

# EFFECTIVENESS OF INTERVENTION USING COLLAGE GAMES IN INCREASING CONCENTRATION IN CHILDREN WITH INTELLECTUAL DEVELOPMENTAL DISORDERS

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## ABSTRACT

Children with Intellectual or Developmental Disabilities (IDD) may experience difficulties in concentration due to several factors such as attention disorders, cognitive limitations, sensory barriers, weak executive skills, and comorbid health conditions. Attention disorders such as ADHD, intellectual limitations, sensitivity to sensory stimuli, and impaired executive skills can make it difficult for children with IDD to maintain focus on certain tasks. Researchers used intervention with collage games to increase concentration in children with intellectual developmental disorders. This research was conducted on one of the children as a research subject who had below average intelligence as indicated by an intelligence level below average in the mild category, the child experienced language disorders but was still able to master it for daily speaking and two-way communication, level development is slightly slower than normal size. The type of research used by researchers is a single subject experiment to find out how much influence a treatment given to one subject has. The design used is Design A-B-A. The treatment given to subjects in this research was a collage game to increase the concentration of children with intellectual developmental disorders. The results of data analysis showed a significant increase of 4.2% in the subject's concentration ability after implementing the intervention. Even though there was a decrease in concentration values during the intervention, the concentration values increased again at the second baseline. This shows that collage games have the potential to be an effective method for improving the concentration of children with intellectual development disorders. It takes time and consistent frequency in implementing collage games to achieve significant and consistent changes in increased concentration.

**Keywords:** Intellectual or Developmental Disabilities (IDD), Collage Game, Concentration.

## INTRODUCTION

The onset of these intellectual and adaptive functioning deficits occurs during the individual's developmental period, which lasts from birth to age 18 years. With the criteria mentioned, only less than 3% of the population can be categorized as having intellectual development disorders (Baragash et al., 2020). Intellectual disability (ID) is a condition characterized by incomplete or stopped mental development, which is generally characterized by a decrease in cognitive functions at each stage of development, which impacts various aspects of intelligence such as cognitive, language, motor and socialization (Hutchins & Prelock, 2014). In this condition, individual adaptation to the environment is also affected. According to the American Association on Intellectual and Developmental Disabilities (AAIDD), Intellectual Developmental Disorder is characterized by a decline in intellectual functioning below the age average, as well as limitations in two or more areas of adaptive skills, which appear before the age of 18 years.

Children with Intellectual or Developmental Disabilities (IDD) may experience difficulties in concentration due to several factors such as attention disorders, cognitive limitations, sensory barriers, weak executive skills, and comorbid health conditions. Attention disorders such as ADHD, intellectual limitations, sensitivity to sensory stimuli, and impaired executive skills can make it difficult for children with IDD to maintain focus on certain tasks. Apart from that, comorbid health conditions such as sleep disorders can also affect their concentration levels. With an in-depth understanding of these factors, a comprehensive approach to providing support to children with IDD in improving their concentration can be implemented to help them reach their optimal potential.

The factors that cause clinical or biological type of intellectual developmental disorder can be divided into three parts, including (Louis & Charmaine, 2021):

1. First, prenatal causes are chromosomal abnormalities, genetic abnormalities, metabolic disorders, dysmorphic syndrome, intrauterine infections and intoxication. Other examples include poor health conditions in the mother, infection of the mother with teratogenic organisms, high doses of radiation, and use of certain drugs or medications during pregnancy.
2. Second, perinatal causal factors include prematurity, asphyxia, kernicterus, hypoglycemia, meningitis, hydrocephalus, and intraventricular hemorrhage. Additional risk factors include low birth weight, delivery complications, neonatal asphyxia, perinatal infections, as well as congenital abnormalities in newborns.
3. Postnatal causes are infection (meningitis, encephalitis), trauma, prolonged seizures, intoxication (lead, mercury). All of these factors can contribute to the development of IDD in children, and a thorough understanding of these is important for proper diagnosis and management.

