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# The Effect of Brain Dance on Children's Creativity

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**Abstract**
**The creative needs of the digital age have made educators focus on developing creativity early on. Early research has proven the creativity developed in early childhood. The purpose of this study is to look at the effect of Brain Dance on creativity in Early Childhood. This study uses a quasi-experimental method with one-group pretest-posttest design, with paired t-test used to analyze data and test hypotheses. 30 early childhood in this study. This study found the results of sig. 0,000, indicating that the Brain Dance Training Program, can significantly influence creativity in a positive direction. Future research can evaluate the long-term effects of the Brain Dance training program.**
**Key words: Brain Dance, Creativity, Early Childhood**

# El efecto de la danza del cerebro en la creatividad de los niños

Resumen
Las necesidades creativas de la era digital han hecho que los educadores se centren en desarrollar la creatividad desde el principio. Las primeras investigaciones han demostrado la creatividad desarrollada en la primera infancia. El propósito de este estudio es observar el efecto de Brain Dance en la creatividad en la primera infancia. Este estudio utiliza un método cuasi-experimental con un diseño de prueba previa y posterior a un grupo, con prueba t pareada para analizar datos y probar hipótesis. 30 de la primera infancia en este estudio. Este estudio encontró los resultados de sig. 0,000, lo que indica que el programa Brain Dance Training puede influir significativamente en la creatividad en una dirección positiva. La investigación futura puede evaluar los efectos a largo plazo del programa de entrenamiento Brain Dance.

Palabras clave: danza del cerebro, creatividad, primera infancia

## 1. Introduction

Creativity in the digital age is needed and highly valued in the world of adult work. Creativity contributes to discovery, innovation, social and cultural change as well as political and economic development. Creative people have the ability to quickly and effectively respond to any challenges they might face, which at the end, help them fulfill their goals and find happiness in life. Creativity is a highly desirable skill in today's fast-changing, ever-increasing social, emotional and intellectual demands. Mastery of knowledge alone cannot be a measure of success today; people need to decide how to take advantage of knowledge in new and efficient ways. Creativity is the solution to many pressing global problems which require a completely new approach. Educators have recognized the value of creativity and included it in the 21st-century skills list (Zhbanova, 2018). Education has a key role in developing creativity from an early age. The process of developing creativity requires inspiring experiences at every stage of the educational journey, especially during early childhood (O 'Connor, 2012). Developing creativity is important and interesting to learn, but in practice, it is difficult to apply it in various learning practices. Creativity in technological innovation, education, business, art, and other fields of

science plays an important role (Faizi, Azari, & Maleki, 2018).

The discussions about creativity have been well noted by education systems throughout the world, especially by those in high-income countries (HIC), because those who have high creativity have leadership positions in the workforce (Mishra & Mehta, 2017). Creativity development is a must for education along with a global commitment (education for all) as one of the UNESCO millennial development goals 2018 (Grigorenko, 2019). Therefore, the curriculum for Institutions of early childhood education services must enable students to think creatively and critically, to solve problems and create new innovations. It also allows them being creative, innovative, enterprising, able to lead as well as equipping them for their future lives as productive citizens.

One of the important learning activities for children in the current digital era is physical activity through dance activities. Today, Brain Dance is a popular dance method to develop creativity in early childhood. Cheung (2010) describes creative movement activities in three Hong Kong kindergartens to promote children's creativity. The results showed that the response of children's movements became richer in variations and always to the surprise of the teachers. Hyndman & Mahony, (2018) explore how outdoor physical activity can meet the creativity criteria of children's learning.

In recent years, many studies have shown that human body movements are very important, from increasing cardiovascular efficacy to improving muscle function, metabolic balance, and organ systems. The brain is no exception and benefits greatly from movement, both structurally and functionally. The brain regulates things like memory, creativity, and intelligence. The literature shows the benefits of physical activity on many factors that affect brain function. A brief review by oleh De Giorgio, Kuvačic, Milic, & Padulo, (2018) aims to explain how physical activity affects the human brain. The results of the study have identified a close relationship between physical activity with cognitive processes and brain development. Based on research on creativity and gestures, this research aims to evaluate the effects of Brain Dance on early childhood creativity, as this area has not been well-developed, especially in developing countries. The research is to answer to what extent Brain Dance activities would affect creativity in early childhood.

## 2. Literature Review

### 2.1. Early Childhood Creativity

Most scientists agree that creativity is different from intelligence or talent.

