5

Example of a Model in Hour 1 (notices and expresses the repeating bassline)

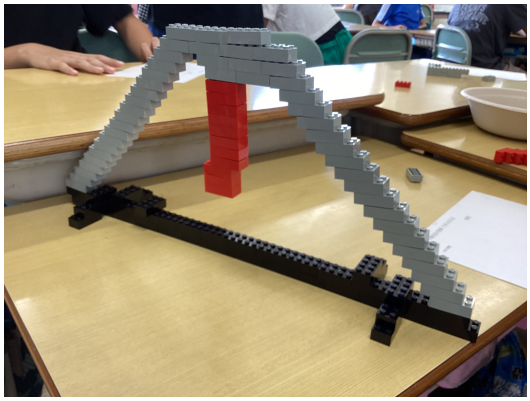


Table 1 presents the children's feedback after the class, with multiple responses allowed. Nine children commented, "I was able to express the characteristics of the music using Lego bricks," while the same number commented, "It was difficult." However, the reasons for the difficulty varied, and several children commented, "It was difficult, but I was able to do it." The comment, "It was difficult to express the same repeated melody and different melodies," suggests that the children noticed the characteristics of the melody. Five

children commented, “Nice song.” Furthermore, specific comments were captured regarding the repetition of the melody, such as, “It’s nice to see the ups and downs of the song appear over and over again.” Three children commented, “I was able to pick out the characteristics of the music,” and one commented, “I noticed the repeating bassline.” Nevertheless, three children commented, “I didn’t notice the repeating bassline.” One child commented, “I want to make a song myself” and used Song Maker to create an original song before the next class, even though we had not explained how to use Song Maker in Hour 1.

Table 1

Post-class Feedback for Hour 1 (30 attendees)

Feedback	Number of people
I'm glad I was able to express the characteristics of the music using Lego bricks (including “Using Lego, I can express sounds using colors”)	9
It was difficult (including “It's difficult to express the characteristics in Lego,” “It was always difficult to express the same melody and different melodies,” “It's hard to make what I feel visible,” and “It was difficult to assemble”)	9
It was interesting, interesting to learn, and fun (also: “It's fun to show the pitch of the sound with Lego”)	9
Nice song, interesting (“It's nice to see the ups and downs of the song appear over and over again,” “It's like a staircase, and it's beautiful where the low sound and high sound overlap,” etc.)	5
I was able to pick out the characteristics of the music (also: “There was a continuous bassline and some overlapping sounds”)	3
I didn't notice the repeating bassline	3
I'm glad I was able to experience it	2
When I listened to it again after looking at the diagram, it felt different	1
I was happy to see that my idea was correct when I saw the graphic representation of the song	1
It is a staircase of sound and can be expressed graphically. I was able to read the characteristics of the music.	1
Music is interesting, because when I made Legos for this song, various images came to mind, and each group created different models	1
I want to make a song myself	1
I had a hard time at first, but the others helped me out	1

Hour 2

The models created after listening to section A ② of "Jupiter" expressed musical characteristics, such as the reappearance of the same melody several times and the overlapping of different melodies, indicating an awareness of these characteristics. Group 1 used red for the high tones, gray for the middle tones, and black for the low tones to represent the mixture of low and high tones. Their model expressed the way the sound moved from low to high, and the explosive feeling at the end (Figure 6).

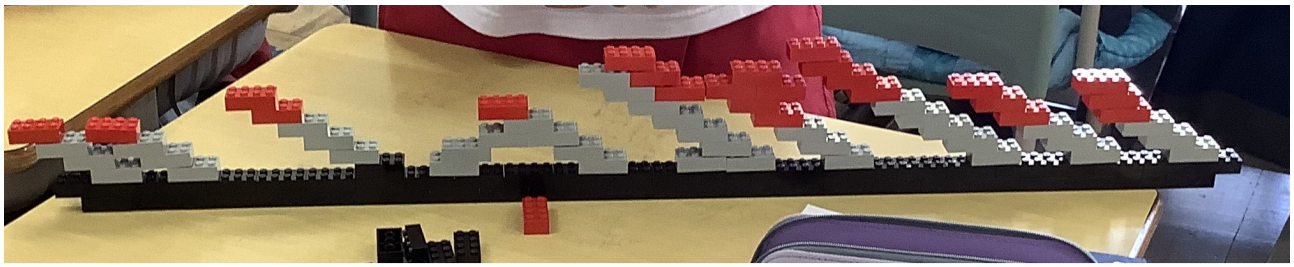
Figure 6

Lego Brick Model from Group 1 (expresses the way the sound goes from low to high, and the explosive feeling at the end)

Group 2 represented the bassline as continuous black, the the middle tones as gray, and the high tones as red, and captured the characteristic of the same melody reappearing several times (Figure 7). The children stated that they referred to the score in the textbook when capturing the repetition of the same melody.

