Article

Music Technology as a Means for Fostering Young Children’s Social Interactions in an Inclusive Class

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Abstract: This research investigated how children aged five to six performed in social interactions and participation by learning American English through music technology activities in an inclusive class. The purposes of this research were to analyze, through music technology activities, the social interactions and participation of children in the inclusive class. Therefore, the research question was as follows: can music technology activities significantly improve children’s social interactions and participation in an inclusive class? There were two themes for the research teaching, each of which included seven weeks of instruction. The teaching content involved three stages, which were pre-test, implementation, and post-test. The research teaching was given 40 min per session twice a week and continued for 14 weeks with 28 teaching times. The methodology primarily consisted of a qualitative assessment of participation, observations, and interviews. In addition to collecting and analyzing qualitative data, quantitative data were also employed in the study. Data sources were semi-structured observation forms, anecdote records, language test scales and interview records, and feedback forms. The results indicated that all children had positive performance in social interactions and participating motivation, as supported by statistical results of social validity. Furthermore, the children’s cooperation and communication effectively improved through music technology activities. Nevertheless, the limitation of the study is the insufficient number of participants involved in the evaluation. For future research, utilizing more than 30 samples would be more appropriate and would supplement the social network analysis to carry out more in-depth investigations and discussions.

Keywords: inclusive class; social interaction; participation performance; music technology activities

1. Introduction

Equality in education provides equal learning opportunities for children in the mainstream and guarantees learning opportunities as well as an environment for children with special needs. It allows for the consideration of the learning opportunities that every child needs, and gives enough attention to children with learning difficulties and other educational needs [1]. In order to promote the early treatment and education of children with disabilities, the Ministry of Education of Taiwan stipulates that the implementation of special education should start at the age of two, and clearly stipulates that “the provision of special education and related service measures and the establishment of facilities should conform to the adaptation, individualization, and community”. “The spirit of integration and barrier-free integration” It clearly shows that the primary orientation of special education at this stage is integration toward inclusion [2]. Currently, studies affirm the positive effect of inclusive education on children with special needs as well as children in the mainstream [2]. For example, an inclusive environment can promote self-concept, language, perception, morality, social interaction, motor skills, and interpersonal relationships for special needs children [3,4].
Music is the first sensory experience for children as they interact with the world and gain sustenance to enrich the mind and soften the soul. As for emotional and musical abilities, children with special needs are as good as peers of the same age. Music can better stimulate and comfort them by interacting with their heart to express indescribable emotions and deep feelings. As a non-verbal communication tool, music can be integrated with learning to make daily learning routines and complex tasks much more accessible [5]. Children’s emotional and social functions are significantly enhanced during musical activities in addition to immediately after the end of the course [6].

Due to progress in the digitalization of society, the integration of information and communications technology into life has become indispensable. Through the use of projection equipment and digital products, children can effectively learn mathematics, songs, and drama; through games, they can provide meaningful learning methods [7]. Music technology activities assisted children with disabilities in physical movement, communication, and concentration [8–11]. After years of hands-on research, many positive results have been obtained using music technology in general and more specifically for children in special education settings. Thus, the motivation of this study is to explore the influence of music technology activities on the social interactions and participation status of children in an inclusive class. Social interaction is essential to human beings due to the gregarious characteristics of human personality, and it is associated with close connections to parents and siblings from birth. Various needs are met for all children through interactions with caregivers. With the growth in age, children’s social learning expands from families to school life. Therefore, the kindergarten stage is vital for children to develop their social abilities. Social interactions and emotional development are significant for children at this stage, which can help them to interact better with others in peer groups and improve their detection, expression, and understanding of emotion as well as interpersonal relationships [12].

There are many definitions of social interaction. Broadly speaking, children can adapt to people, things, and things [13]. Another scholar proposed that social interaction is when two or more people come into contact with each other in an activity at the same time, showing verbal or nonverbal behavior [14]. This study adopts Arnott’s definition of social interaction. Most preschool children generate social interaction through games [15]. This research uses music technology courses to increase the frequency of social interactions and the number of activities children participate in during games and learning.

