The Smartphone Effects on Kindergarten Children: Analysis of Creativity and Imagination

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ABSTRACT: Smartphones are simple to use, even for kindergarten students. Smartphones include programs that can entice children and help them spend their time wisely. Children who are unrestricted in their use of smartphones by their parents or caretakers are more likely to exhibit negative behaviors. The majority of the literature on children's smartphone use primarily focuses on its negative impacts, however a few also acknowledge its positive aspects. This research is critical because today's children are growing up in an age of technological advancement. This study aims to provide adults, parents, caregivers, and teachers with valuable insights on effectively managing smartphones to foster positivity and creativity in children. This study sought to observe and describe the impact of smartphone use on the creativity and imagination of kindergarten students. This study will utilize descriptive and drawing analysis methods. The participants will consist of twenty-four drawings created by kindergarten children. Twelve of these drawings will be selected as examples for this study. This study demonstrated a beneficial correlation between children's use of smartphones and their creativity and imagination. It is demonstrated by the results of fourteen distinct types of things drawn from twenty-four gathered drawings. This work will make major contributions to fields such as communication, psychology, and education. This study recommends the involvement of adults, parents, family members, caretakers, and teachers in children's everyday lives to encourage and aid them in discovering their potential in order to develop their imagination and creativity.

KEYWORDS: Smartphone, Kindergarten Children, Creativity, Imagination

INTRODUCTION

The usage of smartphones by kindergarten students has a variety of effects, both positive and bad. Smartphones are user-friendly technologies that even children can use. According to the study conducted by Zigh et al. (2020), utilizing smartphones for learning is more captivating and stimulating compared to the conventional classroom setting. In their study, Yadav and Chakraborty (2022) discovered that targeted usage of carefully designed applications for children can contribute to child development. However, excessive smartphone use can have detrimental effects such as sleep difficulties and obesity. The study conducted by Esteraich (2018) suggests that there is a potential divergence in the development of self-control and executive function between boys and girls when exposed to mobile media. These impacts are caused by the level of parental cooperation and supervision in determining which videos or applications their children can access on smartphones, as well as the amount of time allowed for such activities. Parents play crucial and influential roles in shaping the impact of smartphone use on their children, whether it is beneficial or harmful. In their study, Kim et al. (2021) discovered that children who excessively use smartphones are negatively affected when their mothers have a lenient approach towards controlling smartphone usage. However, this research also states that children's social development, cognitive abilities, and emotional well-being are not affected by excessive smartphone use. Nevertheless, von Wyl et al. (2022) assert that there are advantageous outcomes associated with the social conduct of young children who engage with learning apps, as evidenced by an experimental case study.

Video or programs that are designed to educate will guide youngsters towards enhanced creativity and imagination by teaching them about many subjects such as the environment, colors, fruits, animals, and other beneficial content. The study conducted by Vepsäläinen et al. (2022) demonstrated a significant improvement in children's acceptance of fruits and vegetables through the use of their mobile application, Mole's Veggie Adventures. Previous studies have shown that older children can engage in civic acts to help their classmates address bullying by participating in the design of mobile applications (Hartikainen et al., 2023). According to Ek et al. (2019), not all instructors at kindergarten schools possess the necessary expertise and proficiency to effectively utilize mobile apps. Consequently, they are only able to demonstrate videos instead of actively engaging with these applications. Nevertheless, in accordance with the research

topic, Nesimovic (2021) highlighted the beneficial effects of early games on the social development, skill acquisition, imagination, and creativity of preschool children. Furthermore, individuals have the ability to convey their emotions during the act of engaging in digital games, encompassing sensations of amusement, joy, exhilaration, frustration, and sorrow (Urun & Oguz, 2022).

Enforcing time limits for smartphone use among kindergarten students is crucial as it helps them develop the ability to manage their time efficiently rather than simply wasting it on smartphones. It is important to instill pleasant daily routines in youngsters in order to foster the development of positive habits. (Celik, 2019) highlights that the reading habits of preschool children are influenced by multiple variables, including entertainment, play, and the environment in which they live, since they tend to imitate those around them. The study conducted by Pogiatzi et al. (2022) provides confirmation that smartphones are suitable for educational purposes. This research obtained data from children aged 4-6 through direct interviews to verify their primary activity on smartphones. Consequently, this research can assist teachers in offering appropriate educational activities using smartphones, while also enabling parents to effectively encourage their children to use smartphones at home. Smartphones can greatly facilitate and enhance children's development. However, if youngsters are allowed unrestricted access to videos or applications on smartphones, it would only result in detrimental consequences for them. (Cho & Lee, 2017) asserted that smartphone addiction can result in several health issues, including sadness, diminished emotional intelligence, and poor sleep quality stemming from worry. Despite the beneficial and negative impacts that arise from smartphones, it is essential for parents to provide and facilitate a conducive environment for their children to access smartphones. Supervising children's use of smartphones by parents is likely to promote favorable outcomes in their development. There is a scarcity of research that specifically addresses the good impacts of smartphone usage. Furthermore, none of these studies have thoroughly examined the specific positive effects of smartphone usage. Therefore, researchers consider this as an area that requires further investigation.