Figure 7

Lego Brick Model from Group 2 (expresses how the same melody reappears many times)



In Hour 2, the children were asked to write down the listening characteristics of the melody and rhythm. Table 2 summarizes these listening characteristics, with multiple responses allowed. Table 3 presents the children's feedback after Hour 2, also with multiple responses allowed.

Table 2

Observations about the Melody and Rhythm after Listening to a Section of "Jupiter" (28 attendees)

Observations about the melody and rhythm	Number of people
The melody goes up and down	12
Fast overall	5
It has a complex, continuous rhythm	5
There were quiet notes here and there, and the sounds got louder and louder and finally crashed into each other, and at the end there was a sound like an explosion	3
The trumpet is the main instrument used, and the solo is a high-pitched trumpet	2
There are quiet sounds and sudden loud sounds	2
There are places where the same pattern is repeated over and over again	1
It goes up, ends, and then starts again from a lower place	1
It's like the notes are chasing after you	1
The high and low notes overlap and then separate	1
The rhythm keeps changing	1

Table 3

Post-class Feedback for Hour 2 (28 attendees)

Feedback	Number of people
I'm glad I was able to express the characteristics of the music using Lego bricks	15
It was difficult (including “It was more difficult than last time,” “It was difficult to represent each melody,” and “It was difficult to represent with Lego because I had to separate the continuous pattern of notes from the other notes”)	10
It was fun	3
I want to do it again	2
We assembled it by working together as a group (trying not to break or drop it)	2
We couldn't work together as a group.	2
I could feel the melody	1
I could feel the melody	1
It's amazing to be able to express sound with color	1

Fifteen children commented that they were able to express the characteristics of the music using the Lego bricks, while ten described it as “difficult.” Several children commented, “It was difficult, but I was able to do it.” There were multiple opinions stating that it was difficult to express the features of the music, such as, “It was difficult to represent with Legos because I had to separate the continuous pattern of notes from the other notes.”

Hour 3

Twenty-eight students were present for Hour 3, of which 22 were able to complete a piece of music in Song Maker and send the URL to the submission address specified by the teacher. However, only 17 children accurately submitted their musical works, and these were used for analysis. When the children were introduced to Song Maker, it was explained that it was possible to set the length, pitch, and tonality, and various tones could be created by

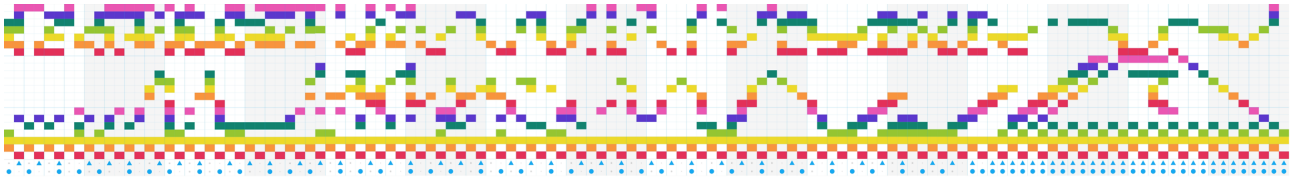
choosing the instrument. A three-octave range was recommended, but the rest was left to the children's discretion. As a result, although the length and timbre of the music varied, none of the children changed the tonality, and the original setting of C Major was used.

Group 1

The musical expressions of two children were examined. Since the Lego brick model was large (Figure 6), the musical expressions consisted of 16 bars (Figure 8) and 12 bars (Figure 9) respectively. Both featured several repetitions and overlapping melodies, with a big climax at the end. Both pieces had a fast tempo of ♩ = 240; however, the instruments chosen and the repeated figures were different.

Figure 8

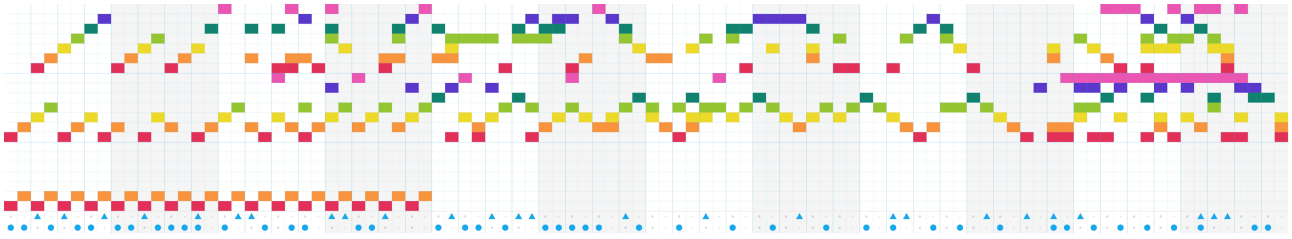
Musical Expression of Child A from Group 1