The structure of this research is as follows: 1. Introduction: research background and problems; 2. Literature Review: the implications and implementation of inclusive education, the link between music technology, the teaching concepts of music, and social interaction; 3. Method: This research adopted purposive sampling. Three observers observed and recorded the research participants, who were four children with special needs and four children in the mainstream, a total of eight samples, to conduct research on music technology and social interaction; 4. Research Results: divided into qualitative and quantitative analysis; 5. Conclusions; and 6. Limitation and Suggestions.

Therefore, the study intended to increase the frequency of interpersonal interaction and the number of activities involved in the learning process through music technology.

2. Literature Review
2.1. The Implications and Implementation of Inclusive Education

Inclusive education originates from the modifications and changes required to deal with issues caused by the mainstreaming movement and the reforms of general education and special education. Far from the simple problem of education placement, the crux of the matter is the adjustment and reform of public education, which are the training of professional teachers, the change of the teacher’s role, the coordination of working staff, and the interaction between children in the mainstream and children with special needs. Taiwan’s laws and policies understand the value of inclusive education and quickly
implement it in education methods. About 90% of children with special needs are placed in inclusive preschool education environments to study [16].

According to scholars, the most crucial concept behind inclusive education is that inclusion is a way to live together. Several reasons form the foundation for this idea: every individual has their value; every child has the right to receive education; and the differences among children shall be respected to make them feel accepted, supported, and a sense of belonging [17]. The benefits of learning for children are mainly through games and interpersonal interaction. From social interaction, inclusion can offer more interactive opportunities for children in the mainstream and children with special needs by peer demonstration, teaching, and enhancement, allowing children to improve their social interaction ability and perform appropriate behaviors. Furthermore, children in the mainstream can learn self-esteem, moral and social cognitive growth, and respect individuals with different characteristics. From the perspective of social constructivism, by staying with better performers and getting additional help from them, children with special needs can be more likely to progress. Moreover, better performers can benefit from the helping process by re-expressing or re-practicing what they have learned in order to realize a win-win cooperation situation.

At present, inclusive classes, including children in the mainstream and children with special needs, can be divided into two types.

2.1.1. Completely Inclusive Class

Children with special needs are placed in a regular class full-time to receive general education with children in the mainstream in a mainstream learning environment. An individualized education plan is implemented to adjust teaching and courses to deal with children with special needs. Special education services are provided by special education preschool teachers, doctors, or other professional staff.

2.1.2. Partly Inclusive Special Education Class

Children with special needs are placed in a preschool special education class; only for specific periods or activities are they placed in the regular class to learn with children in the mainstream.

Take Taipei City National Primary School as an example which has adopted the cooperative model of inclusive education. When social interactions are generated between children in mainstream and children with special needs, children with special needs make straightforward strides in communication, fine motor, gross motor, problem-solving, and social development skills in the mainstream classroom setting [18].

To help children with developmental disabilities enter into a mainstream classroom, an education placement policy called “Zero Rejection” is employed by the Department of Education of the Taipei City Government. Experimental classes are established in a few Taiwanese educational institutions (e.g., Special Education Center of Affiliated Experimental Elementary School of the University of Taipei develops experimental classes for children’s special education) to integrate mainstream education and resources into the preschool education system. In addition, Taipei City is the first to implement inclusive education throughout its programming due to its rich resources, followed by other cities accordingly [19].

In the Vygotsky theory, through peer interaction children can learn social roles and rules; they can understand simple social norms, learn to share, take turns, cooperate, and listen to others’ opinions [20]. Children with special needs get along with other children in an inclusive environment, increasing their chances of emulation and promoting their socialization ability. At the same time, it is also mentioned in the “Kindergarten Education and Protection Activity Curriculum” that children learn to interact and explore in the context of the play. This idea is based on old experiences. Through participation and group discussion, children gradually construct new knowledge and play an appropriate role in the group [21].
In the process of children’s growth, caregivers, teachers, and peers provide support and guide the scaffolding of learning and development; scaffolding is the way teachers use language and games to guide children’s early language use to solve a problem. Therefore, teachers use continuous questioning and guidance as one of the teaching strategies and appropriate use of discussion, sharing, and cooperation in the learning area of the class to solve problems together. Building a peer scaffold can enhance children’s sense of participation in activities and promote learning effectiveness [22].

