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The Effect of Music and Motoric Movement Intervention to Increase Attention among Elementary School Students in Semarang Central Java

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Abstract

This study was done to determine the effect of the music and motoric movement as an intervention to increase attention among third grader elementary school in Semarang. Quasi Experimental with nonrandomized pretest-posttest control group design was used to achieve the aim of study. Wechsler Intelligence Scale for Children (WISC) – IV digit span sub-test (forward backward) was used to measure students attention. Subjects were divided into three groups, first group was treated with music intervention involved 28 students, second group was treated with music and motoric movement intervention involved 25 students, and 25 students in the control group. The results showed that the attention in group 1 was significantly increased ($MD = -1321, p < 0.05$), in group 2 was not significantly increased ($MD = -0280; p > 0.05$), while subject in control group experienced with decreased attention ($MD = -0443, p < 0.05$). Music intervention could increase attention by 11.7 %, music and motoric movement intervention only increased attention by 0.5 %, and subjects experienced a significant decrease by 13 % in control group. This finding is strikingly unique and perhaps will promote the notion that “two heads are not always better than one”, but clearly better than nothing.

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1. Introduction

In the current era of technology, children who live in big cities are threatened by the decreasing attention caused by overstimulation. The number of visual and auditory exposures are suspected to have the potential to lowering children's attention, ranging from television [1], games, and internet.

The ability to concentrate is one of the important factors that may affect student success in learning. Concentration is the ability to be able to devote attention for relatively long time. A Child is said to be able to concentrate if they can pay attention to what they are learning [2]. When someone says they cannot pay attention, it usually means that they cannot stay focus on one thing as long as needed. Attention will increases one's understanding of something being learned [3].

Processes occurring within the attention is an information management process. Information management process is when the child receiving new information through recording the senses (sensory registers) of sight, hearing, touch, smell and taste. After it emerges, the interpretation of the mind will be influenced by attention. The information has already been through lack of attention in the form of inference that stored in short-term memory and repetition which then conducted in-depth processing (linking new information with existing information) until the long-term memory, then that information will be issued (recalled) at any time.

During information management processing (insert new information), children's attention becomes very important. When the child's attention does not exist at that time, then the information cannot be memorized and cannot be recalled. Some ways to gain children's attention are using attractive stimulus (color, large size, use all five senses), putting pressure upon the information entered, and using attractive games before or at the time when stimulus was given [4].

Optimal learning from environment which needed to consider are sound, lighting and temperature, as well as aroma. Several studies have been conducted showing that the study while listening to music will increase the attention of some students [5,6]. Wiebe [7] found that by listening to his favorite music, a teenager who was diagnosed with attention deficit hyperactivity disorder (ADHD) has been, able to increase her attention to learn at school, or while doing homework, improving the ability to recall information, foster a positive attitude toward school work.

Music is entertaining, fostering an atmosphere of fun and exciting for a child. This provides positive supports for children in carrying out their activities [8]. Music refers to a specific combination of voice attribute, divided into six elements, i.e. rhythm, melody, harmony, timbre, dynamics, and form [9]. The use of music in a psychological intervention has been going on since 40 years and able to provide psychological change [10]. Musical activities potentially improving the brain works, interests, activities, social behavior and learning, can loosen the tension, regulate behavior and express motoric movements. Music directly processed through the limbic system (amygdala, thalamus, cerebral hypothalamus, hippocampus). Through the hearing system, sound go into the brain, triggering motoric movemental factors that encourage motivation and willingness to make a choice and make a new sensory pattern [11].

Music intervention will effects in the production of alpha brain waves in children, thus explained that the effect of listening to music in the improving short-term memory, reduce confusion and improving the process of information [12]. Children are more easy to give a physical response to the rhythm of the music, even the relatively spontaneous responses and tend to freely move the body and limbs. Motoric movements which are performed by children has a role in strengthening memory function, helps control and develop self-awareness. Motoric movement according to music can also reduce negative emotion into positive change. If the child is able to control themselves, then the child will be able to focus in learning activities in a longer time. The results of research conducted by Rusmawati&Dewi[13], indicate that the intervention of music and motoric movement in children with ADHD may reduce the frequency of behavior difficulties in elementary school students.

In this study there are hypotheses as follows: a) There is an increase of attention in the experimental group (music group, music and movement group) after a given intervention, b) The music and movement group increase their attention compared to the control group, c) The music group increase their attention compared to the control group.

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