(https://musiclab.chromeexperiments.com/Song-Maker/song/4740001401929728)

Figure 9

Musical Expression of Child B from Group 1



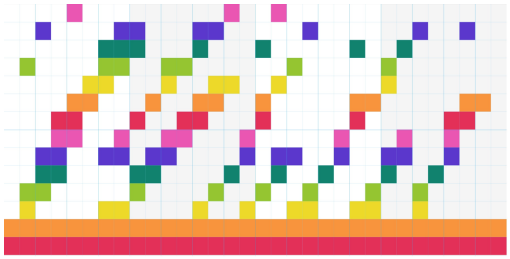
(https://musiclab.chromeexperiments.com/Song-Maker/song/5401014115762176)

Group 2

The musical expressions of three children were examined. The group's Lego brick model (Figure 7) expressed the same shape multiple times, and all three children's musical expressions represented this characteristic relatively uniformly, although at different tempos. One musical expression consisted of a distinctive repeating section (Figure 10), while another musical expression was developed in an overall shape (Figure 11) and yet another musical expression was faithful in an overall shape of the group's Lego brick model.

Figure 10

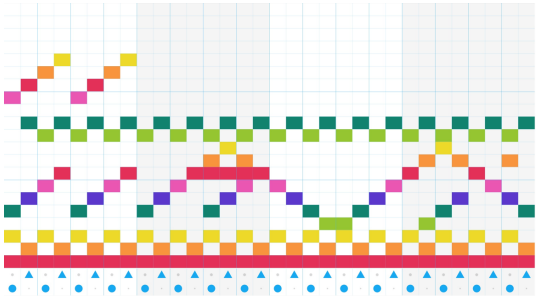
Musical Expression of Child C from Group 2



(https://musiclab.chromeexperiments.com/Song-Maker/song/4536744624783360)

Figure 11

Musical Expression of Child D from Group 2



(https://musiclab.chromeexperiments.com/Song-Maker/song/6310286878048256)

Group 3

The musical expressions of two children were examined. One of them expressed the climbing and descending characteristics of the group's mountain-shaped Lego model, while the other created a 16-bar musical expression that repeated the climbing and descending melody and included a sub-melody.

Group 4

The musical expressions of four children were examined. Similar to Group 2, this group's Lego model, which the children had assembled based on the score in the textbook, was represented by a continuous black sequence at the bottom, with four shapes on the top that resembled the notes of the motif, with red representing the high notes. However, Group 4's Lego model (Figure 12 and the middle right edge of Figure 13) was more regular and repetitive.

Figure 12

Lego Brick Model from Group 4 (expresses the repetition of the motif)

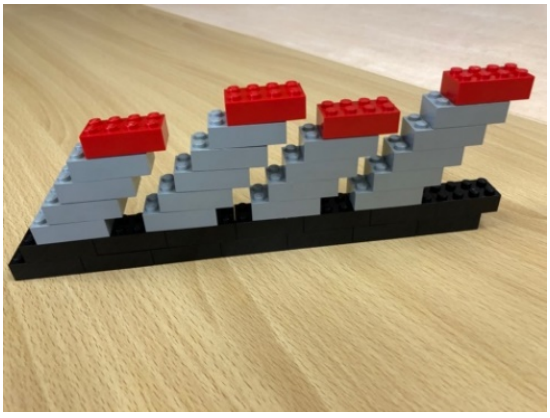
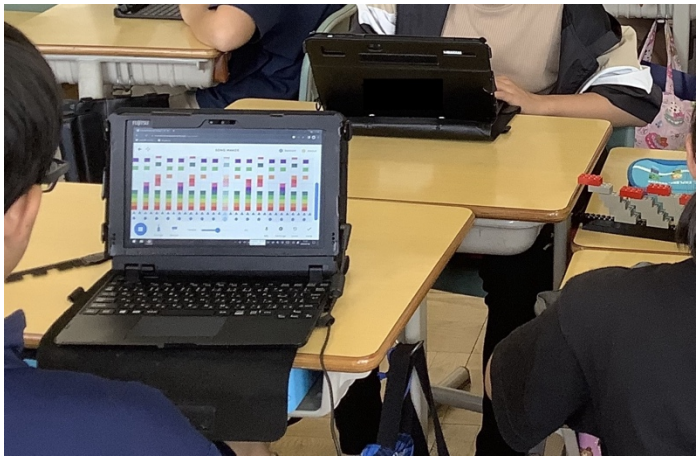