RESEARCH METHOD

This study will employ a descriptive qualitative approach, utilizing methods such as observation and documentation. The descriptive qualitative method is a suitable way for analyzing everyday happenings, as it focuses on genuine language and helps people grasp various phenomena (Colorafi & Evans, 2016). A research study will be undertaken at the Catholic Kindergarten School of Asisi in Makassar, Indonesia. Children will be asked to recall their previous day's activities on the smartphone provided by their parents, family, or caretakers. They will be prompted to remember details such as colors, characters, fruits, animals, buildings, and more. The children were allotted approximately thirty minutes before the researcher distributed the blank paper. Children were given the opportunity to autonomously convey their emotions or create drawings on a blank sheet of paper. The researcher will receive assistance from the class teacher in gathering the results. This method is the most effective approach that researchers may employ to gather authentic results regarding how smartphones enhance children's creativity and imagination, without providing them with any examples. Data sampling is the process of selecting a subset of data from a larger population for analysis.

The research received approval from the Head of the Catholic Kindergarten School of Asisi Makassar, Indonesia. The study included a total of twenty-four kindergarten children, aged four to six years old, comprising both females and boys. The youngsters were allotted around ninety minutes to create and color their own artwork. During the process of creating their artwork, the youngsters were instructed to recall the visual information they had previously observed on their smartphones the day before. After a duration of one hour and thirty minutes, during which the participants engaged in the independent activity of drawing drawings, the researcher, with the assistance of the teacher, collected the papers.

Data analysis

The data analysis will employ descriptive analysis and graphical analysis techniques. Descriptive analysis is commonly employed in the field of sensory analysis due to its adaptable nature (Kemp et al., 2017). Drawing analysis refers to the interpretation of participants' drawings, which can convey various concepts (Zanin et al., 2021), symbols (Nuora et al., 2019), specific characteristics (Hsieh & Tsai, 2017), and growth mindset (Liu et al., 2022).

RESULTS AND DISCUSSION

Research has been conducted with the total of twenty four participants of kindergarten children. We will examine twelve drawings from the total of twenty four drawings. This research proving that smartphone was also effected children positively in enriching their creativity and imagination.

The Smartphone Effects on Kindergarten Children: Analysis of Creativity and Imagination
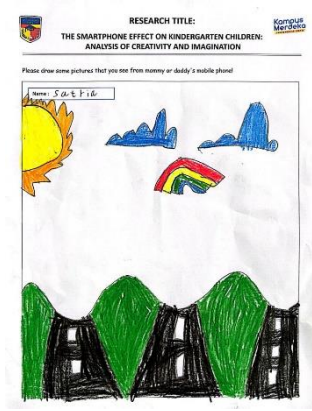

Figure 1

The first figure, the child has drawn few objects such as sun, clouds, rainbow, roads, and trees. It also contains several color that makes the drawings more attractive and imaginative. He also placed the objects right on its position, like sun in the sky near the clouds and rainbow, trees and roads were on the ground.
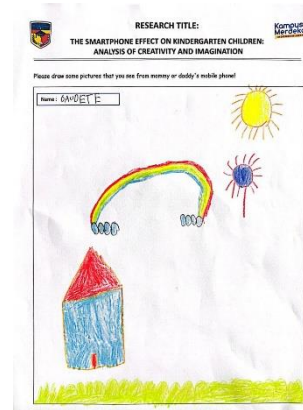

Figure 2

This child was trying to express her imagination through some objects like sun, rainbow, house, and grass. She was interpreting that sun was yellow, rainbow was colorful, and grass was green. She also placed the object on its position, like grass and house on the ground, sun and rainbow at the top.
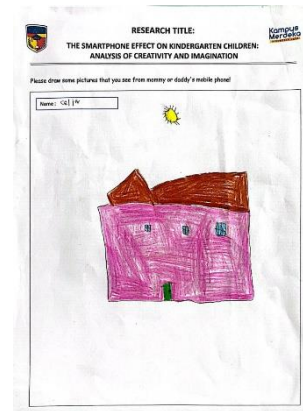
Figure 3

She was drawn a house and a sun, and put darker color to the a building like a house completed with a door and few windows in the middle of the building. She was imagine of a purple house and a small sun.

