Practical Research

Cooperative Learning Through Art-Based Activities by Students with Hearing Disabilities Studying Abroad

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In recent years, Japan has promoted transactional education between children with and without disabilities to build a symbiotic society. This study aimed to develop an introductory program in a teacher training course that enables students with and without disabilities to establish close psychological ties with one another, and to cultivate a positive mindset and attitude toward social justice. Accordingly, the author created an art-based exchange program for an international student with a hearing disability and for three graduate students based on intergroup contact theory. The program involved 16 sessions, each lasting 90 minutes. The art-based activities were effective as they (1) provided common ground for discussion among the students, and (2) generated sensitive and emotional communication about personal attributes.

Key Words: art-based activities, cooperative learning, hearing disability, inclusive education, symbiotic society

Introduction

Background and Aim

In recent years, Japan has promoted “transactional education between children with and without disabilities” to build a symbiotic society (Kanamaru & Kataoka, 2015; Kusumi, 2016). According to the Guidelines for the Study of Special Needs Schools, “opportunities for interaction and collaborative learning with children with and without disabilities should be provided so that they can develop attitudes to live together respectfully and collaboratively” (MEXT, 2017, p. 73). However, Kusumi (2016) cited a lack of progress in establishing effective transactional educational practices, and a dearth of research that considers the relationship between the effectiveness of exchanges and courses of practice. Furthermore, Kwon and Ota (2018) pointed out that it is important for students to interact and collaborate at the teacher training stage. Therefore, this study aimed to develop an introductory program in a teacher training course that enables students with and without disabilities to establish close psychological relationships with each other and develop a positive mindset and attitude toward social justice. Accordingly, the author designed an exchange program grounded on art-based activities between international students with hearing disabilities and graduate students enrolled in A University and verified its effectiveness in achieving the study’s aim.

There are two reasons for including art in the content of this project, the first is because art does not have one limited answer. Eisner (1997) cites the “productive ambiguity” (p. 8) of works of art, stating that they allow for a variety of interpretations and that a single work of art can generate many questions and facilitate a lively dialog. The second is that art creates a creative interaction. Tetsuka (2018) cites that through art, learning of “cooperative creation” (p. 233) allows people to share diverse ideas through verbal and visual dialog. However, previous studies have not studied the practice of exchange through the use of art. In light of this, the following research questions were addressed in this study. (1) How can an art-based exchange program promote relationships between students with and without disabilities? (2) What type of mental change can the art-based exchange program bring about in all the participants?

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Theoretical Framework

In this study, I used the intergroup contact theory (Allport, 1958) as the theoretical framework recommended by Kusumi (2016). According to Allport (1958), we cannot foster among individuals an effective attitude to defeat stereotypes by simply gathering people together regardless of their race, skin color, religion, country of birth, and so on. Further, superficial contact increases, rather than decreases, prejudice. Hence, Allport (1958) specified four conditions to ensure optimal intergroup contact: (1) equal group status within the situation, (2) common goals, (3) intergroup cooperation, and (4) authority support.

Several studies support this intergroup contact theory (Maras & Brown, 2000; McManus, Feyes, & Saucier, 2011; Pettigrew, 1998; Pettigrew & Tropp, 2006). However, some studies identify several problems that cannot be addressed by the intergroup contact theory. For example, Novak and Rogan (2010) revealed that the development of an effective relationship requires sufficient opportunities for interaction. Further, Pettigrew (1998) argued that the theory fails to address the process of development of affective relationships. Moreover, Pettigrew suggested that four interrelated processes occur through contact and mediate attitude change: (1) learning about the outgroup, (2) changing one’s behavior, (3) developing affective ties, and (4) engaging in ingroup reappraisal. Based on these arguments, this study aimed to develop an art-based exchange program using intergroup contact theory (Allport, 1958; Pettigrew, 1998) that enables students with and without disabilities to establish close psychological ties with one another, and to cultivate a positive mindset and attitude toward social justice.

Methodology

Participants

The participants in this study were three graduate students (O, P, and Q) enrolled in A University’s Graduate School of Education and one international student with a hearing disability (R) enrolled as a research student from China. All three graduate students had graduated from A University’s teacher training course and had not taken the training class for the specialized education of persons with hearing disabilities. In the pre-questionnaire, student O stated to have met a person with hearing impairment only once, student P to have met such a person once a year, and student Q to have never met such a person. Student R had a hearing disability but not intellectual disability or autism. Further, after receiving specialized education and acquiring fine arts skills from the Faculty of Fine Arts at B University in China, R became a research student at the School of Education at A University in Japan.