Children who score high on intelligence tests are not necessarily creative. Talent usually refers to possessing a high level of skill in a particular field (such as music or mathematics), but that does not mean it can show a high level of originality or the ability to show creative abilities in a particular field.

When discussing creativity in early childhood, it is adopting a broad and democratic definition of creativity. In this way, every child will have creative potential and be able to have creative expression. It is important to consider what might be 'authenticity' in the work of early childhood. For example, the work of young children is adaptive and original to certain children and / or to children in their class or age group (Runco, 2010). Characteristics of creative behavior in early childhood such as imagination, curiosity, exploration, playfulness, risk-taking, innovative, idea, imaginary behavior, exploration behavior, independent initiative learning, and play, etc. He observed that from imagination, children's creative tendencies are in play (Ibrahim, 2017).

Creativity is fundamental to the preschool curriculum as a procedure for creating authentic things. Preschool teachers must provide children with material to spark their imagination, give opportunities for them to imagine and explain their ideas, respect children's personalities, and encourage different points of view. They also need to encourage children to take part in creative play, care for new children's thinking, and respect them. In addition, respect for their creativity, and build their confidence. Dere, (2019) examined preschoolers to see their creativity. Simple causal design with pre-test and post-test with one group. The creativity value of the results of the Torrance Test for Creative Thinking, pre-test, and post-test with monitoring by the Ministry of National Education (MoNe). The study has shown its preschool curriculum positively increased children's creativity.

Neurologically, the early years in early childhood are the main periode of time to produce pathways in the brain that lay the foundation for future innovators and creative thinkers. There is strong evidence that shows a critical period in the first 10 years of life in which children are at a creative stage of development during a time when the brain is still growing and developing (Leggett, 2017). While creativity research focuses mostly on new products that are beneficial to society, early childhood educators are well aware of the need to document the processes involved with learning.

Art is one choice to increase creativity in early childhood. An & Youn, (2018) proposes that openness to aesthetics and artistic experience enhances individual creativity by giving them inspiration. Although earlier liter-

ature has claimed that aesthetic experience enhances creativity, there is a lack of empirical evidence documenting the psychological processes that underlie this effect or testing whether it can transfer to domains outside the arts. His research investigated the relationship between art appreciation, inspiration, and creativity in four studies. Participants' open attitude towards aesthetic experience will inspire and be more able to produce creative solutions. Appreciating artworks produces inspiration, which in turn enhances creative thinkings. Finally, the power of art appreciation extends to the business environment, where it increases performance in product design, brand naming, and generation of problem solutions.

Early childhood learning is closely related to art, one of developing creativity in early childhood learning, through movement and song activities. Lin, (2019) researching the making of music initiated by children by themselves offers an understanding of children's musical creativity in the past. In the context of playing music, children's musical creativity involves immersion in exploration. It is clear that children have rich and imaginative creative capacities. Some studies see and characterize children's spontaneous musical creation in natural environments, in kindergartens or schools with instruments. Yates & Twigg, (2017) find a clear increase in students' confidence in their own creativity, namely their confidence to carry out learning activities, express ideas of spontaneity and explore new things through modules provided by the teacher.

In implementing the 21st-century discourse on convergent creativity and problem-solving abilities of music teaching practices in preschool classes, Yusof & Tan, (2019) conducts creative pedagogical research to foster creativity for young children, he discovers the sounds made by children as they try to cross the boundaries of what they know and how they organize themselves naturally and culturally, has increased convergent creativity in early childhood. Therefore, only music or music and moves can stimulate creativity in children effectively.

Activities from the artistic-expressive dimension stimulate motor creativity, encouraging improvisation that is often done by students (Watson, Nordin-Bates, & Chappell, 2012). Therefore, improvisation in dance as a technique for developing different thoughts (creativity process) (Davenport, 2006). Dancing learning activities through different ways of teaching, such as adequate levels of practice and conditioning, use of feedback, stimulation of critical thinking, use of skills to do or give different guidelines (Beghetto & Kaufman, 2016). During the dance practice interaction with other students facilitates conditioning or manipulation of objects and

other things.

Research to find how to define the four skills of creativity, critical thinking, communication, and collaboration. And how to make dance and choreography and teach early childhood children to absorb these four skills. Mercer, (2018) responded with his findings qualitatively mine and analyze data, found that dance activities nurtured positive relationships between students and dance educators, gradually built dancing skills, leading to increased learning engagement, developed a deep understanding of content as inspiration for dance, and finally provided a way to offer constructive and meaningful dance assessments.