Based on the above literature reviews, inclusive education has gradually been emphasized. At present, teachers’ roles and class sizes are classified and planned in inclusive education to ensure that children with special needs can be integrated into regular classes for learning. The following points are also revealed: the learning ability of children with special needs can match those of children in the mainstream; children can learn how to respect and communicate with each other by getting along with peers; and children with special needs can have equal opportunities to learn as others.

2.2. The Link between Music Technology and Child Development

Gardner proposed the “Multiple Intelligence Theory” in his 1983 book *Frames of Mind*, and he listed music as one of the eight multiple intelligences. This intelligence also includes a high degree of perceptual discernment, physical awareness, sense of rhythm, tone, and melody sensitivity. The effects and functions of music in education are easy to connect with other intelligences, thereby allowing learning to enhance interpersonal interaction. When the relationship between music and people has a specific function, the result will be more joyful than expected and produce satisfying interactions [23].

With the development of technology and the progress of civilization, the integration of technology and music injects new scientific and technological teaching equipment, teaching materials, and teaching methods. It will increase the diversification of learning. This can improve the quality of music teaching and children’s learning effectiveness, stimulate the development of children’s potential, and make learning diversified and individualized [24]. The digital transformation era has been entered, and the introduction of information and communications technology provides multimedia materials in preschool education and teaching, allowing for significant growth in learning [25]. Through electronic or digital equipment, the cascade of education and information and communications technology allows us to obtain information, communicate with each other, or impact the environment [26], making the acquisition of knowledge much quicker. The United Nations Education Science and Culture Organization (UNESCO) stated in 2007 that computers are required for teaching and learning. Computers and other information and communications technology equipment are introduced into schools, including preschools, in order to allow children to live in a digital society and get ready for the future. NAEYC FRC reported in 2012 that the practice and integration of information and communications technology into preschool education could support early childhood curriculum learning and benefit children in the learning process [18].

Music technology activities can provide many sensory stimuli, including listening to music, playing musical instruments, and rhythmic movements, all of which can enhance children’s perceptual and sensory abilities. Researchers believe in the use of music technology to assist children with disabilities in learning and communication. Appropriate music can stabilize emotions and move toward normal development. After implementing music technology activities, an individual is more stable in physical movements and has significant progress in interpersonal interaction and oral expression [8].

Studies have shown that music technology activities have significantly improved children’s social interactions in the inclusive class. Before the study, the participants’ oral expression was relatively lacking, and the interaction with peers appeared relatively weak; after teaching music technology activities, children have improved their cognition, attention, memory, and oral skills, especially in interpersonal interaction. They can actively seek friendship, help their peers, and express concern in oral language [4]. Most children often
rely on vision to learn. Visual aids or media can be used when teaching singing and games, which can cultivate children’s observation ability and promote visual development [18]; children with multiple disabilities can improve with the aid of technological instruments. In developing body movements, participation in interpersonal interactions and activities has also been greatly improved [10,11].

Based on the above viewpoints, it is most appropriate for children to learn in a stress-free, encouraging, and happy environment through integrating music and technological instruments. Scholars believe that in preschool education, information and communication technology will provide many learning opportunities. Therefore, this study uses music technology as a learning medium through children’s enjoyment of games and sensory stimulation, allowing special children to increase their interpersonal interaction and participation in learning. Teachers use technology products to integrate teaching skills so that children have access to game experiences, and plan to incorporate them into learning, enhancing children’s positive attitude development [27].