Figure 13

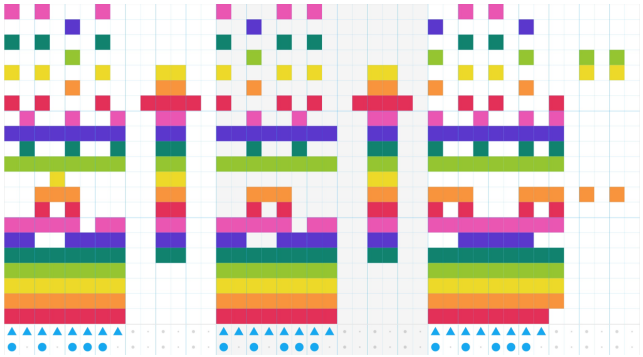
Child E from Group 4 Working on His Creative Music-making in Its Initial Stage



Comparing the musical expressions of four children in this group, all of them incorporated the regular structure and repeated figures of the Lego model into their musical expressions. One child (Child E) initially created music by repeating regular overlapping notes (Figure 13), however, in the end, the child created a piece of music that repeated two sections with different characteristics (Figure 14).

Figure 14

Final Musical Expression of Child E from Group 4

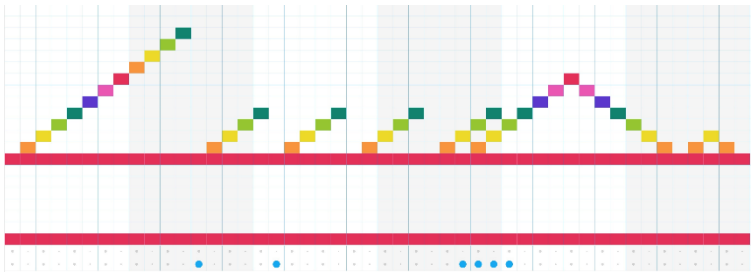


(https://musiclab.chromeexperiments.com/Song-Maker/song/6322955152523264)

Child F's musical expression resembled a C major scale based on the do (C) note (Figure 15), Child G used only the five notes of do-re-mi-fa-so, repeating the do-re-mi-fa and re-mi-fa-so chords on top of the repetition of do-re-mi-fa-so (Figure 16), and Child H created a musical expression (Figure 17) with repetitions of mi-fa-so-la-si and mi-fa-so-la-si-do on a base of do and re notes, with a diverse overlapping section of notes at the end.

Figure 15

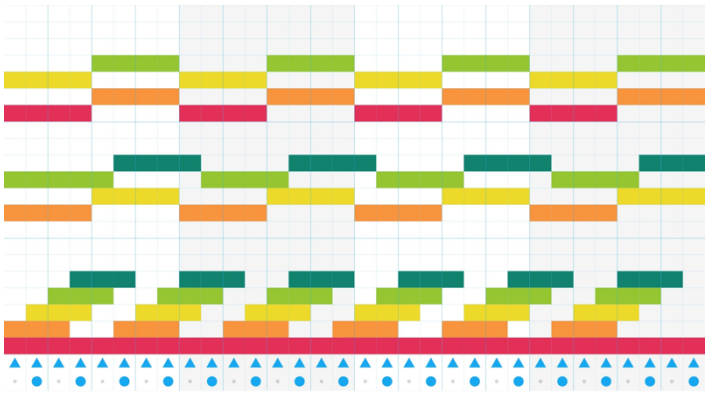
Musical Expression of Child F from Group 4



(https://musiclab.chromeexperiments.com/Song-Maker/song/6106422866345984)

Figure 16

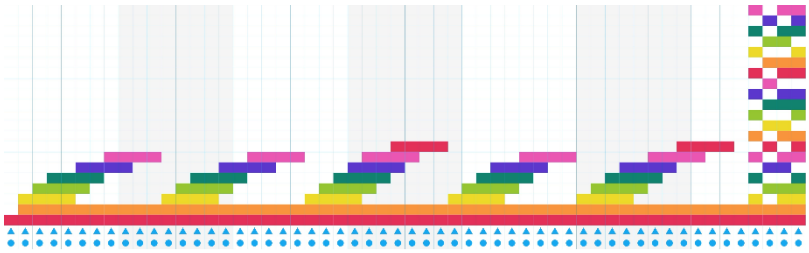
Musical Expression of Child G from Group 4



(https://musiclab.chromeexperiments.com/Song-Maker/song/5938354051612672)

Figure 17

Musical Expression of Child H from Group 4



(https://musiclab.chromeexperiments.com/Song-Maker/song/4839452114157568)

Group 5

The musical expressions of four children were examined. All four musical expressions reflected the characteristics of the group's Lego model, which consisted of a variety of overlapping layers in a manner that indicated awareness of the treble and bass. All the musical expressions exhibited diverse layers of notes, although the way the notes were layered, the way the rhythms were put together, and the choice of instruments differed.