According to (Louis & Charmaine, 2021), Intellectual Developmental Disorder (IDD) can be caused by factors that occur before birth (prenatal), at birth (perinatal), or after birth (postnatal). Prenatal causes of IDD include poor maternal health conditions, maternal infection by teratogenic organisms such as rubella, cytomegalovirus, varicella, zika, toxoplasmosis, exposure to high doses of radiation, and use of certain drugs during pregnancy such as antimetabolites, warfarin, anticonvulsants, isotretinoin, tobacco, alcohol, and others. Perinatal risk factors for IDD include low birth weight, prematurity, birth complications, neonatal asphyxia, perinatal infections, multiple congenital abnormalities in newborns, infections in infants such as: herpes, meningitis, neonatal sepsis, and microcephaly, hydrocephalus, schizencephaly, and birth defects. other major congenital defects such as diaphragmatic hernia or complex congenital heart defects. (Yash & Singh, 2013). Meanwhile, causes of IDD from the postnatal environment include serious infections, meningitis, exposure to environmental toxins, traumatic brain injury, and degenerative nervous system disorders in adulthood such as Parkinson's, Alzheimer's, Huntington's, and other disorders. A thorough understanding of these factors is important for early diagnosis and appropriate management of individuals with IDD. Collage games as an art activity that involves combining various different materials or objects to create new works of art, provide an opportunity for those with IDD to express their creativity and imagination through a creative and meaningful collage process (Louis & Charmaine, 2021).

Thus, through a deep understanding of these factors, practitioners and caregivers can use collage games as a tool to stimulate creative and imaginative expression in individuals with IDD, as well as assist in their early diagnosis and appropriate management. (Moore-Dean et al., 2016). In collage, various materials such as pieces of paper, photos, cloth, stickers, or other materials are rearranged and attached to media such as paper, canvas, or other materials

(Vereenooghe et al., 2017a). The collage process allows one to combine many different visual elements and create unique and interesting works of art.

In the context of individuals experiencing Intellectual Developmental Disorder (IDD), an in-depth understanding of the factors that cause IDD is very important to carry out early diagnosis and provide appropriate management (Yash & Singh, 2013). Factors such as prenatal and perinatal conditions mentioned previously can provide guidance for practitioners and caregivers in responding holistically to the needs of individuals with IDD. Organizing collage games as an art activity can be an effective means of stimulating creative and imaginative expression in individuals with IDD (Louis & Charmaine, 2021). Through a collage process that involves combining various materials or objects such as pieces of paper, photos, fabric, stickers, or other materials, individuals with IDD can express themselves in unique and meaningful ways. This process allows them to hone their visual-spatial skills, creativity, and sensory processing abilities (Baragash et al., 2020). Thus, the use of collage play not only facilitates artistic expression, but can also be a valuable tool in aiding early diagnosis, appropriate management, and improvement of quality of life for individuals with IDD. References from Moore-Dean et al. (2016) and Vereenooghe et al. (2017a) support the importance of this approach in supporting the development of individuals with IDD.

In collage art, creativity plays a key role in creating unique and interesting works. The process begins with selecting various materials, ranging from pieces of paper, photos, fabric, to recycled materials. Once the materials are selected, the next step is to cut the materials according to the desired shape and size. Then, with great care, the materials are arranged and glued to the chosen media (Qian et al., 2020). Experimenting with various arrangements and compositions is an integral part of creating interesting collage works. The collage process is not just about randomly arranging materials, but also involves an artistic touch and imagination. Additional details such as painting, decoration, or texture can be added to enrich the collage work (Vereenooghe et al., 2017a). By bringing together different elements, collage creates a unique and compelling visual harmony. Apart from that, the collage process can also be done traditionally by hand using physical materials, or digitally with the help of graphic design software. Collage games, a person can not only express his creativity, but also develop artistic and imaginative abilities. Each collage work is a reflection of each individual's imagination and uniqueness, making it an interesting and engaging art form (Alverson et al., 2019a). Collage games can be a form of intervention or activity that is beneficial for children with IDD, so that it can be related to the development of children with IDD, including (Nader-Grosbois et al., 2013):

1. Material Selection

The process of selecting materials to use in a collage can help children practice decision making and problem solving, which in turn strengthens their concentration.