2.3. The Teaching Concepts of Music and Social Interaction

Being a key to intelligence, music can significantly impact children’s intelligence by improving their interactions through targeted music activities. However, teaching strategies for children with autism in game playing, interpersonal relationships, social behavior, and communication language initially may need to be given one-to-one attention. Except for any required individual learning, the group learning experience is preferable and an end goal [5]. Children with autism are more sensitive to auditory stimuli, and music can promote the ordering of auditory stimuli and organizational input perception [28,29]. With the sensitivity to music and aural reception, integrating music into the field of interest can increase the frequency of participation in activities [30]. Due to the poor social skills of some children with special needs, teachers should work to put children in the mainstream and children with special needs together to play group games. More social interactions can be created between children in mainstream and children with special needs by designing music and game activities. Children in the mainstream can be assigned to play the leader in the game, and children with special needs can thus learn the techniques to play as well as social skills [7]. Additionally, as indicated by scholars, the role of peers is essential for autistic children in a regular class, as peers are the best example for them to learn, which may help improve their behavioral problems [1]. Children with autism commonly have difficulties sharing experiences and feelings with peers while playing the game, making learning from peers more challenging and developing a social friendship.

In addition to social interaction and communication difficulties, children with autism encounter difficulties when learning due to rigid behaviors. New things easily attract children in the mainstream; however, autistic children prefer familiar and repetitive things to novelty, which leads to learning new skills and adapting to new things. Music acts as a bridge of connection in a group, creating a natural learning environment for social behaviors with its social function. For individuals, music can help form a sense of connection within a group, and music can therefore contribute to group learning [22]. After researching social skills interventions for children with autism, researchers discovered that social stories, peer mediation, video modeling, and music activity demonstrate effectiveness as intervention strategies to improve social skills [31]. Furthermore, related research has increased gradually in recent years, such as social stories [17], peer mediation [6], video modeling [26], visual cueing strategy [18], music intervention [16], etc. Teachers of inclusive classes are encouraged to fully employ the above courses or teaching materials to improve the social communication ability of autistic children.

Autistic children can meet more difficulties in social learning, which is symptomatic of autism and its impact on brain development. The research has shown that critical areas of the brain associated with language and social interactions are undeveloped in autistic children, making it difficult for them to internalize experiences related to social learning, communication, and processing social information. As a result, this situation also limits
the learning ability of autistic children. However, since the brain has high plasticity at the early stage of life, special education programs should be applied as early as possible. Early treatment shall be adopted effectively to stimulate social and communication skills for autistic children, which will help reduce their learning obstacles in the early stage [1]. It is believed that by employing the strong plasticity and learning ability of infants and young children, autistic children can make more progress in preschool age and have a lower level of disability when they grow up. For example, early intervention, treatment, and education can significantly improve the social skills of autistic children in order to reduce their symptoms and behavioral problems, as well as to help them perform better in all aspects of life, including family, school, and community participation.

Furthermore, by early intervention, autistic children can develop better communication and game-playing skills, in addition to even more complex peer relationships. Furthermore, early treatment and education can help autistic children learn to focus on crucial social learning information, such as oral expression or face recognition, strengthening or highlighting their attention to people. Therefore, autistic children can understand information about language and social interactions [19].

3. Methods

3.1. Introduction to Music Technology Equipment

3.1.1. Soundbeam

Soundbeam (Figure 1) has evolved from an abstract concept to a unique light-sensing system, which can be light-sensitive on all sides and is easy to use. The ability and fluidity to traverse the broad spectrum have the particular function of making learning vigorous and interesting, so that learners can get a sense of satisfaction and enjoyment from it. Soundbeam and its surrounding technological equipment are widely used in the fields of music education, sound therapy, and music therapy for children with severe learning difficulties and multiple disabilities, and their positive effects have been confirmed.

![Figure 1. Soundbeam and related accessories.](image)

3.1.2. Musical Pads

Musical pads (as shown in Figure 2) are instruments with eight scales, from middle DO to treble DO, combined into a round or long strip shape. Children can step on the pads, and the corresponding scale and lighting effects will appear simultaneously.