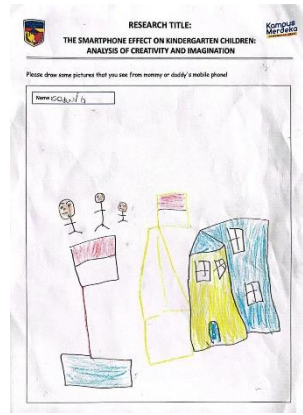**The Smartphone Effects on Kindergarten Children: Analysis of Creativity and Imagination**

Figure 4

This child was drawn such as a country flag and house. The house was equipped with a door and windows. This was his imagination while trying to recall his memory during his time with smartphone.
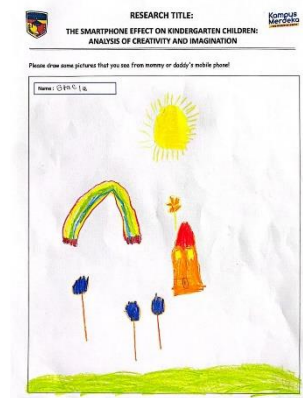

Figure 5

Few object drawn such as the sun, rainbow, grass and a house. She was placed a yellow color to express a sun, green to grass, and few colors to rainbow.
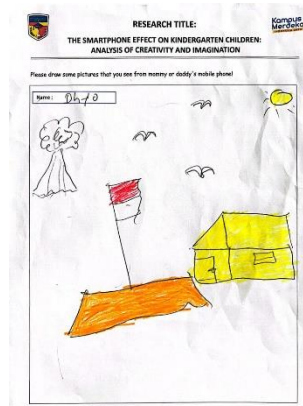

Figure 6

This child only used three colors to his drawings, which is red, yellow, and orange. He was imagine of three birds flying in the sky by putting them at the top of paper without any color. He also put the same color to sun and the house.

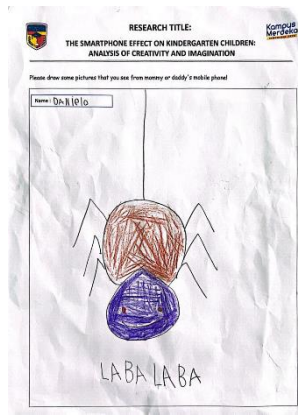**The Smartphone Effects on Kindergarten Children: Analysis of Creativity and Imagination**

Figure 7

A big spider appeared from this figure. This child imagined of a smiling spider with purple head, brown body and thin legs. He also name his drawings "laba-laba" (spider).
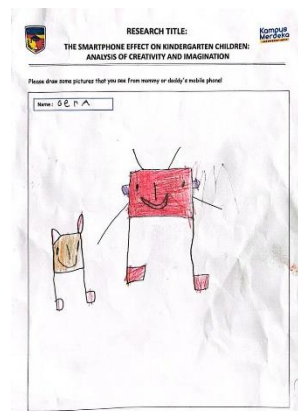

Figure 8

This child was imagine the two smiling robots and gave them color of red and brown. He recalled his memory related to an enjoyable activity on smartphone and expressed his imagination by drawing robots, things he can remembered. This was also as an indication, that this drawings made by a boy.
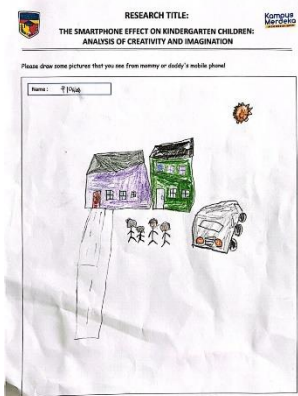

Figure 9

This figure looked like depictions of a family. It can be seen from the drawings where there were four people walking together into the house and a car placed near the building. The sun also placed at the top of the paper, as a symbol that sky is high.

The Smartphone Effects on Kindergarten Children: Analysis of Creativity and Imagination

Figure 10

Animation character of Hello Kitty. Only one among twenty four drawings that expressing her imagination to a character of animation. A big Hello Kitty filled with few colors such as blue, red, orange, and yellow. It can also indicated that this drawings made by a girl.
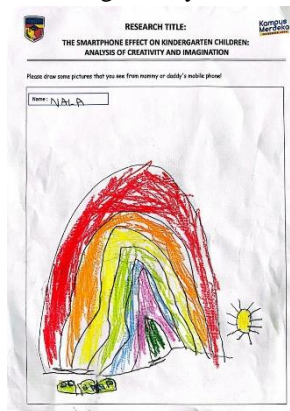

Figure 11

Two objects drawn in this figure which is a big rainbow with several colors in it and a sun that put at the bottom of the paper. He was imagine of a big rainbow and a small sun.
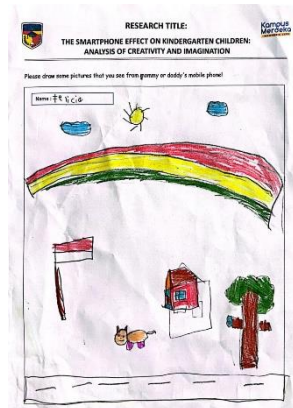

Figure 12

An animal looked like a cat appeared on this figure with purple legs. This child also drew several objects on the paper such as, clouds, sun, rainbow consist of three colors, a country flag, house, and tree.