2. Creative Process

Putting together and designing a collage requires planning and organized thinking. Through this process, children learn to organize their ideas and follow certain steps, which can help improve their concentration endurance.

3. Time Provided

Allowing sufficient time to complete the collage allows children with IDD to focus on their assignments without excessive time pressure. This helps them to learn to manage their time and concentrate more effectively.

Collage games can have a variety of positive impacts on the development of children with Intellectual Developmental Disorders (IDD). The following are some details regarding these impacts (Bumble et al., 2019):

1. Expression of Creativity  
Collage games give children with IDD the opportunity to express their creativity through art. They can explore various materials and colors, and create unique works of art according to their imagination.
2. Improved Fine Motor Skills  
The process of cutting, arranging and gluing materials in collage games can help improve children's fine motor skills. This is important for the development of hand-eye coordination and fine muscle strength.
3. Cognitive Stimulation  
Through collage games, children with IDD can stimulate their cognitive abilities, such as problem solving, pattern recognition, and understanding spatial concepts. The process of looking for patterns, arranging elements, and making creative decisions can help train their brains.
4. Increased Independence and Self-Confidence  
Through collage games, children can feel appreciated for their abilities and creativity. This can increase their sense of independence and self-confidence when they see the art they have created.
5. Increased Social Interaction  
Collage games can be a fun activity for children with IDD, so they can increase their motivation to interact socially with other people. Through collaboration in creating works of art, children can learn to cooperate and communicate with other people.

Based on the reality in the field obtained from the results of observation activities and reinforced by the results of previous interviews conducted by researchers, the researchers found that one of the children with developmental disabilities experienced problems in the learning process in the learning process. Based on complaints from parents and teachers, it was said that the subject had problems concentrating, especially in paying attention to school assignments, listening to assignments given by the school. Problems also exist in responsible behavior so it is necessary to concentrate to focus on school work such as homework, art requirements brought to school, and writing assignments. Another problem is lack of focus in reading. When you read the subject you are not careful, so one letter is not read. Eyes are easily distracted by other activities. In classroom situations, teachers have difficulty helping subjects to focus their attention. Based on parental complaints, teacher information and identification of problems, a temporary suspicion can be obtained that Cubjek has a developmental disorder, with a temporary diagnosis of Intellectual Disabilities Disorder with concentration problems and epilepsy.

Researchers used intervention with collage games to increase concentration in children with intellectual developmental disorders. This research was conducted on one of the children as research subjects who had below average intelligence as indicated by a below average intelligence level in the mild category, the child experienced language problems but was still able to master it for daily speaking and two-way communication.) , the rate of development is slightly slower than normal size. The main difficulties are usually seen in academic school work, lack of focus in paying attention to lessons and many have problems in reading and writing.

Previous research conducted (Alverson et al., 2019b) states that youth with disabilities are less likely to enroll in and complete higher education than their non-disabled peers. Using a qualitative, cross-case design, we investigated the high school to college transition experiences of young adults diagnosed with Asperger syndrome (AS). Data sources included family

questionnaires, special education record reviews, and multiple individual interviews (N = 27) with young adults with AS, family members, teachers, and rehabilitation counselors. Social, communication, and executive functional skills challenges in middle school continue into higher education settings. Across cases, five recurring themes appeared to influence the transition from high school to higher education: (a) motivation to attend college, (b) high levels of disability awareness, (c) intentional family support, (d) coordinated transition planning, and (e) clear post-school goals.