Procedure

This project was conducted as part of “Further Table 1 Schedule of Project Implementation

| Session No. | Date       | Contents of implementation                                                                 |
|-------------|------------|------------------------------------------------------------------------------------------|
| 1           | Dec 5, 20XX| Explanation of purpose and implementation plan of the research project. Request for research cooperation. |
| 2           | Dec 5, 20XX| Trial activities: Establishing a card game workshop using color sheets; participants did not talk but used personal boards. |
| 3           | Dec 12, 20XX| Reflection on trial activities.                                                                 |
| 4           | Dec 12, 20XX| Discussion on the workshop, in which students O, P, and Q made plans.                        |
| 5, 6        | Dec 19, 20XX| Discussion on the workshop’s contents and use of materials.                                 |
| 7           | Jan 9, 20XY | Rehearsal of the workshop.                                                                  |
| 8           | Jan 9, 20XY | Introduced a study-abroad student R, to students O, P, and Q through a video recording. * (Introduced the graduate students to R on Jan 10, 20XY.) |
| 9, 10       | Jan 16, 20XY| Workshop 1: Interaction through colors/theme: Represent student R using three colors.       |
| 11, 12      | Jan 23, 20XY| Workshop 2: Interaction through ink-wash painting/theme: Collaborative artwork making for students. |
| 13, 14      | Jan 30, 20XY| Reflection on the workshop and provision of questions to student R. Discussion on the method of dialogue with each other using personal boards, paper, and social media (LINE app). |
| 15, 16      | Feb 6, 20XY | Trial seminar. Presentation of research topics and contents of each student’s master’s thesis. |
Cooperative Learning Through Art-Based Activities

Study in Curriculum Development VIIb," a course subject offered by A University's Graduate School of Education. Sixteen 90-minute sessions were conducted in the fourth term, that is, from December 20XX to February 20XY (Y=X+1), every Wednesday from 12:50 to 16:05 pm. Table 1 presents an outline of all the 16 sessions. Among these sessions, only graduate students O, P, and Q participated in sessions 1–8, and student R was included in sessions 9–16.

The exchange program was designed according to the theoretical framework proposed by Allport (1958) and Pettigrew (1998).

Learning about the outgroup and making an emotional connection (Sessions 2, 3, and 8). Initially, the author specified activities to learn about disabilities, as advocated by Pettigrew (1998), to eliminate the stereotyping of disabilities. Two main approaches were followed for this purpose. The first approach was to make graduate students aware of different possibilities and enable them to identify issues pertaining to communication other than the hearing disability by playing an art-based game in which the players communicated by using only written words (Sessions 2 and 3). In the second approach, graduate students familiarized themselves with the life history, academic specialization, and personality of the international student with hearing disability so that they could generate positive emotions by recognizing them as individuals with multiple characteristics, not as people with hearing disability (Session 8).

Becoming independent participants through workshop development (Sessions 4–7). Graduate students developed an art-based workshop, as suggested by Allport (1958); the workshop enabled equal group status within the situation, common goals, and intergroup cooperation. The development of the workshop by the graduate students themselves strengthened their awareness of a sense of ownership, helped them become independent participants, and enhanced mutual cooperation.

Art-based activities as a mediator of various dialogs (Sessions 9–12). The study helped develop affective ties (Pettigrew, 1998) between graduate students and the international student through art-based activities, which can mediate dialogs with people with disabilities, and change the graduate students' perception of and behavior toward people with disabilities.

Reflection on the experience and transition to regular classes (Sessions 13–16). All participants engaged themselves in ingroup reappraisal (Pettigrew, 1998) to identify the workshop's benefits and shortcomings and considered different methods to use the results in subsequent activities. In particular, the author decided to incorporate the results of specially designed programs into the students' regular classes.

Scoring

Questionnaires were distributed among students seven times, that is, after sessions 2, 3, 8, 10, 12, 14, and 16. They contained both open-ended and choice-based questions. After answering the questionnaires, the students had an opportunity to share their answers; further, the author interviewed them and recorded their answers. The data to be analyzed included the questionnaire data; interview data; participants' dialog from the sessions 9 and 10 (Workshop 1), photographs of each student's artwork (including the creation and completion processes). For the choice-based questions on the questionnaire (carried out after sessions 2, 3, 10, 14, and 16), the author simply tabulated the quantitative data, categorized the questionnaire, interview data and participants' dialog by content (Kawakita, 1965), and qualitatively interpreted the semantic content.