3.2. Data Collection

The data collection duration was three months, and the research teaching was divided into two themes. Each theme included two stages and a total of seven weeks. The first stage is the adaptation period; the second stage is the stable learning period. The implementation was twice a week, with forty-minute sessions and 28 teaching sessions, lasting for 14 weeks. The researchers reviewed and recorded with the trained observers afterward to analyze children’s social interactions and participation performance through observation records. Data collection was based on semi-structured observation forms, anecdotal records, interview records, and feedback forms.
3.2. Data Collection

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3.3. Participants

The participants of the study were from a private, inclusive kindergarten in Taichung City, Taiwan. Due to the small campus and the relatively poor resources, the head of the kindergarten actively applied to the research team for tutoring American language music courses, so this research adopted purposive sampling. The participants included four regular children (3 boys and 1 girl) and four children with high-functioning autism (4 boys), consisting of eight study samples. The basic overview of the participants’ social interaction abilities is as follows:

The children’s baseline performance of social interactions is summarized as follows:

1. Children in the mainstream:
   - Jing: Excellent performance in social interaction; was a class leader.
   - Yang: Good performance in social interaction; was able to interact with people actively.
   - Quan: Not too poor performance in social interaction; had emotional ups and downs occasionally.
   - Dong: Not too poor performance in social interaction; was rather shy.

2. Children with high-functioning autism:
   - Heng: was able to express his opinions; needed guidance to deal with emotions and communicate with people.
   - Rong: needed guidance from peers and teachers on their initiative.
   - Zhen: needed guidance from peers and teachers on their initiative.
   - Yan: needed guidance from peers and teachers on their initiative.

3.4. Observer Selection

The three observers were composed of two members of the research team and a senior preschool teacher.

3.5. Observer Scoring Method

Observation data included music activity observation forms and anecdotal records. In terms of observation records, the three observers filled in the semi-structured activity observation form and conducted a qualitative and quantitative analysis of the research in terms of observation records.

Before formal teaching, based on primary information data provided by the children’s parents, the researchers need to establish a starting point of learning experience and learning ability of research participants. After the data summary, the researcher worked with the supervisor to compile the pre-test and post-test, the Social Interaction Scale, and the lesson plan for teaching American English through music. In the meantime, the researcher explained the research purposes and teaching contents to three observers. To establish the criteria, observers needed to be trained based on the main items requiring observation. For example, when the rating item is “helps peers tap the target objective following the teacher’s instruction”, the observer shall pay attention to whether the children can achieve...
this and evaluate the score based on the number of present children on that day. If all the children fail to do this, 1 point shall be given on the Likert 5-point scale. If one child can do this, 2 points shall be provided. If two children can do this, 3 points shall be given. If three children can do this, 4 points shall be given. If four children can do this, 5 points shall be provided. The observation and recording were mainly carried out by reviewing the teaching video clips, and observers gave scores in line with the performance of the activity. If the movement of children was not apparent or the volume of voice was too low in the video, the scores of observers may easily be too deviated. When the score given by the observer was not less than 2 points, they re-discuss the results and reviewed the video clip to provide a new score. Moreover, the researcher also provides the data recorded in the anecdotes of the study to discuss with observers.

3.6. Analysis

(1) Qualitative: triangulation.
(2) Quantitative: there were only eight children in the inclusive class, so the nonparametric analysis method was used to evaluate the differences in social interactions among pre-test, mind-test, and post-test.

3.7. The Content of the Music Technology Curriculum

The researcher designed the curriculum with some adjustments according to participants’ physical and mental development. The activities included the Hello Song, Attendance Song, singing and chanting, musical movement, musical storytelling, and Goodbye Song, all carried out in American English.

3.8. Reliability

Kendall’s concordance consistency test was conducted to test the reliability of the observers’ consistency.

3.9. Social Validity

After 28 times of teaching within 14 weeks, the researcher withdrew from the research situation, leaving eight parents, one kindergarten teacher, and three observers to fill the music activity feedback form as the social validity data.