Previous research conducted (Vereenoghe et al., 2017b) discussed that digital media has increased the accessibility of psychological therapy for the general population, but not for people with intellectual disabilities (ID), even though their mental health needs are greater. This study explores and compares the views of service users and clinics regarding how computers can be integrated in psychological therapy for people with ID who are traditionally underrepresented in mainstream services. We conducted in-depth, unstructured interviews with three clinics that had experience working with people with ID and with three adults with ID who had undergone computerized training in cognitive behavioral therapy skills. The interviews explored a) potential functions and benefits, b) anticipated challenges and barriers, and c) required design features of computers in therapy for people with ID through inductive coding to identify independent themes in clinic and service user responses, and then comparing themes that emerge between two groups of participants to reach a common theme. Six common themes emerged from service and clinic user responses: confidentiality of personal information and online applications, barriers to communication with therapists, value of therapists and personal contact, access to computer technology, potential involvement of computer programs, and home practice. Three additional themes were specific to clinic responses: patient suitability for computerized approaches, clinic distrust of computerized interventions, and involving third parties. Computer technology opens up possibilities for psychological therapy with people with ID by helping them overcome communication difficulties during sessions and practice skills at home. On-screen graphics, interactive games, symbols, sign language, and touch screens are key design features to aid engagement. The main challenge was the difficulty reported by clinics in their capacity and ability to access and use computers and in adapting computers to their self-defined roles.

In the context of the abilities of children with Intellectual Developmental Disorders (IDD), collage games can be an effective method for improving various aspects of their development. Through these activities, children with IDD have the opportunity to develop fine motor skills, improve understanding of spatial concepts, and practice critical thinking skills. At each stage of the collage game, children learn to recognize patterns, understand spatial concepts, and stimulate their brains to think creatively. By carefully selecting, arranging and attaching various materials, they not only create unique works of art, but also stimulate their latent creative potential.

The collage play process is not just a series of ordinary art activities, but rather a journey of exploration into the hidden potential of children with IDD. Through each piece of paper chosen and attached with enthusiasm, children are able to develop their fine motor skills, strengthen cognitive abilities, and increase self-confidence. Thus, collage play becomes an important tool in the holistic development of children with IDD. This activity not only allows them to express themselves creatively, but also helps them discover the magic behind each piece of material they choose. Through this process, children with IDD can dance with the colors of their imagination, reveal their uniqueness and strengths, and expand the limits of their abilities as a whole.



## METHOD

Experimental research is a scientific research method designed to test causal hypotheses about cause-and-effect relationships between certain variables. In this research, researchers manipulate one or more independent variables to see their impact on the dependent variable (Yash & Singh, 2013). The type of research used by researchers is a single subject experiment to find out how much influence a treatment given to one subject has. The design used is Design A-B-A. The treatment given to subjects in this research was a collage game to increase the concentration of children with intellectual developmental disorders.

The instrument used was a check list regarding the frequency of concentration by therapy graduates with a bachelor's degree in psychology, which was filled in based on observations and interviews with parents. The instrument is filled for seven days with a duration of three hours per day. Data analysis for this research was carried out using graphic analysis based on concentration frequency percentage data. Using this measuring instrument involves several steps, including:

1. Direct Observation

The therapist will observe the subject during the intervention session, whether coloring ball pictures, playing collage, or returning to coloring.

2. Recording Concentration Frequency

The therapist will record the subject's frequency of concentration every five seconds, noting whether the subject can concentrate while performing the requested activity (for example, removing and attaching stickers while playing with collage).

3. Interview with Parents

In addition to direct observation, the therapist can also conduct interviews with the subject's parents to obtain additional information about the subject's concentration patterns outside of the intervention session.

The instrument is filled in for seven days with a duration of three hours per day, where the therapist will consistently record the frequency of the subject's concentration in a checklist based on the observations made. The collected data was then analyzed graphically to see trends in changes in the subject's concentration from the first baseline, intervention, to the second baseline.