In order to examine the program's ongoing effectiveness, the author conducted a post-survey with the participants in August 20XZ (Z=X+2)—a year-and-a-half after the program was implemented—to investigate how they perceived their experiences (and what influenced them) at the time. The author conducted the post-survey because the author executed the initiative within the context of the university's curriculum, and had concerns that the participants (being students) would be less likely to negatively evaluate the author (as organizers and teachers). The three graduate students had completed a master's level course in March 20XZ; as of August 20XZ, two were working in primary schools and one was working as a teacher in a secondary school. The student with a hearing disability is in graduate school studying another subject. Thus, there are no direct conflicts of interest. The author used Microsoft Forms for the questionnaire to maintain anonymity, and asked for unmarked responses. In addition, the face sheet stated that the participants should "answer honestly" and that they would "not be disadvantaged by [their] responses."

To verify the effects of interaction, the author administered the questionnaire using eight items
from the Perplexity in Interaction Situations scale developed by Kawauchi (2003) and adapted by Nawanaka, Mizuguchi, and Yuzawa (2011). Since Nawanaka et al. (2011) scale was designed to measure perceptions of developmental disabilities, the author changed the label for the disability to “people with hearing disabilities.” The author also added “able-bodied people” because the author surveyed R (who is deaf, or hard of hearing) as well. The author asked the participants to answer the eight items using a 5-point scale: (2) strongly agree; (1) agree a little; (0) neither agree nor disagree; (−1) disagree a little; (−2) strongly disagree. In addition to each response, the author asked the participants (as able-bodied individuals) to indicate the extent to which practicing and experiencing a collaborative learning program through the arts helped to modify their perceptions of—and attitudes toward—people with disabilities using a 5-point scale: (2) very effective; (1) a little bit effective; (0) neither effective nor ineffective; (−1) not very effective; (−2) not effective at all. The author also asked the participants whether (as able-bodied individuals) a positive change occurred in their attitudes toward deaf and hard of hearing people throughout the project; if there was a positive change, the author asked them to give multiple responses in terms of which activities (in each section of Table 1) were particularly effective, and to describe their most memorable moments in an open-ended way.

Prior to conducting this study, an “acceptance letter for study cooperation” was distributed among the participants to obtain their cooperation to the study. Further, we obtained their permission to publish the contents of this paper.

Results and Discussion

Learning about the Outgroup Through Trials

In Session 2, the author conducted a trial targeting the three graduate students. These trials required them to make cards using color arrangements (Mogi, Tetsuka, Sato, Kasahara, & Ikeda, 2018) and two themes based on the suggestions provided by DuBois (1950): represent one’s hometown using three colors, and represent one’s daily life using three colors. Further, the students created another card with a short poem (senryū) that matched the themes of the color cards (Fig. 1). Subsequently, they played a game in which they matched the cards with colors with the poem card via the following steps: (1) displaying a poem card from the person who created a card with colors; (2) a question-and-answer (Q & A) session among the participants using a whiteboard; (3) select the card that the other two participants think applies; and (4) verify each other’s answers. The participants did not speak, but each person had a whiteboard (H28 cm × W35 cm) and gave his or her own description with facial expressions and gestures.

The trial’s effectiveness was determined using a questionnaire survey (Table 2). They realized that it did not matter whether they had a hearing disability (A2-1); however, they had specific issues based on their experiences (A2-2 and A2-3). One participant faced difficulties because the session was different from what he or she had expected (A2-4). Furthermore, they shared the belief that the session prompted introspection (A2-5). At the end of the trial, the development of a teaching tool to check whether students understood the activities assigned to them was identified as a future task. In addition, we identified the possibilities offered by the art-based activities (A3-1–A3-3).