4. Results

This study discussed the participants’ performance and process of social interactions after implementing the music technology activities. The contents for data analysis included observation records, anecdote records, teacher interviews, music activity feedback forms, etc. For children with special needs, their process of active participation in music technology activities and interaction with peers in the mainstream were reflected by the quantitative scores in observation records to show how children interacted and learned in each theme. Two themes were implemented, namely star and color, in the study. The researcher separated each theme into two stages and supplemented it with text description results for support and comparison. The social validity was based on statistical results of the music activity feedback form, which helped to show how the study can affect the participants’ social interaction development.

Regarding the consistency of the observers, using the Wilcoxon signed-rank test, data in the statistics without maternal numbers can prove that the evaluations of the three observers on subject one and subject two are highly consistent, and the measurement data have high reliability as shown in Table 1.
Table 1. Consistency verification of evaluation by three observers.

| Theme | Number of Samples | Kendall’s Concordance Coefficient |
|-------|-------------------|----------------------------------|
| 1     | 56 \(^a\)         | 0.992 \(^{***}\)                |
| 1     | 8 \(^b\)          | 0.989 \(^{***}\)                |
| 2     | 56 \(^a\)         | 0.995 \(^{***}\)                |
| 2     | 8 \(^b\)          | 0.950 \(^{***}\)                |

\(^a\): total sample size of 8 participants at 7 weeks \((7 \times 8)\), \(^b\): 7-week average sum of 8 participants, and \(^{***}\): \(p < 0.01\).

Relying on the Social Interaction Scale, this research tested participants’ social interactions and participation performance in theme one. As shown in Figure 3, after seven weeks of teaching, participants’ social interactions and participation performance increased from 1 to 4.85. According to the score, music technology activities can enhance learning ability through peer assistance.

As shown in Figure 4, the score of the participants in theme one showed gradual progress, from 1.8 in the first week to the peak value of 4.38 in the seventh week. The overall curve showed positive growth.

According to observation records from theme one, the process of social interactions and participation can be divided into two stages for data analysis:
4.1. From the First to the Third Week

As the course was entirely new for the participants who had never been previously taught using the program techniques, they felt unfamiliar at the beginning of the activity. The instructor used the technological equipment to gradually adapt the participants to the new teaching method in a fun way. During the first week and the second week, static observation and imitation of body movements of the teacher were the mainstays. This stage is in the adaptation period.

4.2. From the Fourth to the Seventh Week

After three weeks of learning, children in the mainstream were adapted to the new teaching mode. During the activity, children in the mainstream can actively respond to questions raised by the teacher. Moreover, they can assist the learning of children with special needs by repetition and demonstration. They can read out target words and sing the songs together with children with special needs. Additionally, they can jointly select target words based on the technological equipment and engage in cooperative games. The average score increases from 3.12 in the fourth week to 4.6 in the eighth week, suggesting that children with special needs can improve their learning abilities with peer assistance.

As illustrated in Figure 5, after seven weeks of course instruction, children’s social interactions and participation performance in an inclusive class was increased from 1 point to 5 points. The scores showed that the addition of music in American English could improve children’s social interactions and participation activity in an inclusive class.

As indicated in Figure 6, in theme two, the score of research participants gradually increased from 3.5 points of the first week to 5 points of the seventh week, with positive growth. The upward curve shows gradual progress.
4.3. From the Eighth to the Tenth Week

The eighth week started with the beginning of a new theme. After finishing the previous theme’s learning, the participants took the initiative to discuss and share their experiences to assist others. Moreover, they actively interacted with each other in the participation of activities. They also observed the combination of instrument lighting and sounds. After experiencing the previous topic, children faced unfamiliar curriculum content. Although they could not respond to the teacher in English, they would try to respond in Chinese to improve the interaction with the teacher. Compared with topic one, when they faced the unfamiliar, the social interaction between the course and the instructor is higher than the pre-test of topic one.