## RESULTS AND DISCUSSION

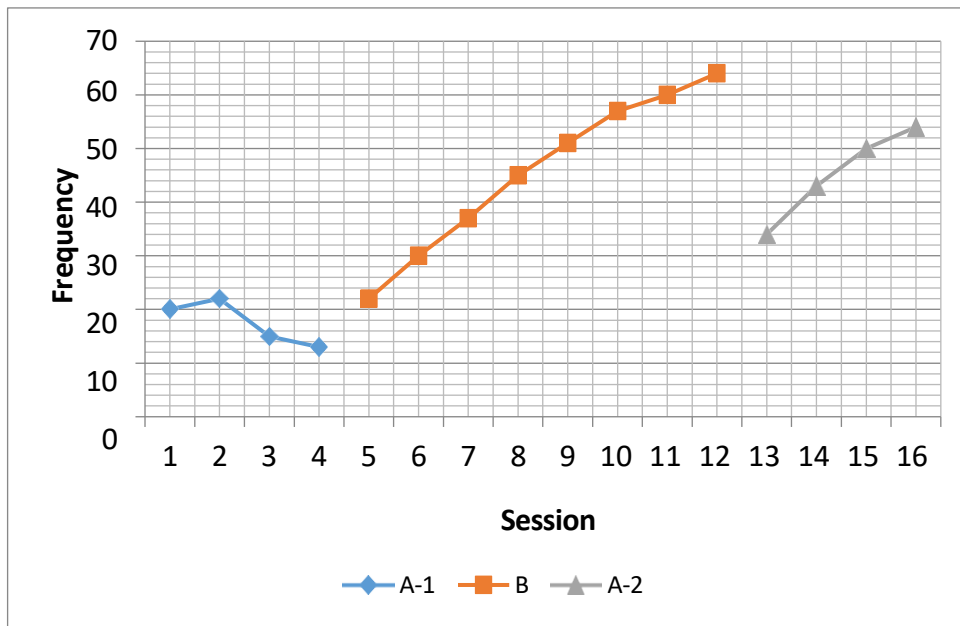
### Child Development History

During pregnancy, the subject mother did not experience any problems and the birth process went smoothly through normal procedures. The subject was born with a weight of 3.2 kg and a length of 48 cm. Subjects received breast milk nutrition from birth until 2 months, then switched to formula milk until the age of 2 years. The transition from liquid to solid foods is smooth, and the child's feeding schedule is regular. Subjects showed good motor development, from sitting (5 months) to scissoring and swinging (8 years). The subject's socialization and behavior at home looks good, but sometimes he tends to want to win by himself when playing. The subject's medical history recorded an incident of a blow to the head at the age of 3 years and then experiencing a febrile seizure at the age of 4 years, which was finally diagnosed as an epileptic disorder. Although rare, epileptic seizures usually occur when the subject feels hungry, tired, or sick, with a frequency of perhaps twice a year. The subject's educational history includes entering a Play Group school at the age of 3.5 years until finally moving from school to Kanisius Cabean Elementary School (grade 4). Subjects face difficulties in concentrating at school, which is reflected in incomplete assignments and lack of attention

during lessons. The data that has been obtained regarding the subject's ability to concentrate in the baseline, intervention and post-intervention phases is depicted in a graph.

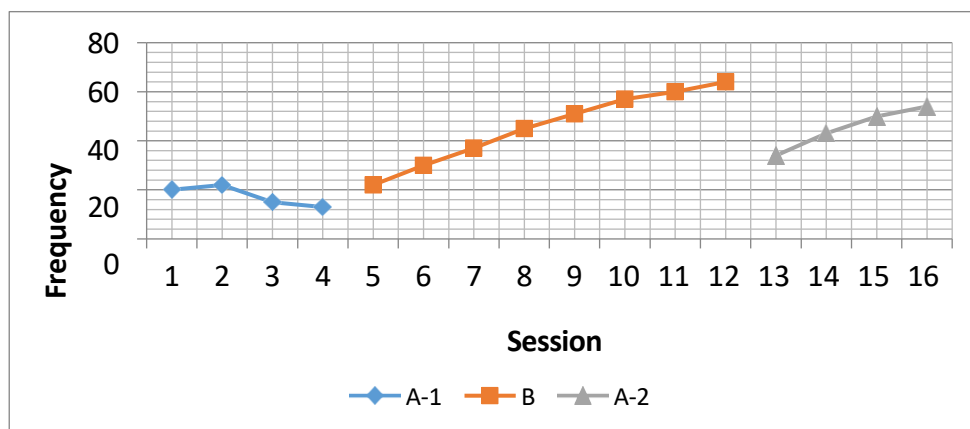
**Graph 1.**  
**Intervention Results Subject's Concentration Ability Before Intervention**