In recent years, many studies have shown movement for the human body, from increased cardiovascular efficiency to improved muscle function, metabolic balance, and organ systems. The brain is no exception and greatly benefits from movement, both structurally and functionally. the brain regulates memory, creativity, and intelligence. The literature shows the benefits of physical activity on many factors that affect brain function. This brief review aims to clarify how physical activity affects the human brain. De Giorgio et al., (2018) has identified the effect of movement on the brain, through investigation of this influence according to the close relationship of physical activity with cognitive processes and brain development. This finding provides insight into the effects of movement on the brain based on relevant literature. This opinion encourages this research to prove that dancing or moving with music is a good choice for developing children's creativity, and Brain Dance is a choice of dance form specifically created for brain stimulation.

2.2. Brain Dance

Brain Dance, developed by Anne Green Gilbert (Gilbert, 2019), is an effective whole body and brain warming for people of all ages. It consists of eight patterns of movement of human development to move from 0-12 months connecting the central nervous system. By moving through this pattern of development, children and adults give oxygen and rearrange their brains.

Chiang, (2017) compared and linked Brain Dance activities with control groups with reading activities as well as social, learning, and negative behaviors. The findings showed the Brain Dance activity group increased in for specific areas namely focus, sensory use, multiple senses, and anxiety. There is a positive correlation between social behavior and learning.

When children watch the performing arts, a vast and complex network

of brain processes emerges (Poikonen, Toiviainen, & Tervaniemi, 2018). Dancing compared to conventional fitness activities causes a greater increase in volume in more areas of the brain, including the cingulate cortex, insula, corpus callosum, and sensorimotor cortex (Rehfeld et al., 2018). Karpati, Giacosa, Foster, Penhune, & Hyde, (2015) observations on the brain suggest that short-term dance training influences brain activity in observing action and tissue simulation. Therefor, it is proper to show movements in Brain Dance activities in front of children, then allow children to give ideas in forming new movements.

A study Combining Creative Dance and Brain Dance in the context of physical education into promising innovation. This joint program helps students make a better and more holistic assessment of their Health-Related Quality of Life (HRQoL), which covers aspects of physical, emotional, social, and functional functioning and well-being. Olga, Georgios, Ioannis, Dimitrios, & Maria, (2018) found excellent results about improvisation, body control, balance, and coördination, as well as kinesthetic awareness and musical rhythm skills. Dance Creative and Brain Dance promote imagination, creativity, improvisation, and self-esteem in general, especially in early childhood. Ko & Shin, (2015) found the results of Brain Dance group programs had a positive effect on self-acceptance and self-control. Studies show that brain dance is a useful tool for increasing self-acceptance and control.

Based on various studies about Brain Dance shows the benefits of early childhood activities Brain Dance. The Brain Dance allows children to focus fully on certain patterns to help ease movement or areas of the body / things that block the mind. By doing patterns in Brain Dance, children connect and straighten all parts of the body leading to wholeness and integration between motion and brain (Gilbert, 2000).

## 3. Method

### 3.1. Participants

Participants were 90 pre-school students aged 5-6 years in DKI Jakarta province. After agreeing with participant parents and early childhood education institutions in conducting the intervention program, the research team collaborated with educators to offer Brain Dance interventions.

This study uses quantitative research methods through a quasi-experiment design. The data collection technique uses observations and tests, by analysing paired t-test statistical data (Creswell, 2012). Processing data using the SPSS 25.0 program. Two conditions were prepared in the two classes of study participants. One class becomes a control class by measuring In-

itial Conditions (IC); 1 one classroom that receives stimulation to receive treatment of brain activity (BA).

These two class groups have been compared using ANOVA testing to see homogeneity between groups (see table 1 and 2). Based on the test table of homogeneity of variances output is known significance value 0,171. because the sig value 0,171 > 0,05, the variants in the Initial Condition (IC) and brain activity (BA) groups are homogeneous.