Group 6

The musical expressions of two children were examined. Both the musical expressions reflected the characteristics of the group's Lego brick model in which the short repeating notes were represented in red at the bottom, the repeating figure was indicated in gray above that, and the final high note climax was expressed in black. However, the expression of the bass in the two musical expressions differed in terms of repetition. Table 4 shows the children's feedback after Hour 3 class, tabulated with multiple responses allowed.

Table 4

Post-class Feedback for Hour 3 (28 attendees)

Feedback	Number of people
I'm glad I was able to succeed (including the image came to me, I was able to express the image in a short time, and I was able to make the song I wanted)	11
It was fun	5
I want to do it again (including I want to try it at home too, I wish I could do it whenever I want, I want to express a variety of sounds, not just songs)	4
It was difficult (including: it was difficult to express the loudness of the sound)	2
It's interesting to be able to see sound as a graphic. It's amazing how you can create a song even if you don't have a melody in mind, just by creating a shape and playing around with it	1
It's easier to express music in Song Maker than in Lego	1
I learned a lot with Lego bricks	1
I'm glad I was able to do and learn a lot with Song Maker	1
It was difficult because it was my first time to use Song Maker, but I was able to make it work	1
I was able to do a lot	1

Discussion

Degree of Achievement of the First Objective

The first objective of this study was to demonstrate that the students can listen to music, notice the characteristics of melodies and rhythms, and express them through Lego bricks in a group activity. This objective relates to Hours 1 and 2. In Hour 1, the introductory lesson, the children listened to and used Lego bricks to express the characteristics of a song with easy-to-understand melodic repetition and changes. I created this song in Song Maker. All the groups used ascending and descending shapes to express the ascending and descending melodies, respectively, and one group noticed the repeating bassline and found a way to express it in the Lego brick model (Figure 5). The children first listened individually for the melodic and rhythmic characteristics of the piece, then shared them in groups as they

made the Lego models, and finally shared them with the entire class by explaining the concept of the musical composition they had created. In other words, they had multiple opportunities to think about musical characteristics, such as melody and rhythm. Even children who did not initially notice the repeating bassline eventually did.

Looking at the children's post-class feedback (Table 1), the same number of children were able to express the characteristics of the music and found it difficult. However, most of the latter group commented, "It was difficult, but I was able to do it," and the rest of the comments were positive. After listening to the music, expressing its characteristics through a Lego model, and seeing their music based on that model projected in Song Maker, the children gave the following feedback: "When I listened to it again after looking at the diagram, it felt different," "I was happy to see that my idea was correct when I saw the graphic representation of the song," and "It is a staircase of sound and can be expressed graphically. I was able to read the characteristics of the music." This suggests that representing the invisible musical characteristics in the form of Lego brick models and then visualizing those characteristics in the graphic score in Song Maker as rectangles of the same shape as the Lego bricks served to reaffirm the characteristics of the music. The feedback, "Music is interesting because when I made Legos for this song, various images came to mind, and each group created different models," suggests that listening to music and expressing what they noticed through Lego bricks helped them imagine while listening to the music.

In Hour 2, the children repeatedly listened to and used the Lego bricks to express the characteristics of a section of "Jupiter" where the repetition and variation of the motif are easy to understand. Some groups referred to the score in the textbook to express the repeating figure, but they expressed the other sections based on their listening. In this hour, the children were asked to write their observations about the melody and rhythm of the section of "Jupiter" (Table 2). The repetition and variation of the motif were captured in Group 1's Lego brick model (Figure 6); as one child in Group 1 put it, "It's like the notes are chasing after you." Another child in Group 6 wrote, "It has a complex, continuous rhythm," and this detailed repetitive figure was expressed at the bottom of the group's Lego bricks model. I believe this "complex, continuous rhythm" refers to a tremolo section played on a stringed instrument.

In the feedback after class (Table 3), the number of children who said that they were able to express the characteristics of the music and found it difficult increased from Hour 1. When the children gave reasons for the difficulty, their feedback reflected the difficulty they had in capturing the characteristics of the melody. Several children said that they were able to express the characteristics of the music using Lego bricks during the first two class hours. In other words, these children were able to perform the act of listening, capturing the characteristics, and thinking about the characteristics of the music to visualize those characteristics.