Subject	Baseline-1 (A-1)	Intervention B	Baseline-2 (A-2)
K	20 22 15 13	22 30 37 45 51 57 60 64	34 43 50 54



The data that has been obtained regarding the subject's ability to concentrate in the baseline, intervention and post-intervention phases is depicted in a graph.

**Graph 2.**  
**Intervention Results Subject's Concentration Ability After Intervention**



Based on the research results presented, it appears that intervention using collage games has a positive impact on the concentration of children with intellectual developmental disorders. Analysis of the data showed that there was an increase in the subject's ability to concentrate by

4.2% from the first baseline (A-1) to the second baseline (A-2). This indicates that the use of collage games as an effective intervention medium in increasing the child's concentration. Furthermore, from the percentage calculation results, it can be seen that there was a decrease in the concentration value when intervention (B) was implemented, but the concentration value increased again at the second baseline (A-2). This shows that there is a positive change in the subject's concentration ability after using the collage game as an intervention.

In terms of time, it appears that to achieve significant and constant changes in increasing concentration, longer time and consistent frequency in the application of collage games are needed. Therefore, it can be concluded that collage games have the potential to be an effective method for increasing the concentration of children with intellectual developmental disorders. Collage games have the potential to be an effective method for increasing the concentration of children with intellectual developmental disorders, but it requires a longer time and consistent frequency in implementation so that significant and constant changes in increasing concentration can be achieved. This emphasizes the importance of consistency and patience in using collage game interventions to improve the concentration abilities of children who experience intellectual developmental disorders.

In the context of learning theory, the results of this research support the concept that the use of creative activities such as collage games can stimulate cognitive functions, including concentration, in children with intellectual developmental disorders. Developmental psychology theories also highlight the importance of interventions that are fun and oriented to individual needs, so that collage games as an interesting form of intervention can increase children's motivation and participation in the learning process. Previous research conducted (Alverson et al., 2019b) states that youth with disabilities are less likely to enroll in and complete higher education than their non-disabled peers. Using a qualitative, cross-case design, we investigated the high school to college transition experiences of young adults diagnosed with Asperger syndrome (AS). Data sources included family questionnaires, special education record reviews, and multiple individual interviews (N=27) with young adults with AS, family members, teachers, and rehabilitation counselors. Social, communication, and executive functional skills challenges in middle school continue into higher education settings. Across cases, five recurring themes appeared to influence the transition from high school to higher education: (a) motivation to attend college, (b) high levels of disability awareness, (c) intentional family support, (d) coordinated transition planning, and (e) clear post-school goals. In terms of time, the emphasis on consistency and patience in implementing collage play interventions also supports learning theories that highlight the importance of repetition and repeated practice in habit formation and behavior change. Thus, the results of this study provide additional contributions to our understanding of how activity-based interventions such as collage games can provide positive benefits in increasing the concentration of children with intellectual developmental disorders gradually and consistently.

## CONCLUSION

This study highlights the effectiveness of interventions using collage games in improving the concentration of children with intellectual development disorders. The results of data analysis showed a significant increase of 4.2% in the subject's concentration ability after implementing the intervention. Even though there was a decrease in concentration values during the intervention, the concentration values increased again at the second baseline. This shows that collage games have the potential to be an effective method for improving the concentration of children with intellectual development disorders. It takes time and consistent frequency in implementing collage games to achieve significant and consistent changes in increased



concentration. Consistency and patience in using collage game intervention are key factors in improving the concentration ability of children who experience intellectual development disorders. This research provides a strong scientific basis for recommending the use of collage games as an effective intervention method in improving the concentration of children with intellectual development disorders.

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