**Table 1. Test of Homogeneity of Variances**

| | | Levene Statistic | df1 | df2 | Sig. |
|---|---|---|---|---|---|
| Creativity | Based on Mean | 1.906 | 1 | 88 | .171 |
| | Based on Median | 1.956 | 1 | 88 | .165 |
| | Based on Median and with adjusted df | 1.956 | 1 | 87.296 | .165 |
| | Based on trimmed mean | 1.911 | 1 | 88 | .170 |

**Table 2. ANOVA**

| Creativity | | | | | |
|---|---|---|---|---|---|
| | Sum of Squares | df | Mean Square | F | Sig. |
| Between Groups | 364.089 | 1 | 364.089 | 24.429 | .000 |
| Within Groups | 1311.567 | 88 | 14.904 | | |
| Total | 1675.656 | 89 | | | |

## 3.2. Research Design

The research design used the pretest-posttest quasi-experimental design (Campbell & Stanley, 1963) by applying pre and post research steps, as well as taking samples at randomly to make a class of intervention programs. (see table 3).

**Table 3. Research Design**

| Pretest-Postest Quasi-Experiment Design | | | |
|---|---|---|---|
| Group | Pretest | Procedure (Treatment) | Posttest |
| G (BA) | O1 | X1 | O2 |
| G (IC) | O3 | - | O4 |
| | Creative Test – TTCT | Brain Dance Activities | Creative Test – TTCT |

G: Group; O1: Pretest BA; X1: Procedure (Treatment Brain Dance Activities)); O2: Posttest BA; O3: Pretest (IC); X1; O4: Posttest (IC)

## 3.3. Instrument

The Torrance Thinking Creative Test - TTCT is the most famous and widely used creativity measurement test (Almeida, Prieto, Ferrando, Oliveira, & Ferrándiz, 2008). This test covers figural and verbal subjects. (This research has modified the TTCT instrument form according to the instrument's need for intervention using Brain Dance activities through various literature studies). TTCT-Verbal has two parallel forms, A and B, including the following subtest: (a) Asking Questions and Guessing (subtest 1, 2 and 3), where the child answers questions and makes guesses about possible

new movements in Brain Dance activities based on movement demonstrations educator; (b) Product Improvement (subtest 4),where children change movements so that they will prefer to play over and over activities; (c) Unusual Usage (subtest 5), where the child mentions interesting and unusual movements; and (d) (subtest 6), where the child will list all the consequences if an impossible situation becomes reality. TTCT-Figural consists of two parallel forms with three subjects: (a) arranging movements; (b) complete the movement, and (c) arrange different movements. Both forms aim at assessing nine main cognitive processes of creativity: (1) fluency or the number of relevant responses; (2) flexibility as referred to in various categories or shifts in responses; (3) originality includes considering new responses, not familiar and unusual, but relevant; and (4) elaboration to expand responses. In table 2 researchers modified the TTCT instrument to get the best results from Brain Dance activities in early childhood to see how significant the effect of Brain Dance activities on children's creativity.

**Tabel 4. TTCT instrument modification of the Brain Dance activity**

| No | Statement |
|---|---|
| 1 | Children can recognize problems that occur in activities (example: criticizing tools/examples of movements used in Brain Dance activities) |
| 2 | Children can assess their abilities when they cannot follow the example of Movement in Brain Dance activities |
| 3 | The child can explain in words or sentences the process of brain activity or the child can give ideas to add new movements to the Brain Dance activity |
| 4 | Children can spontaneously give ideas when brain dance activities take place |
| 5 | Children can follow the ideas of peers or issue ideas for brain dance movements and can do a harmonious collaboration with peers or teachers |
| 6 | Children can give intelligent responses when seeing new ideas |
| 7 | Children can abandon old styles or movements and use them by adjusting new ways |
| 8 | Children can collaborate with common things that happen |
| 9 | Children are willing to accept with tolerance when dealing with ideas or concepts that they don't like |
| 10 | Children can generate new ideas in dance activities. Can accept the conditions in Brain Dance activities |
| 11 | Children can think to continuously find the answers they want |

## 3.4. Procedur

This study uses a pretest and posttest design on research subjects. Children get Pretest individually and it takes about 15 minutes. After the children finish the pretest, then they start training for 1 hours. In each training group, there are two trainers, one works as the main trainer and the other helps. All trainers receive training in theoretical knowledge and training instructions from the Brain Dance training program. Training asks trainers to follow the same protocol. Arrangement of the eight exercises (in eight weeks) through a logical sequence that allows children to go through the

training, from simple and passive exercises to more complex and active ones. After the training, the children posttest individually, the posttest lasts about 15 minutes. Brain Dance activities carried out in the study can be seen in the following figure.

