

Photography and Visual Diary: Participatory Visual Research for Creating Educational Toys That Enhance Social Skills in Children With Disabilities

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Abstract

Intervention in education regarding social relations, especially understanding profiles and role tasks within the family, becomes a fundamental social issue experienced by children with mental and intellectual disabilities. Due to their limitations in communication and interaction with others, these children find it challenging to comprehend the complexity of social relations within the family. Educational toys are a fun learning medium, and with their holistic approach, they can improve children's motor, sensory, and creative skills. In designing educational toys, it is essential for researchers to collaborate with parents, companions, and children as key stakeholders. Researchers use the method of participatory visual research (PVR), specifically photograph diaries and visual diaries, to understand the thoughts, feelings, and perspectives of children with mental and intellectual disabilities that cannot be conveyed through words. The research team consisted of 6 people who collaborated with 12 children with intellectual disabilities, 12 parent representatives, and 4 accompanying teachers at the elementary school level at Ulaka Special School, South Jakarta. In its implementation, photographic diaries and visual diaries were distributed to teachers' companions at school, which will be filled by the child and assisted by the parents for 1 week. The results of the photographic diary and visual diary were analyzed using thematic analysis, which generated insight for educational toys. This research shows that the PVR method is effective in providing deep insight into creating educational solutions that meet user needs.

Keywords: Photography Diary, Visual Diary, Educational Toys, Disabilitas Intellectual, Children

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Introduction

The American Association on Intellectual and Developmental Disabilities (AAIDD) states that children with intellectual and developmental disabilities (ID) have limited intellectual functioning and adaptive behavioral characteristics in conceptual, social and practical skills seen from the age before 22 years of age (Benitez et. al., 2020; AAIDD_CMS, 2024). Interpersonal skills are a challenge in themselves for children with ID (Freitas, L. & Del Prette, Z. A., 2010). With the involvement of ID, Social Skills (SS) disorders were seen to be greater compared to children with autism, ADHD and related to behavioral problems such as anxiety, withdrawal and social isolation (Freitas & Del Prette, 2013). SS is needed in childhood to create harmonious relationships with parents, peers and for a successful transition in adulthood and work (Del Prette & Del Prette, 2013). SS is a protective factor in behavioral problems, allowing children to interact better with family members, teachers and peers, for social development and problem-solving (Bolsoni-Silva et al., 2011; Del Prette & Del Prette, 2013). On the other hand, if children have difficulties in SS, it will cause long-term negative consequences, such as disability in social interactions, psychological stress and decreased quality of life (Del Prette & Del Prette, 2013). Dmitrieva et al (2020) in their study showed that preschool children with disabilities, including ID, lack systemic social competence. According to Garrote (2017) identified that ID children have lower SS compared to children without disabilities related to social Pro-behavior, cooperative, leadership, boundary setting, and social participation. The journey of understanding social relations can start from the smallest environment, namely the family, especially understanding the profile and duties of roles in the family.

Given the importance of SS for ID children, the role of educators is very important, both parents, teachers and other accompanying agents. Del Prette and Del Prette (2008) describe 4 categories that can develop SS from ID children, such as the category 'Building an interactive context that has the potential to educate', such as regulating the physical environment, organizing the material; the category 'Transmitting or exposing SS content', such as paraphrasing; category 'Establishing boundaries and disciplines such as describing unwanted and desirable behavior', organize negotiations; and finally the 'Positive monitoring' category which involves praise, encouragement and empathy. An effective learning model to improve children's SS with their environment, especially starting from social relations with the family, can use educational toys which include development that prioritizes a structured and iterative approach, given in a planned and directed manner using clear instructions and support from teachers and companions (Satria et. al., 2023) Educational toys are important for children's development, as they contribute positively to the cognitive, physical, social, and emotional systems, and provide opportunities for companions to engage directly with children. (Healey & Mendelsohn, 2018). In addition, educational toys can be adjusted to the individual needs of children, in terms of speech, motor, social interaction or cognitive development skills. (Leonard & Hill, 2014). Toys can adapt to a child's specific developmental stage or learning difficulties. With toys, children can explore their senses. Through sensory (sight, touch, sound) to help children explore their environment and regulate their sensory input. For children with sensory processing difficulties, these toys are helpful in creating a calm and stimulating learning experience (Guha & Murthy, 2018; Healey & Mendelsohn, 2018).