The graduate students realized that the inability to hear need not affect one’s ability to communicate with others. However, it is important to convey, even using short sentences, and have the intention to convey one’s meaning to others. This session helped alleviate stereotypes pertaining to persons with hearing impairment and reorganized the “labels of primary potency” (Allport, 1958, p. 179) that were identified by previous research. Finally, this experience made the participants understand the potential of art-based
**Table 2 Questions and Answers On the Questionnaire That Asked for Feedback and Opinions on the Sessions**

| Q1: The workshop tried to promote “mutual understanding.” Did it achieve its goal? |
|---|
| A1-1: Self-disclosure was promoted. (Q) |
| A1-2: It was effective as an introductory session to promote future exchange. (O) |
| A1-3: I was interested in the other person while asking questions and providing explanations, and I was able to understand the other person’s thoughts. (P) |

| Q2: Were there any changes to the problems you were expecting before the trial? |
|---|
| A2-1: It was not difficult to communicate without my voice. (Q) |
| A2-2: It takes time for dialogue and there is a time difference. (P) |
| A2-3: There is limited information exchange when communicating with writing. (O) |
| A2-4: Participants were only Japanese at that time, so I was able to convey detailed nuances, but it might be difficult if there is a difference in nationality. (O) |
| A2-5: I realized how immediate our daily communication is. (Q) |

| Q3: What did you think about the possibilities of art-based activities? |
|---|
| A3-1: We were able to represent things that could not be represented in words (e.g., sound, onomatopoeia, emotions, images, etc.). (Q) |
| A3-2: We could not only imagine the author’s idea but also appreciate the artwork through our own interpretation. (P) |
| A3-3: There are infinite ways of expressing oneself. (O) |

| Q4: The workshop will be held next week. If you are nervous about something, please list it. |
|---|
| A4-1: Whether it will be a substantial activity. (Q) |
| A4-2: Whether it will be a shallow activity. (O) |

| Q5: What do you think about having conducted the workshop by yourself? |
|---|
| A5-1: We thought about the content, because we did not know how to proceed; we felt mixed feelings of pleasure and anxiety. (P) |
| A5-2: I was enthusiastic and excited. (Q) |

| Q6: If you are looking forward to something, please list it. |
|---|
| A6-1: Making activities with Mr. R. (O, Q) |
| A6-2: I would like to ask him about his ideas and perspectives as an artist. (Q) |
| A6-3: It will be my first time interacting with a person with a hearing disability from foreign country, so I look forward to what will happen. (P) |

| Q7: Can you give a message to student R? |
|---|
| A7-1: I am very excited about what we can do together. I also want you to teach me art and sign language. (Q) |
| A7-2: I would like to interact closely with R, so that I can write characters without speaking. I will do my best to communicate clearly! (P) |
| A7-3: I will not be nervous on the day. I want to enjoy it together!! (O) |

| Q8: What was good and difficult about Workshop 1? |
|---|
| A8-1: I was able to understand other people’s ideas and R’s figures through dialogue. (P) |
| A8-2: As I dealt with colors, it was interesting to find common points and differences even if countries and backgrounds were different. (Q) |
| A8-3: I was able to communicate well using the whiteboard and sign language. (O) |
| A8-4: It was difficult to clearly explain the meaning of color and shapes and to ask questions in an easy-to-understand manner. (Q) |
| A8-5: It was difficult to confirm whether the message was really transmitted or not. (O) |
| A8-6: In the dialogue using the whiteboard, there was also an issue regarding the arrangement of the seats as it was difficult to interact with people sideways or diagonally. (O) |

| Q9: What was good and difficult about Workshop 2? |
|---|
| A9-1: I was able to consider not only the drawn part but also the background and intention of the person before and after. (Q) |
| A9-2: Even if I looked at the same thing, I imagined something completely different, and I felt that it was interesting to have another view. (R) |
| A9-3: Communicating through writing was superior because each person can present questions and opinions with time. (P) |

**Note.** The questionnaire was implemented during different periods, as follows: Implemented Q1, Q2, and Q3: after session 4 (Dec. 12, 20XX); Q4: after session 6 (Jan. 9, 20XY); Q5: after session 16 (Feb. 6, 20XY); Q6 and Q7: after session 8 (Jan. 9, 20XY); Q8: after session 10 (Jan. 16, 20XY); and Q9: after session 12 (Jan. 23, 20YY).
activities in both solving problems and ensuring social acceptance.

**Becoming Independent Participants Through Workshop Development**

Sessions 4–7 involved workshop development and rehearsal. In particular, graduate students proposed Workshop 2 on the theme of ink painting, since both Japanese and Chinese are familiar with this art form. The students themselves designed and examined the teaching materials, including paper types, painting tools, adjustments of ink density, collaborative art methods, and time management methods. Subsequently, the teaching materials were physically-developed and the rehearsal was carried out.