Degree of Achievement of the Second Objective

The second objective of this study was to demonstrate that students can translate their thoughts and intentions into a variety of musical ideas using Song Maker to create music based on their Lego brick model assembled in Step 1. In Hour 3, the children listened to a section of "Jupiter" and used Song Maker to create music based on the Lego brick models assembled by their group. As a result, they were able to create music that exhibited the visual characteristics of each group's Lego brick model, as revealed in the corresponding graphic score in Song Maker. However, when I compared the music created within each group, I found that how the visual characteristics were used in the structure of the music was different, and the music had different atmospheres. This can be illustrated by comparing the four children in Group 4, each of whom created music based on the group's Lego brick model, which expressed the repeating motif of "Jupiter". Child E initially created music with a regular shape, resembling a bar graph, however, in the end, created a piece of music that alternately repeated two clusters, one large and one small. Children F, G, and H created musical compositions that incorporated the repeated motifs expressed in the Lego brick model, however, the overall structure, tempo, and choice of instruments were different, resulting in different musical pieces. Hence, the visual association created using the Lego bricks and Song Maker reflected students' thoughts and intentions, resulting in varied musical outcomes.

Conclusion and Implications for Music Education

The following two points, which were the objectives of this study, were demonstrated.

1. The students listened to music, noticed the characteristics of melodies and rhythms, and expressed them through Lego bricks in a group activity
2. The students translated their thoughts and intentions into musical ideas by using Song Maker to create music based on their Lego brick models assembled in Step 1

This demonstrates that effectively linking these two visualizations encourages students to listen to music and translate their thoughts and intentions into creative music in ways that reaffirm the characteristics of the music. For creative music-making, since Lego bricks and Song Maker are both based on manipulating rectangular shapes, linking their visual characteristics facilitates the translation of visual impressions, which differ from one person to another, into sound and music, leading to diverse musical creations. In Hour 3, several children turned their thoughts and intentions into 16-bar musical expressions. Child E (Group 4) exemplifies how this activity facilitates changes in musical ideas through trial and error within an hour, indicating that it makes musical creativity accessible to children.

In the future, I hope to clarify the effectiveness of this practice by conducting it with a larger number of subjects and varying the repertoire of music that they are exposed to.

Acknowledgment

I wish to thank Ms. Sumiko Hasunuma of elementary school “T” for aiding me in conducting this study. This study was supported by JSPS KAKENHI Grant Number JP17K04760.

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Song use in English-learning classrooms in elementary schools in Japan

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Abstract

This paper examines the effectiveness of singing as a teaching strategy for vocabulary building and grammar learning, as well as its impact on learners' motivation and affects. By assessing musical activities conducted in English-learning classrooms, such as singing, this research considers their effectiveness and enjoyment, which enhance positive affect in children. The research also explores how singing in English lessons nurtures learners in elementary schools in Japan, who have recently begun learning English in accordance with education curriculums adhering to the Japanese Course of Study. Additionally, this paper discusses the sociocultural interactions between teachers and learners through the use of songs in the language classroom, which enhance social harmony and create a safe space to experience learning collectively, thereby constructing a harmonious community.

Keywords: song, musical activities, English-learning classroom, the Course of Study, sociocultural interaction

Song use in English-learning classrooms in elementary schools in Japan

Music and singing are recommended to support English teaching (Busse, Hennies, Kreutz, & Roden, 2021). Musical activities such as singing are often perceived as enjoyable, thereby enhancing positive affect in children (Welch et al., 2009). For example, an intervention study by Good, Russo, & Sullivan (2015) with 38 Spanish-speaking English learners in elementary school aged 9–13 years found that students taught by singing remembered more song lyrics (29 words) and showed greater improvement in vocabulary recall and pronunciation than students taught by speaking. Studies involving young children also show that learning lyrics is facilitated when paired with a melody (Thiessen & Saffran, 2009). However, empirical evidence to corroborate the usefulness of singing in the English classroom in elementary school education is still scarce. Furthermore, specified educational practice in Japan is necessary, because Japanese language system is different from English. The effectiveness of singing in the English classroom for Japanese children has not yet been demonstrated. This paper examines how English lessons by singing nurtures learners in a Japanese elementary school who have recently begun learning English as part of the education curriculum.

Singing as a teaching strategy has a long history in English classrooms. It has been recommended as an effective supplementary strategy for supporting language learning processes since the early 1960s (Bartle, 1962). Singing positively influences pronunciation and vocabulary recall in foreign and second language learning (Good, Russo, & Sullivan, 2015). While music and speech have traditionally been considered independent psychological faculties, musical training not only has a positively influence phonological skills but also reading in foreign and second language learning (Zeromskaite, 2014).

In Japan, English education extends over more than four years for all the children in elementary schools, fully meeting the benchmark indicator outlined in the Sustainable Development Goal 4 for education (SDG4; education).

Short history of English Education in Japan

The Course of Study, a series of guidelines for teachers, including those for teaching English, was officially devised by the Ministry of Education, Culture, Sports, Science and Technology of Japan (MEXT) after the end of World War II. The first Course of Study Guidelines for foreign language teaching was released in 1947.