The Smartphone Effects on Kindergarten Children: Analysis of Creativity and Imagination

Table 1

No	Objects	Percentage
1	Sun	85%
2	Clouds	21,42%
3	Rainbows	50%
4	Trees	21,42%
5	Road	14,28%
6	House	78,57%
7	Flowers	21,42%
8	Grass	14,28%
9	People	21,42%
10	Flags	50%
11	Animals	21,42%
12	Robot	28,57%
13	Car	7,14%
14	Animation Character	7,14%

Chart 1

Percentage per objects
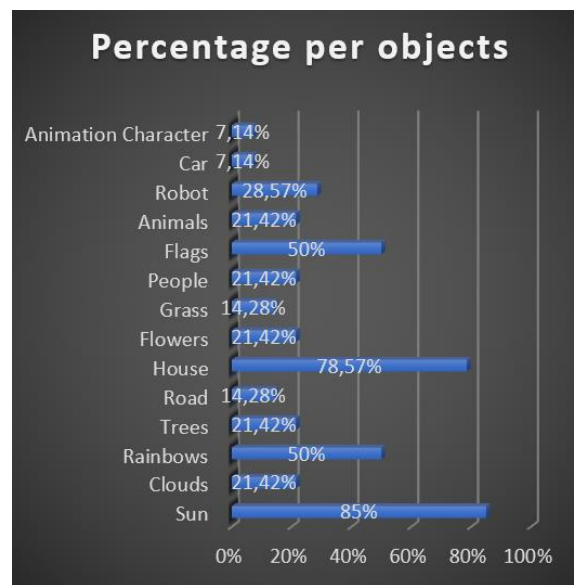
From the table 1 and chart 1 above, it shows that majority of kindergarten children were mostly drawn the sun at 85%, followed by house at 78,57%, while flag and rainbow at 50%. These top four objects were mostly appeared on children's drawings. Based on the previous study, attested that children are communicating their knowledge and experiences through drawings and also as the basis of their literacy development (Anjos et al., 2019; Havigerová et al., 2021). In the process of drawing, children are also express their feelings and thoughts related to their experiences in daily life (Villarroel & Villanueva, 2017).

CONCLUSIONS

Studies indicate that providing kindergarten students with smartphones can have a favorable impact on enhancing their creativity and imagination. Smartphones have become an integral part of children's daily lives and cannot be easily separated from them. However, they require good direction from adults, including parents, other family members, and caretakers. Through the utilization of smartphones, youngsters are able to observe a multitude of objects that were previously unfamiliar to them. A smartphone is a versatile tool that may be utilized to foster children's creativity and aid in the development of their imagination. With the rapid expansion of the digital realm, it is crucial for adults, parents, and caregivers to offer captivating educational resources that incorporate both auditory and visual

elements. This approach aims to foster children's creative potential (Kisno et al., 2022). Research indicates that exposing children between the ages of 4 and 7 to smartphones with auditory and visual stimuli can enhance their learning abilities, foster creativity, and promote interactivity (Kristian et al., 2020). Smartphones enable youngsters to engage in game play, which has a positive impact on their creative thinking, digital educational learning, creative abilities, and learning outcomes (Behnamnia et al., 2020).The use of smartphones among children not only has negative effects but also offers several positive benefits. Parents, caregivers, and teachers should encourage children to use smartphones in order to enhance their imagination, creativity, education, social life, and future prospects. According to Gündoğan (2019), creativity is a capacity that children possess and should be enhanced. It is also linked to imagination, as it plays a crucial role in children's ability to be creative (Ariffin et al., 2016). Discovering an appropriate approach to comprehend and motivate young children to effectively communicate is crucial in order to equip them with the necessary resources to enhance their creative and imaginative abilities.This study will provide beneficial contributions to schools, educators, parents, caregivers, and kindergarten children themselves. Adults that accompany children will strive to provide optimal support in order to foster positive growth. The aim of this study is to foster constructive principles in kindergarten children, enabling them to discover and develop their own capabilities.There are several limitations to this study. Firstly, three children were absent during the research. Secondly, the time given to the kindergarten children was short. Additionally, a small number of children were occasionally not focused and would walk to their friends' seats, but they were promptly redirected by the teacher to return to their own seat. The researcher did not segregate the kindergarten students into separate areas, but instead kept them in their classroom during the painting session.

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