According to the questionnaire survey conducted before this workshop, students were feeling anxious about their progress and communication during the activities in terms of time allocation, progress in art creation and interaction, and understanding the activity's contents and instructions. In addition, they shared their fears regarding the organization of activities and wanted to improve the activities (see A4-1 and A4-2 in Table 2). In the survey conducted after the completion of all the 16 sessions (hereafter, referred to as the post survey), they shared their feelings (options A5-1 and A5-2) while answering the question, "What do you think about having conducted the workshop by yourself?"

By conducting the workshop, students developed common goals with the support of the authorities. This became the basis for them forming interdependent working relationships (Allport, 1958; Novak & Rogan, 2010; Pettigrew, 1998; Pettigrew & Tropp, 2006). Students started working as organizers rather than participants and consciously proceeded with preparations as the main facilitators of the work. This change in attitudes created an uncertain situation, since the students were not confident in their management ability. However, they continued their endeavors due to their desire to improve the activity. In addition, the use of ink painting in the activities helped create a psychological foundation that respected the cultures of both Japan and China, which emphasized that all the participating students were equally competent despite their differences in terms of cultural background and hearing ability.

**Generating “Positive Emotions”**

Pettigrew affirmed that “positive emotions aroused by optimal contact also can mediate intergroup contact effects” (Pettigrew, 1998, p. 71). Therefore, in Session 8, the three graduate students were introduced to R through photographs and video footage to show them that people like R are not persons with a hearing disability but rather unique individuals with multiple identities (Goodley, 2017). The author not only gave information about hearing impairments (being congenitally totally deaf), but also about his field of expertise (dyeing in the field of crafts), the artwork he created while an undergraduate student, the research he is currently working on, videos of his private lessons, and episodes of himself being taught sign language, as well as the fact that he was the same age as the three graduate students. Art education was the subject of his research, as was that of students O and P. The three graduate students and R then exchanged messages with one another, describing their enthusiasm for the workshop (Table 2, A7-1 to 4). This exchange contained many empathic elements and effectively encouraged “positive emotions” (Pettigrew, 1998, p. 65). On the post-survey, three of the four participants (two graduate students and R) said that prior information sharing and written communication were “effective” in changing their attitude.

**Art-Based Activities as a Mediator of Various Dialogs**

In Sessions 9 and 10, a workshop was conducted on using colors in accordance with the theme of “representing student R in three colors” (Workshop 1). The process was as follows: (1) For each of the themes of favorite food, hobbies, and R’s hometown, R selected one most suitable color from among color sheets with 65 colors. (2) Graduate students asked questions based on the selected color and identified the correct answer by repeating the questions. For example, for “favorite food,” student R selected ochre; subsequently, graduate students used the whiteboard to ask questions such as “Rice or noodles?” and “A dish only available in China?” Once they identified the correct answer, the item’s photograph was displayed, and the students discussed the picture in writing. (3) Finally, they created a card using three colors and presented it to student R (Fig. 2a–d). In the exchange session after the artwork was created, there was a Q & A session about the intent behind the colors and shapes used in the artwork. For example, Student P’s artwork rep-
resented the human form in orange, and when asked why, Student P said that "it was because R was formed by his hometown" (Fig. 2b).

Workshop 1 lasted 135 minutes in total. Of that time, 64 minutes were spent in dialog between the participants. During this time, 88 dialogs were exchanged between the graduate students (O, P, Q) and R (each question and answer set was counted as one dialog). The format of the dialogs can be categorized into two types. One was a Q & A dialog on the whiteboard (57 times), and the other was a dialog in which students O, P, and Q responded to what R described with gestures, pointing, nodding, and facial expressions (31 times). What was characteristic of the latter dialog was that it occurred mostly when R's hobby was represented by color and in the Q & A session about the artwork he had created (Fig. 2d). For example, when student R talked of the design of

Fig. 2 Artworks and Explanations of Each Object That the Participants Made

Note. Student R chose the following three colors based on each theme. (1) Favorite food: ocher (the color of the shells in the "spicy clam roast" used in the dish); (2) Hobby: light blue (his favorite tone for taking pictures with his camera); and (3) Hometown: orange (the color of the roof in the area where he lived). The participants used the three chosen colors to create a card to represent Student R. The worksheet explains the intent underlying the representation.
clams during the explanation of his artwork, students O, P, and Q asked him, “How big are the shells?,” “How do you eat them?,” “Who cooks them?,” “Do you go directly to the beach?,” “How do you get to the beach?,” “How close to the beach is your home?,” “What kind of house is R’s house?,” and “How many people are in the family?,” as well as related questions that followed without a pause. Student R responded by making eating gestures (mimicking), describing with words and pictures on the whiteboard, and in some cases, showing pictures stored on his smartphone. During this time, students O, P, and Q looked at student R’s whiteboard and nodded as each word was written, responding with simple sign language and “I get it,” demonstrating their understanding with smiles and pointing, and trying to understand the content by piecing together fragmentary information. In this way, by using color and artwork as a medium, derivative interests and concerns were generated, leading to questions that sought to understand the other person, and a natural dialog flowed.