Considering that SS learning is very important for ID children, this study aims to design an educational toy that can help ID children in building SS, and understand social roles in the family.

Method

This study uses a qualitative approach using participatory visual research (PVR), especially Photography and Visual Diary. The research team consisted of 6 people who collaborated with 14 ID children, 14 pairs of parents, and 4 accompanying teachers at SLB Ulaka Penca, South Jakarta, who were 7 to 14 years old equivalent to grades 1-6 of elementary school. In this study, the researcher was assisted by the school to collect data with Photography and Visual Diary.

At the time of its implementation, Photography and Visual Diary were made in 1 A4 size book of 32 pages including the book cover, to make it easier for participants to fill in. The Photography and Visual Diary is distributed through teachers at school, which will be filled out by parents for 1 week every day from Saturday to Sunday, the next week.

In the photography and visual diary, it is entitled "Me and My Family" which is expected to describe the social relationship between ID children and their nuclear family, namely Father, Mother, Brother and Sister. In the photography and visual diary, it contains activities that can be completed by parents after discussing with ID children, based on the AEIOU approach, where A (activities) how the child's daily activities are; E (environment) how the environment can affect children's behavior and interactions and vice versa, I (Individual) is a child who has emotions (happy, sad, disappointed), needs and behaviors, O (Object) how objects interact with children and vice versa; and U (understanding) in the context of the relationship between children, activities, objects and the environment in which the relationship takes place (Chen et. al., 2012). This approach is needed to learn the attitude of 'empathy' and 'reflection' in action, to collect data that has the potential to identify opportunities and needs of users and evaluate every decision made in the design process of Schon, D. A. (1983).

In the photography diary, parents are asked to take photos of their children's daily activities and stick them on the 'My Daily Photos' sheet and tell about what activities are carried out, when the activities take place, how long, where the activities occur, with whom, how they express themselves during the activity, whether there are changes at the beginning and end of the activity and how the child responds during the activity. Every day, his parents were asked to stick 5 photos and tell him, for 7 days in a row.

Visual Diary here parents are asked to fill out an activity sheet with their child to find out the child's understanding of their physique and members of the nuclear family, such as father, mother, brother and sister. Then parents analyze the habits carried out by children which are divided into 3, namely according to 1. the learning style, namely visual, auditory, or kinesthetic; 2. The 9 types of intelligence according to Gardner; and 3. Bloom's taxonomy is affective, motor and cognitive. After that, parents are played to fill their children's daily activities from 5 am to 12 pm for 7 consecutive days.

The results of the photography and visual diary were analyzed using Thematic Analysis, to identify patterns in qualitative data and report them as themes produced by researcher Lochmiller, C. (2021).

Result and Discussion

The results of the Photography Diary are obtained as follows:

1. Routine and Structured Activities
 - a. Description of Daily Activities: from the photos, it can be seen that the daily activities carried out by children such as playtime, homework time, wake-up time and night sleep time, occur regularly and structured, so as to provide stability and order for children.
 - b. Activities that provide happiness: many photos depict moments of happiness for children, such as playing with friends, participating in dance events, coloring. This indicates that elements of creativity and social interaction play an important role in children's emotions.
2. Social Interaction and Family Relationships
 - a. Togetherness with Family: many photos depict children being together with family and siblings, such as playing with older siblings or parents in the park. This shows the importance of social and emotional support from the family, and creates a strong bond with the family so that the child feels comfortable carrying out daily activities.
 - b. Relationships with Friends and Teachers: In addition to Family, interactions with friends and teachers are also seen in photos, for example when children are in class doing activities with classmates and teachers. This shows the role of the school environment as a social space for children.
3. New Development and Abilities
 - a. New Achievements and Abilities: some photos show when children play new skills, such as playing an angklung musical instrument or participating in a new sport. This shows that ID children can be able to develop their talents by trying new things, where success in this activity builds children's confidence and motivation. Physical activity can also improve children's social and physical skills.
 - b. Response to Challenges: some photos show where the child faces challenges such as adapting to the child's discomfort, such as cleaning the room, sweeping the yard, etc. This shows the resilience and adaptive abilities of children, as well as the active role of parents and teachers in supporting them when facing obstacles.
4. Emotional Expression and Self-Regulation
 - a. Positive Emotional Expressions: many photos depict children looking happy, such as smiling, laughing, playing in the water, or riding a swing in the park, as well as when with family. This shows that fun activities and positive interactions are very important in supporting children's emotions. Children are also happy when they receive positive attention from family members and surroundings.
 - b. Overcoming Negative Feelings: on the other hand, there are also photos that show sadness because of their unfulfilled desires or dislike of the rules at home or at school. In this case, the role of parents is very important in helping children calm down and directing to calming activities.
5. Independence and Participation in Activities
 - a. Initiative and Independence: Many photos illustrate that children can also be independent, by doing their own daily activities such as eating by themselves, wearing their own clothes, helping their mother cook. This shows the process of developing independence and the initiative of children to carry out their own activities with minimal support.
 - b. Involvement in Classroom or School Activities: photos of children doing activities such as dancing, group learning, drawing, showing the role of the

school environment in social skills with group activities to support cooperation and active engagement.

The conclusion of this analysis is that the daily life of children has shown a structured routine that can help children to stabilize children's emotions, supported by the presence of family, friends and teachers to help social interactions that support children's SS and emotional development. Activities involving the family strengthen emotional bonds, while school interactions help children learn to work together and SS.

The achievement of new skills by children builds confidence and motivation. The ability to express positive emotions and manage negative feelings through parental assistance shows a supportive environment to support children's emotional regulation. Overall, these findings demonstrate the need for educational toys designed to support routine, social interaction, creativity, emotion regulation, and self-development for children with ID.

As for the visual diary, because there are more parents' views on their children, here are the results of the analysis:

1. Parents' Observations on Happiness. Parents often tell how children look happy in familiar daily activities. For example, one parent recounted, "My child is happy to play in the park and meet his friends," which shows the importance of social interaction in a safe and familiar environment. Another example reads, "I am very happy when I participate in angklung lessons at school," where parents observe their children's happiness when participating in structured and inclusive activities.
2. Parents' Views on Grief and Challenges. On the contrary, sadness is often seen from the wishes of children that are not fulfilled. For example, one parent mentioned, "the child feels sad because he can't go for a walk when mom is away," which shows the emotional bond of the child to always be close to the family. Another note stated, "sad when friends don't want to play together," indicating the child's desire to have social relations and parents' awareness of how interaction with friends can affect children's emotions.
3. Frustration and Regulatory Strategy. Moments of frustration often arise, especially when routines are disrupted. For example, one parent wrote, "the child gets upset when he is not allowed to play outside during the day," which reflects the child's frustration with the limits. Parents often note solutions to these situations, such as "the solution is to distract attention to other activities such as drawing or listening to music." This note shows the dedication of parents to help children cope with this frustration by providing comfortable alternative activities for the child.
4. Family and Social Dynamics. Family is the main aspect of a child's emotions, notes about moments of togetherness with family become a positive experience for children. One of the notes reads, "it's great to be able to accompany mom and dad to the park, making the child feel closer," which shows the importance of togetherness activities. Similarly, parents often record moments of playing with siblings or family gatherings, such as "the child is very happy when he can play with his brother in the morning." These notes reflect parents' understanding of the value of family time for children's social emotions.
5. Adaptive Response and Growth. Parents play an important role in helping children manage their emotions, especially when they are disappointed, angry and stressed. They show dedication in teaching adaptability. For example, one parent observed, "when the child is disappointed because he can't buy ice cream, I gently explain it and invite him to another activity," which shows a subtle diversion strategy. Another

example is "the solution is to try to be patient and try to understand the rules that apply at home or at school," which shows the efforts of parents in building patience and understanding.