4.4. From the Eleventh to the Fourteenth Week

Up till the eleventh week, the participants could complete the task given with teacher cooperation more easily. Thus, children’s learning abilities of social interactions and activity participation in theme two were improved.

After the 28 teaching sessions of the above two themes for 14 weeks, Figures 1–4 showed that the participants positively developed learning abilities of social interactions and activity participation. In theme two, the speed of adaptability and adjustment accelerated, and the participants also got to know how to assist and remind each other. They would offer help and compensate in time when other peers did not know how to do things. The previous week’s scores improved gradually in both themes, which proved that music technology activities could improve children’s learning abilities in social interactions and activity participation. Because of the small sampling, the Wilcoxon signed-rank test, no maternal number, was used in the statistic. Table 2 showed that the pre-test was taken in the first week of topic one and the eighth week of topic two. The mid-test was in the fourth week of topic one and the eleventh week of topic two. The post-test was in the seventh week of topic one and the fourteenth week of topic two. The test results are shown in the following table. Whether it is theme one or theme two, mid-test and post-test have significant differences to pre-test, and post-test to mid-test also have substantial differences, which means that this course allows the tests to increase the effect of social interactions in the course effectively.

Table 2. Themes one and two Wilcoxon signed-rank test.

| Theme 1 | Pre-Mid-Test | Mid-Post-Test | Pre-Post-Test |
|---------|--------------|---------------|---------------|
| Z       | −4.308       | −4.289        | −4.308        |
| P (two-tailed) | 0.000 *** | 0.000 *** | 0.000 *** |

| Theme 2 | Pre-Mid-Test | Mid-Post-Test | Pre-Post-Test |
|---------|--------------|---------------|---------------|
| Z       | −4.291       | −4.301        | −4.294        |
| P (two-tailed) | 0.000 *** | 0.000 *** | 0.000 *** |

***: p < 0.01.

5. Conclusions and Discussions

This study mainly explored empirical research on how music technology activities enhanced children’s social interactions in an inclusive class. The performance of children’s social interactions and participation in activities and learning in the inclusive class can be found in the observation forms. The integration of a new curriculum and technological equipment can deepen children’s concentration and memory in learning. When the sound effects of the equipment were different from the lighting, children would take the initiative to tell their peers and help each other distinguish differences. This result is consistent with previous research [6]. After learning music technology activities, children could actively seek friendship in interpersonal interactions and help their peers. At the same time, through the sound and light effects of scientific and technological instruments, children’s
participation in social interactions also significantly improved. This supports Lee and Ho’s research results [9,10]. Classroom teachers also provided feedback that when children with autism face new teaching models, their acceptance of learning is different, due to their stereotypical behaviors. When the latest music technology was brought into the activity, they needed time to adapt. After their peers’ guidance, they would share the activity process in the classroom. When they found their responses were wrong, such as the sound was different from the lighting, they would again modify and adapt to find the correct answer. When the correct answer appeared, they would feel delighted—children discussed their own learning experiences and way of operating technological equipment. Based on the above, the conclusions of the study were as follows:

Participation in musical activities, supplemented by the integration of technological musical instruments into games, improved social interactions. Children became more willing to share their learning experiences and operate technological equipment, and the interactions among children became more enthusiastic and frequent. Therefore, music technology activities can effectively improve participants’ social interaction behaviors, such as good communication, cooperation, and course participation.

6. Limitations and Suggestions

The sample of the study was seven boys and one girl. Even though the small sample size was the limitation of this study, it still contributes to the field of special education [32]. Furthermore, it was limited by the fact that the number of male and female samples was too small and the differences were significant. It was also impossible to perform gender differences in social interactions. A systematic review of the literature based on 16 studies has integrated gender as an aspect; observed persons with autism had gender differences in social interactions [33]. It is recommended that future related research samples should be based on a fusion class with more than 30 young children and a balanced male-to-female ratio. In addition to verifying the results of this study, research on gender differences in social interactions can also be performed.

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