In Sessions 11 and 12 (Workshop 2), an activity was performed based on the theme of ink painting. In this activity, the four students created artwork on a piece of paper by drawing one stroke at a time (for a total of four rounds). They did not communicate among themselves during art making, and students themselves decided on the tools, ink density, and strokes to be used while imagining what the person in front of them was painting (Fig. 3a and 3b).

Subsequently, they communicated their intentions and the image they had painted in writing. In this activity, different interpretations helped the students become aware of their sensibilities (A9-1 and A9-2 in Table 2). However, the participants who were unaccustomed to drawing pictures found the activity slightly difficult, as stated by student P in A9-3.

In the questionnaire survey conducted after Workshops 1 and 2, the author asked, “Did the activity cause any changes to your image of international students with hearing disabilities? If so, what were the changes?” To this question, all three graduate students said “Yes.” For example, they discovered similarities that led them to have a sense of familiarity, such as “The feeling of the color was similar and we had a sense of affinity” (Q). They had other realizations as well, such as “I thought that it took time to interact, but that was not the case” (Q). Another respondent said, “Even if he is from a foreign country and he cannot hear, we are connected through ideas and feelings” (P).

During these workshops, students did not use sign language for communication; however, since collaborative work in art-based activities required the communication of open-ended questions, necessary interactions were incorporated into the activity. Further, Mogi et al. (2018) and Tetsuka, Sato, Kasahara, Ikeda, and Ikeda (2019) indicated the effectiveness of the methods that promote color-mediated communication among people speaking different languages and having different cultural backgrounds. These methods are effective in interactions among people with and without hearing disabilities, as well. In art-based activities, communication was carried out in a limited manner using only a single color and ink; nevertheless, the topic and ideas could be expanded in diverse ways.

Efland (2002) pointed out that art is an integrated
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expression of history, humanities, physical sciences, and social sciences. Similarly, Bohm and Peat (1987) mentioned that art promotes intuitive global perception that extends beyond dualism, such as the mind and body, emotions and thoughts, the individual and society, and knowledge and experience. In these workshops, as well, various possibilities of interpreting colors and shapes stimulated discussions on topics of personal growth history; culture of each country and environments where the students grew up; and the students’ preferences, knowledge, and skills. The workshops witnessed various ways of expression, as well. Recently, the importance of “translanguaging” (Garcia, 2009, p. 42) was pointed out in relation to people who use two languages by flexibly utilizing their language repertoire according to the situation. As part of the activities in the program, R taught sign language to graduate students during the color games. In this activity, the students communicated in different ways using gestures, facial expressions, Chinese sign language, photographs, drawings and artwork, and so on. This indicates the effectiveness of art-based activities as a method of interaction.

**Reflection and Discussion on Communication Methods**

Only a few earlier studies have revealed the transition from exchange programs to regular classes. In sessions 13 and 14, the main aim was to include, 1) interactions between the students, where the three graduate students asked R some questions regarding R’s impressions of the workshops, life history, usual learning method, field of specialization, and 2) a review process to determine the most appropriate communication method for the participants to consult among themselves. Initially, the participants were divided according to their choice of the most appropriate method. However, after examining the advantages and disadvantages of each method, they decided on social media (LINE App) as the most appropriate method.

**Transition to Regular Classes**

Sessions 15 and 16 involved regular seminar-style classes. In these sessions, the three graduate students presented the progress of their master’s theses and R presented his master’s thesis research plan; subsequently, they asked and answered questions during the discussion stage. In these sessions, students created Microsoft PowerPoint presentations and handouts to enable the understanding of content through visual methods alone. Further, based on the consultation in the previous session, participants used social media for communication. Subsequently, detailed rules for communication were developed by exchanging opinions and adding a translation function in the social media application. Hence, the adopted method was easy to use and understand. Moreover, it was flexible and creative and very different from the methods of sign language interpretation and summary writing, which are commonly used by people with hearing impairments.