The guidelines have been revised approximately every 10 years by MEXT and are considered as the official principles for English education in public schools throughout Japan. They provide goals and appropriate curricula for each stage of education, including

kindergarten, elementary, junior high, and senior high. The latest versions of Course of Study were released for elementary, junior high, and senior high schools in 2017 and 2018, with its implementation occurring in stages beginning in 2017.

Following the revision of Education Personnel Certification Act in 2016 and its Enforcement Regulation in 2017, MEXT developed the Foreign Language (English) Core Curriculum. The curriculum added facilitation ability and ICT application teaching capacity to the previously established teacher training curriculum in higher education. Table 1 shows significant new content added to the teacher training for English education through the changes to the Education Personnel Certification Enforcement Regulation.

Table 1

New Content Added to Teacher Training Curriculum Through the Revision of Education Personnel Certification Enforcement Regulation

・Foreign language (English) education in elementary schools
・Teaching method using ICT
・Lesson revision on the standpoint of active learning
・Cooperation between schools and areas
・school experience activities

English education in elementary schools: current status and issues in Japan

In Japan, English education in public elementary schools began in 1992 when MEXT designated a public elementary school in Osaka as its pilot school. Thenceforth, the Course of Study notified in 1998 introduced foreign language conversation under Periods for Integrated Study, which was part of international understanding education. Subsequently, the 2008 Course of Study established Foreign Language Activities for fifth and sixth graders, with lessons held once per week in public elementary schools. In the latest Course of Study, notified in 2017, MEXT provided The National Curriculum Standards for Grade 5 and Grade 6 in Elementary Schools (cf. Table 1). To enhance the four language skills, which were further divided into five skill areas—Listening, Reading, Speaking [Interaction], Speaking [Presentation], and Writing—MEXT centered the standards around Reading and Writing to develop children's basic communication abilities (Table 2).

Table 2

English Objectives and Contents in the Latest Course of Study (MEXT, 2017)

II. OBJECTIVES AND CONTENTS OF EACH LANGUAGE
English
1. Objectives
(2) Reading
a. Can identify letters written in block letters and pronounce the names of letters.
b. Can understand the meanings of simple words and phrases and basic expressions for which they are sufficiently familiar with the sounds.
(5) Writing
a. Can write upper and lower cases in block letters. Furthermore, can transcribe simple words and phrases and basic expressions for which they are sufficiently familiar with the sounds, with an awareness of the word order.
b. Can write about themselves and familiar and simple matters by using simple words and phrases and basic expressions for which they are sufficiently familiar with the sounds while referring to example sentences.
2. Contents
[Grade 5 and Grade 6]
[Knowledge and skills]
(1) Items related to characteristics and rules of English
a. Sounds
Handling the basic words, phrases and sentences in the items specified below.
(a) Modern standard pronunciation
(b) Change in sounds due to the connection of one word to another
(c) Basic stresses in words, phrases and sentences
(d) Basic intonation in sentences
(e) Basic pauses in sentences

To enhance children's communicative competence as beginners

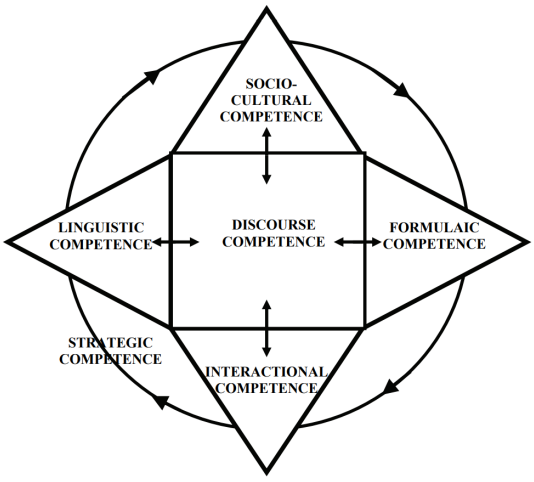
It has been discussed that using songs in the language classroom enhances social harmony and creates a safe space for learning collectively, which contributes to the construction of a harmonious community (Lake, 2003). Creating a safe and relaxed atmosphere through singing songs in language classes is essential for effectively attaining

teaching and learning goals.

In keeping with MEXT‘s goals and approaches to teaching , which advocate for the development of communication ability through using all four language skills, Celce-Murcia, Dörnyei, & Thurrell (1995) proposed communicative competence. They suggested modifying sociolinguistic competence to sociocultural competence, which places importance on cultural background knowledge needed to interpret and use a language effectively. Additionally, they labeled grammatical competence as linguistic competence to explicitly include the sound system and the lexicon as well as the grammar. Celce-Murcia et al. (1995) specified that the various components of communicative competence are interrelated and that understanding the nature of these interrelationships is elemental to grasping the construct of communicative competence. The framework for communicative competence was introduced by Celce-Murcia et al. in 1995 and later revised in 2007 (Figure 1).