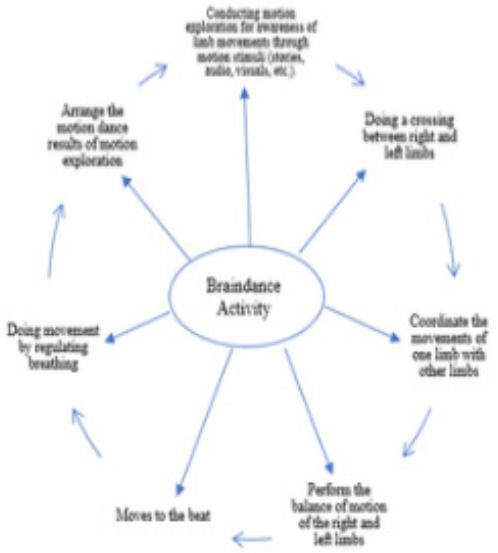


Figure 1. Brain Dance Activities

## 4. Result

### 4.1. Data analysis

Data analysis in this study used paired t-test to test children's creativity improvement and test hypotheses from pretest to posttest. Table 3 and 4 shows the results of the paired sample statistics which show the average results of the creativity value before and after the treatment

**Table 5. Paired Samples Statistics of Brain Activities (BA)**

| | | Mean | N | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Pair 1 | Pretest | 29.48 | 60 | 3.100 | .400 |
| | Posttest | 36.10 | 60 | 3.611 | .466 |

**Table 6. Paired Samples Correlations of Brain Activities (BA)**

| | | N | Correlation | Sig. |
|---|---|---|---|---|
| Pair 1 | Pretest & Posttest | 60 | .498 | .000 |

**Table 7. Paired Samples Test of Brain Activities (BA)**

| | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference Lower | Upper | | | |
| Pair 1 | Pretest & Posttest | -6.617 | 3.390 | .438 | -7.492 | -5.741 | -15.117 | 59 | .000 |

In Table 7. The hypothesis test shows the influence of Brain Dance on children's creativity is as follows:
Hypothesis:
H0 = There is no significant difference between before getting a Brain Dance treatment (pre-test results) and after using getting a Brain Dance treatment (post-test results)
H1 = There is a significant difference between before getting a Brain Dance treatment (pre-test results) and after getting a Brain Dance treatment (post-test results)
Hypothesis Test Results with paired t-test analysis:
H0 = There is no significant difference between before getting a Brain Dance treatment (pre-test results) and after getting a Brain Dance treatment (post-test results)
H1 = There is a significant difference between before getting a Brain Dance treatment (pre-test results) and after getting a Brain Dance treatment (post-test results)
If tvalue = 15.117, t table = 2.660 then, 15.117> 2.660; means value tvalue> ttable, H0 is rejected, meaning H1 is accepted, that there is a significant difference between before getting a Brain Dance treatment (pre-test results) and after getting a Brain Dance treatment (post-test results) on 60 respondents.
Table 8 shows the correlation between the pairs of variables is given in the control class IC. This is a repeated-measures analysis to expect a high degree of correlation between the two sets of score.

**Table 8. Paired Samples Statistics of Initial Condition Class (IC)**

| | | Mean | N | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Pair 1 | Pretest | 28.33 | 30 | 4.693 | .857 |
| | Posttest | 31.83 | 30 | 4.324 | .789 |

**Table 9. Paired Samples Correlations of Initial Condition Class (IC)**

| | | N | Correlation | Sig. |
|---|---|---|---|---|
| Pair 1 | Pretest & Posttest | 30 | .909 | .000 |

**Table 10. Paired Samples Test of Initial Condition Class (IC)**

| | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference Lower | Upper | | | |
| Pair 1 | Pretest Posttest | -3.500 | 1.961 | .358 | -4.232 | -2.768 | -9.777 | 29 | .000 |

The Table 11 shows Descriptive statistics for creativity for each before and after intervention activities. This table also shows the overall pre-test and

post-test results of two different treatments for testing creativity. In the one experiment classes, the data obtained were almost the same. it is able to show comparisons that can guarantee treatment results in the experiment and control class.

**Table 11. Descriptive Statistics for Creativity for Each Before-After Intervention Activities and Initial Condition**

| Condition class | Pre-test Mean | Post-test Mean | Gain Score |
|---|---|---|---|
| Brain Dance Activity Class (BA) (N=60) | 29.48 | 36.10 | 6.62 |
| Control Class (IC) (N=30) | 28.33 | 31.83 | 3.50 |
| Total (N=90) | | | |

The difference between the gain score between the experimental class and the control class there is a difference, the experimental class has a gain score higher than the control class (6.62 > 3.50) in creativity, therefore Brain Dance activity is proven to increase children's creativity.