Finally, the author asked all the students a comprehensive question based on the 16 sessions, “Was there any deep learning through art-based activities?” Two students answered, “I experienced very deep learning” (O and Q), whereas the others opined, “I somewhat experienced deep learning” (P and R). Finally, the author asked the following additional questions: “What is deep learning?” “In what way was the art effective?” A deep learning experience was the formation of empathic attitudes (Goodman, 2011) due to the change in standpoint, such as “I tried to think from the perspective of a person with hearing disabilities” (Q). Also, some responses related to self-transformation through interaction, such as “I changed myself because I interacted with R who has hearing disabilities” (Q) and “I felt that the intention of ‘I want to talk!’ was more important for interaction than knowledge of sign language” (O). Some participants commented on the effectiveness of the activities via art, “As art was made [due to] the sensibility of each person, it was possible to recognize and understand [it], regardless of whether a person can hear” (P) and “By repeating the question about the idea of colors and the recognition of pictures, I was able to understand the character and values of a person” (Q). Thus, the participants perceived the efficacy of art-making as a medium of cooperative learning and exchange, realizing the characteristics of artworks that Eisner (1997) identified as leading to one being capable of personal aptitude inquiry, having productive ambiguity, and generating numerous questions in an educational setting.

**Findings and Discussions of the Post-Survey**

For the post-survey, the author obtained responses from all four participants. The table displays the
results of the questionnaire conducted a year-and-a-half after the program was implemented.

As shown in Table 3, for each item, both the graduate students and R sensed the effects of having taken part in the project. The graduate students and R tended to disagree with (2) hesitant to lend a hand; (3) extremely anxious; and (6) do not know what to say to them. However, for (5) difficulty communicating, both the graduate students and R tended to agree. On the other hand, the responses for (4) I feel like I am living in a different world were split between the graduate students and R. All three graduate students marked disagree, while R marked strongly agree. For this content, all three graduate students responded that the project was “effective” while R reported that it was “not very effective.” However, this was partly due to the fact that the question was asked based on the perspective of “hearing people,” rather than specific individuals. Hence, (5) difficulty communicating and (4) I feel like I am living in a different world were not effective for R.

For question 2, the author asked “As a hearing/deaf person, did you experience a positive change in attitude toward people who are deaf or hard of hearing (hearing people) through the exchange program?” Two of the three graduate students marked very much, one marked fairly well, and R marked very much.

All four participants noted that Workshops 1 and

![Table 3: Results of the Post-Survey on Attitudinal Changes and the Current Situation Toward People Who Are Deaf or Hard of Hearing (Hearing People) Due to the Program](image)

| Content of question                                      | Current situation/Attitude changed by the program | Former graduate students | Student with a hearing disability |
|----------------------------------------------------------|---------------------------------------------------|---------------------------|----------------------------------|
|                                                          |                                                   | A  | B  | C  | D  |
| 1 I have reservations about people who are deaf or hard of hearing (hearing people). | Current situation | -1 | 1  | -1 | 1  |
|                                                          | Attitude changed by the program                  | 0  | 2  | 2  | 2  |
| 2 I am hesitant to help people who are deaf or hard of hearing (hearing people). | Current situation | -1 | -1 | -1 | -1 |
|                                                          | Attitude changed by the program                  | 1  | 2  | 1  | 2  |
| 3 I am extremely cautious about socializing with people who are deaf or hard of hearing (hearing people). | Current situation | -1 | -1 | -1 | -1 |
|                                                          | Attitude changed by the program                  | 0  | 2  | 1  | 2  |
| 4 I feel like I’m living in a different world from people who are deaf or hard of hearing (hearing people). | Current situation | -1 | 2  | -1 | 2  |
|                                                          | Attitude changed by the program                  | 2  | 2  | 2  | -1 |
| 5 I find it difficult to communicate with people who are deaf or hard of hearing (hearing people). | Current situation | 1  | -1 | 1  | 2  |
|                                                          | Attitude changed by the program                  | 1  | 2  | 2  | 2  |
| 6 I don’t know what to talk about with people who are deaf or hard of hearing (hearing people). | Current situation | -1 | -2 | -1 | -1 |
|                                                          | Attitude changed by the program                  | 0  | 2  | 2  | 2  |
| 7 I am hesitant to ask things of people who are deaf or hard of hearing (hearing people). | Current situation | 1  | -2 | -1 | 1  |
|                                                          | Attitude changed by the program                  | 1  | 2  | 2  | 2  |
| 8 I am not comfortable talking to people who are deaf or hard of hearing (hearing people). | Current situation | 1  | -2 | -1 | 1  |
|                                                          | Attitude changed by the program                  | 1  | 2  | 2  | 1  |