The conclusion of this analysis shows that emotional stability and the creation of positive emotions come from familiar, structured, and together activities with the people closest to them such as family. On the other hand, emotional challenges arise when children's expectations are not met or their routines are disrupted. This record also shows the dedication of parents in building the adaptive ability and independence of ID children and the importance of providing an environment that supports the emotional and social development of children holistically. This shows the embrace of educational toys that can strengthen emotional regulation, promote happiness and facilitate social interaction.

In addition to thematic analysis, the author conducts behavioral observation analysis, to provide an overview based on general behavior, activities followed, emotional responses and children's preferences in their daily lives. The following are the results of the analysis of behavioral observations and their implications for educational toys:

1. Ability to Remember Notes and Music
In daily habits, it can be seen that 10 out of 14 children have an easier time remembering notes and music. This suggests that more than half of children are more responsive to auditory stimuli than to visual or verbal instructions. These findings could be used to design toys or activities that involve music or tunes to attract their attention.
2. Fun of Playing Outdoors
Most children love outdoor play. This suggests that outdoor environments and physical activity may be more appealing to them, so it's important to consider outdoor activities in the creation of educational toys.
3. Response to Calls
Four children were seen not responding when called, indicating a challenge in interaction or focus. This aspect can be a consideration in making tools that can attract children's attention in a more effective way, for example through sound effects or attractive visuals.
4. Preference for Playing Alone
More than half of the children prefer to play alone and only play with siblings for a short time. This is a challenge on how to make children to do social relations more often to help SS.
5. Difficulty Distinguishing Colors and Numbers
Most children have difficulty distinguishing colors and not recognizing numbers. This is an important finding that suggests that games or toys that rely on colors or numbers as key components may need to be designed with other elements that are easier for children to understand.
6. Lack of Compliance with the Rules of the Game
A total of 10 children did not play according to the set rules. This may be due to limitations in understanding the rules or preferences for free play. Flexible toys, which are less structured, may be more suitable for them.
7. Participation in Therapy
Less than half of the children regularly attend therapy. This may affect their adaptive abilities. Therefore, toys designed to support therapy at home can be a useful solution.

8. Short Concentration Range

Children's attention spans are very short, a maximum of 15 minutes per activity, and they are easily distracted. These findings suggest that the toys or activities created should be short, engaging, and able to distract them quickly, such as using interactive features that can change dynamically.

Conclusion

This study illustrates the complexity of understanding the emotional and social development of children with special needs through the lens of parental observation. While parents provide valuable insights, their perspectives are often shaped by personal expectations and societal norms, which can overlook a child's unique emotional experiences. By combining parental input and children's direct expressions, through photographs and visual diaries, a more nuanced and comprehensive understanding of their development can be achieved.

From this study, we found that Participatory Visual Research (PVR) in photography and visual diaries is effective in understanding the social and sensory needs of children with disabilities.

These findings provide a solid basis for designing educational toys that address emotional, social, and cognitive development, i.e. the data shows that the data shows the importance of routines, structures, and social support in their lives. Creative and social activities have been shown to improve these children's happiness and emotional well-being, while changes in routines often trigger frustration. The role of parents as emotional mediators is very important, especially in helping children manage negative feelings and facilitate activities that make them feel more comfortable and confident.

In this study, there are still many shortcomings that are hoped to get maximum results in the future. The suggestions for future research are as follows:

1. Increased Child Participation: Future research should aim to involve children more in the visual diary by allowing them to contribute through their own drawings.
2. Parental Enthusiasm: Most parents showed unexpected high enthusiasm during the process of completing the photography and visual diary, despite the challenges of daily life with children with special needs. Their participation is highly appreciated.
3. Support for Parents: Some parents experienced difficulties with reading and writing, and they received significant assistance from school teachers, highlighting the importance of external support.
4. There are notable biases in how parents document their children's lives, including selection bias, where positive moments are more frequently highlighted, and expectation bias, where parents' hopes for their child's progress shape the narrative. These biases underscore the importance of combining parental observations with the child's own perspective for a more balanced understanding.
5. The findings and interpretations from parental observations and visual diaries must be validated by professional psychologists to ensure accuracy in understanding the emotional and social dynamics of children with special needs.

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