## Discussion

### 4.2. Summary of the findings

In this study, we developed a program to enhance children's creativity through Brain Dance activities which included eleven measurement components (identification, evaluation, fluency, flexibility, authenticity, responses, redefinition, elaboration, tolerance, convergent attraction, and divergent interest). The effectiveness of the Brain Dance training program in developing children's creative thinking skills, especially their different thinking skills, has gone through scientific examination. The results showed a significant increase in the average results of all posttest actions compared to the pretest, except for harmonization and interaction. This is because the research time is short enough to make harmonization and interaction in Brain Dance training activities have not been able to build harmonization and interaction skills well enough.

The current findings confirm our hypothesis that the 1 hour training program enhances children's thinking abilities differently. The Brain Dance training program has several benefits. In participating in training activities, the ability to develop ideas to make new movements in dance increases. The child's ability to develop flexibility in thinking increases most prominently, children can generate new ideas in dance activities and can accept the conditions in Brain Dance activities or tolerate new movement ideas that arise in discussions with peers.

Through the questions posed by the trainer before the Brain Dance activity

begins or while in the middle of the activity, research findings show the ability to express ideas to do new things in the Brain Dance activity increases significantly, they offer new music, or new formations when they dance in Group. Another important research finding for further development is the ability to elaborate well-honed, although only in eight meetings, children can show that their ability to follow activities diligently and carefully, especially for children who already have a natural talent in dancing. It is a challenge for trainers to stimulate children who lack interest in structured movements and songs, therefore the coach's ability to always think broadly and offer opportunities and freedom for children to create more widely becomes very important in Brain Dance training for children early age.

Further findings on improvisation skills through Brain Dance activities, children can abandon old styles or movements and use them by adjusting new ways. The child develops convergent and divergent creativity, which impacts the child's academic development, he will innovate in learning so that he has power in the digital age, artificial intelligence will not replace his place. Wright, (2018) argues that improvisation describes the art or act of creating and carrying out something without prior preparation (spontaneity). In dance, there are many reasons to use improvisation, from creating choreography to just releasing energy and emotions while moving spontaneously. There is a comfortable balance between conscious awareness of the mind and impulsive actions of the body. This balance makes it possible to produce creative movements derived from original thinking.

The results of the study prove that educators or parents need many things in developing children's creativity. Early childhood educators must collaboration and innovation in education. Baruah & Paulus, (2019) review the literature on collaborative creativity in various educational disciplines. They make research-based recommendations on how to promote and enhance collaborative creativity and innovation in educational settings. They also suggest that social relationships play an important role in collaborative creativity involving music among children.

An important idea in this study is that dance in early childhood learning becomes a means of physical activity that involves art in it and is beneficial in developing children's brains. Brain Dance develops more variety by adjusting the needs and characteristics of children. The choreography of Brain Dance extends creativity in different ways, in creating new choreography for Brain Dance it can engage children with the idea of spontaneity, choreography that interests children. This Brain Dance training activity is

able to improve many skills in the realm of creativity.

4.3. Limitation

There are confounding variables in the study, namely motivation. One might argue that children are aware that trainers are testing them, and therefore show higher motivation in the experimental class. While in studies of creativity training with training and control conditions, observed a decrease in the control group from pretest to posttest (Hoffmann & Russ, 2016). In addition to motivation, it allows a decrease in posttest results since there is no gap between training and posttest, due to fatigue after 1 hours of training. In that case, one can also assume that children's creative performance is lower in the posttest. But still, as the current findings show, children's creative performance improves after training. In addition, future research makes it possible to investigate the long-term effects of the Brain Dance training program. For example, the next measurement is to test children's creativity after a few weeks or months. If the training effect remains significant compared to the pretest, then it shows that short training is effective in improving children's creative thinking skills.

4.4. Conclusion

Overall the findings in this study have shown a significant influence in increasing children's creativity through the Brain Dance training program. Future research may consider investigating the long-term effects of the Brain Dance training program. Current studies may have implications for educational settings. This short and single-session training is not time-consuming or very expensive, which provides the possibility to train children's creativity in the school environment.

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