*Note.* Three former graduate students were asked about their attitudes toward “people who are deaf or hard of hearing,” and one student with a hearing disability was asked about his attitudes toward “hearing people.” The author conducted an anonymous survey of three former graduate students (Students O, P, and Q). Because it is not possible to determine whose responses were given, they are denoted as A, B, and C. However, only one of the participants was an international student with a hearing disability, which indicates that student D is student R.

“Current situation” is as follows: (2) strongly agree; (1) agree a little; (0) neither agree nor disagree; (−1) disagree a little; (−2) strongly disagree.

“Attitude changed by the program” is as follows: (2) very effective; (1) a little bit effective; (0) neither effective nor ineffective; (−1) not very effective; (−2) not effective at all.
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2, as well as the seminar, were particularly effective. One of the most memorable moments was when one of the graduate students said, “R worked very hard to explain to me about his hometown using a PowerPoint presentation.” Another participant wrote, “I was able to listen to the visual information when we took part in Workshop 1, and I was able to learn about R’s country.” Another participant wrote, “After hearing about R’s birthplace and hobbies, I was very drawn to R’s [sense of] humanity.” R described the following:

I was particularly impressed with Workshop 1. For example, in the process of expressing my interest using gestures, hand gestures, and facial expressions, the participants, who were able to hear, understood what I was expressing with seriousness. At the end of the session, they were able to guess what I was interested in. I was very happy to experience that. I will always keep that impression in my memory.

This shows that the use of art to interact with people with and without disabilities has a certain effect on the formation of positive attitudes. All four participants cited Workshop 1 as a memorable occasion. This is because the use of non-descriptive mediators (such as color and shape) generated a variety of interpretations, which led to lively dialog. In addition, the effectiveness of using R’s upbringing as a theme confirms the findings of DuBois (1950).

The present study indicates that the participants’ positive attitudes—regardless of having of disability—persisted as long as a year-and-a-half after the exchange program was implemented. According to Nawanaka et al. (2011), this finding is in line with the fact that students in teacher training courses have positive attitudes toward people with and without disabilities; the effectiveness of providing them with an inclusive environment to interact with people with disabilities is also acknowledged.

Conclusions

This study employed an art-based activity using intergroup contact theory (Allport, 1958; Pettigrew, 1998) as the theoretical framework. In the questionnaire administered immediately after the 16th session, all participants responded that they experienced “deep learning”; and similarly, in the post-survey, all participants responded that there was a positive change in their attitudes toward people who are deaf or hard of hearing (hearing people). The results of this study support the findings of previous studies that show that art has productive ambiguity and facilitates dialogue (Eisner, 1997) and that art allows for the sharing of diverse ideas through visual interaction (Tetsuka, 2018). In particular, art-based activities were effective in an exchange program between people who are deaf or hard of hearing and hearing people in the following two ways:

First, the art provided a common ground for discussion. The concept of color is universal. However, the ways in which different shades are used and interpreted vary; the participants projected their own ideas onto the colors when they were creating their works of art, and had diverse interpretations of other people’s works when viewing them. Art activities that do not have a single correct answer can serve as a medium for active dialog, promoting interest in understanding the meaning of the work produced by the other person.

The second point is that art can lead to sensitive, emotional communication about personal attributes. In terms of subject matter, art can encompass personal attributes such as hobbies, favorite food, and upbringing. This does not require direct self-disclosure, but rather allows people to express themselves indirectly through color and form; it is possible to express oneself in an integrated way, including the accompanying elements. This adds a sense of security and humor to communication, and encourages an attitude of trying to get to know the individual (i.e., the subject) more deeply.

As shown in this study, the inclusion of art-based activities in exchange programs can be effective in practice, especially in teacher training courses. Future research needs to examine whether the same effect can be achieved in interactions between participants with different positions, affiliations, and types of disabilities. Moreover, future research should examine how art can be employed to promote mutual understanding and eliminate boundaries between people with and without disabilities in order to realize social inclusion.
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