Figure 1

Revised Schematic Representation of ‘Communicative Competence’ (Celce-Murcia, 2007, p. 45)



In this section, I highlight two important competencies in Figure 1, which are especially indispensable for children as beginners in English language learning: sociocultural competence and linguistics competence. Sociocultural competence plays a central role in both daily classroom interaction and English lessons. Sociocultural competence seems to be equal to the communicative approach. Linguistics competence is a crucial characteristic for learners of English as a foreign language.

(1) Sociocultural Competence

Celce-Murcia (2007) focused the role of sociocultural competence as follows:

> *Sociocultural competence refers to the speaker's pragmatic knowledge, i.e. how to express messages appropriately within the overall social and cultural context of communication. This includes knowledge of language variation with reference to sociocultural norms of the target language. In fact, a social or cultural blunder can be far more serious than a linguistic error when one is engaged in oral communication. The pedagogical challenge lies in the fact that second and foreign language teachers typically have far greater awareness and knowledge of linguistic rules than they do of the sociocultural behaviors and expectations that accompany use of the target language. Even when good cultural descriptions are available, it is hard to get learners to change their native verbal behavior based on a new set of assumptions.* (Celce-Murcia, 2007, p. 46)

(2) Linguistic Competence

The triangles on the left in Figure 1 refer to linguistic competence.

> *Linguistic competence includes four types of knowledge:*
>
> *- phonological: includes both segmental (vowels, consonants, syllable types) and suprasegmentals (prominence/stress, intonation, and rhythm).*
> *- lexical: knowledge of both content words (nouns, verbs, adjectives) and unction words (pronouns, determiners, prepositions, verbal auxiliaries, etc.).*
> *- morphological: parts of speech, grammatical inflections, productive derivational processes.*
> *- syntactic: constituent/phrase structure, word order (both canonical and marked), basic sentence types, modification, coordination, subordination, embedding.*
> (Celce-Murcia, 2007, p. 47)

Learning English as a foreign language presents challenges in phonological,

lexical, morphological, and syntactic areas, especially for beginners at the elementary education level. Research indicates that singing in schools is positively related to self-concept and perceived social inclusion (Welch, Himonides, Saunders, Papageorgi, & Sarazin, 2014). Younger learners usually show a positive response to group singing (Good & Russo, 2016). By singing in the classroom, children can acquire intonation, stress and rhythm naturally. This method allows them to feel more familiar with grammar and speech than methods using blackboard and notebooks. Implicit grammar teaching through songs is well-suited for younger learners (DeKeyser, 2003).

Conclusion

This paper examined the effectiveness of singing as a teaching strategy for vocabulary building, grammar learning, and enhancing learners' motivation and affect. As discussed, teaching English through songs and using gestures in the classroom facilitates positive emotion and sociocultural interactions between teachers and learners. Wallace (1994) indicated that melody offers richer information than spoken text or rhythmically organized text alone. The failure to detect advantages of singing in English learning (Kilgour, Jakobson, & Cuddy, 2000) may result from the choice of song materials (Busse, Hennies, Kreutz, & Roden, 2021). Therefore, it seems that popular and familiar songs from childhood are adequate for both teaching and learning English. During English lessons, varying singing speed and practicing songs repeatedly is effective for learner to acquire pronunciation, intonation, stress, grammar, and rhythm skills, while also motivating learners.

Through educational practice described in the case study above showed that undergraduates were able to teach English communication and global information to children effectively. Collaboration between universities and local schools is significant not only for students but also for teachers. Learning is a sociocultural and collaborative activity. Vygotsky's Zone of Proximal Development (ZPD) explains that children can reach higher levels of development with support of more knowledge individuals, a process known as "scaffolding"（Vygotsky, 1978; Bruner, 1993）. When undergraduates teach English to children in elementary schools, scaffolding occurs, enhancing the learning experience through sociocultural interaction.

In elementary schools, children are beginners in English learning. Sometimes, Japanese children have an aversion to English, therefore their motivation to learn English can be undermined before they experience the joy of learning English. In such cases, singing in English, especially well-known songs, is highly effective. Integrating English and Music in the classroom can enhance children's autonomous motivation to learn

English. The children enjoyed the lessons, reflecting the generally positive effect of music and singing on well-being (Livesey, Morrison, Clift, & Camic, 2012). The effect of singing on the effective dimensions of learning should be further explored in the classroom.

To acquire a foreign language, learners need to be autonomous (Benson, 2011; Cotterall, 2008). If learners find the learning process significant and are motivated by their own will, they can achieve near complete acquisition of the target language. Additionally, teachers enhance their skills socio-culturally through teaching songs to children in the classroom. In the future, educational practices in English-learning classrooms should continue to examine the potential of song use for beginners in English learning.

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