

The Use of Interactive Flat Panel (IFP) Learning Media on Motor and Socio-Emotional Development Through the Implementation of Deep Learning

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ARTICLE INFO	ABSTRACT
Article history: Received: May 25, 2026 Accepted: July 8, 2026 Available online on: July 31, 2026 Keywords: <i>IFP Learning Media; Motor and Socio-Emotional Development; Deep Learning</i> Copyright ©2026 by Authors. Published by Universitas Muhammadiyah Tangerang	Advancements in digital technology have encouraged the use of more interactive learning media in early childhood education. However, the utilization of digital media in learning remains suboptimal, making it necessary to employ media that can support children's development, one of which is the Interactive Flat Panel (IFP). This study aims to describe the use of IFP media in promoting children's motor and socio-emotional development through meaningful learning experiences. This study employed a qualitative descriptive approach using observation and interview techniques. The research was conducted at Al Khodijah Serut Boyolangu Kindergarten, involving two teachers, namely one teacher responsible for the IFP and one homeroom teacher. The findings indicate that through four learning activities, namely recognizing letters, following movements displayed on the

screen, drawing number symbols, and listening to stories, children appeared more active and enthusiastic in learning. These activities helped stimulate fine motor skills, gross motor skills, and socio-emotional abilities, such as self-confidence, discipline, cooperation, and responsibility. Therefore, the use of IFP media can support children's development when balanced with real-life activities and teacher guidance.

Introduction

The development of digital technology has had a significant impact on early childhood education (ECE). The use of technology as a learning medium has begun to be utilized to create a more engaging, interactive, and enjoyable learning environment for children (Agustina et al., 2023). One of the media used is the Interactive Flat Panel (IFP), a learning medium in the form of an interactive screen capable of displaying images, videos, audio, and educational games that can actively involve children in the learning process. The use of interactive media can help teachers create more effective learning activities so that children become more focused and enthusiastic during the learning process. Appropriate learning media can assist teachers in creating learning experiences that are more interesting and easier for children to understand.

The use of interactive media also encourages children to participate more actively in learning activities, making the learning process more meaningful and enjoyable (Shari et al., 2024). Attractive learning media can increase children's interest in learning and encourage them to

participate more actively in activities. Media that align with children's characteristics also help create more enjoyable and meaningful learning experiences so that learning objectives can be achieved effectively (Najibah et al., 2026).

Motor and socio-emotional development are aspects that must be optimally developed in children. However, there are still limited studies discussing the use of IFP media to support children's motor and socioemotional development through Deep Learning-based instruction. Motor development is related to children's movement abilities, body coordination, and physical skills, while socio-emotional development is associated with children's ability to interact, cooperate, regulate emotions, and build self-confidence. Therefore, active and enjoyable learning experiences are needed to ensure that children's development can progress optimally (Aulia & Diana, 2021). Learning activities that actively involve children can improve fine motor skills and creativity. Through engaging activities, children become more confident, skilled, and enthusiastic in participating in the learning process (Mayasari Henni, 2024). Digital learning media can help stimulate children's motor development through activities that are engaging and easy to understand (Hendraningrat & Fauziah, 2022). Interactive video-based media can encourage children to move more actively, improve body coordination, and increase children's enthusiasm during learning activities (Asisa et al., 2025).

Dini (2023) explained the use of IFP media can be a solution for improving the quality of early childhood education. Through this medium, children can learn while playing through educational videos, interactive games, and collaborative activities that can enhance children's motor and socioemotional skills. The use of IFP media can also be integrated with the implementation of Deep Learning, which emphasizes mindful, meaningful, and joyful learning. Children do not merely listen to the material but actively participate in enjoyable learning activities that are closely related to their daily lives. (Ryan, 2025). The implementation of Deep Learning in early childhood education does not only focus on the delivery of content but also on children's active involvement in the learning process. Learning that combines the principles of mindfulness, meaningfulness, and joyfulness can help children gain more authentic learning experiences and support the balanced development of cognitive, motor, and socio-emotional abilities (Tri, 2026).

Technology-based interactive learning has a positive impact on early childhood development, such as increasing learning motivation, creativity, communication skills, and children's social relationships during the learning process. However, the use of technology still requires teacher guidance to ensure that its implementation aligns with children's developmental needs. Therefore, research on the use of IFP learning media with the implementation of Deep Learning in relation to

children's motor and socio-emotional development is necessary to examine its influence on the learning process and to understand how interactive media can help create active, meaningful, and enjoyable learning experiences for early childhood learners (Desmarians et al., 2025).

The results obtained from learning activities using IFP media indicate that each activity has an impact on the motor and socio-emotional development of early childhood learners. Activities carried out interactively are able to encourage children to participate more actively and enthusiastically in the learning process. In addition, each activity demonstrates different developmental stimulation according to the characteristics of the activity, whether in terms of fine motor skills, gross motor skills, or children's socio-emotional development.

Although several studies have shown that digital media and Deep Learning-based instruction can support early childhood development, research examining the use of Interactive Flat Panels (IFP) in supporting children's motor and socio-emotional development simultaneously remains limited. Furthermore, studies that connect the use of IFP with mindful, meaningful, and joyful learning are still relatively scarce. Therefore, this study was conducted to investigate how the use of IFP media can support the motor and socio-emotional development of early childhood learners through the implementation of Deep Learning at Al Khodijah Serut Boyolangu Kindergarten.

Methods

This study employed a qualitative method with a descriptive approach supported by data obtained from observations and interviews. Qualitative methods can provide an overview of various phenomena that arise along with the development of the times in order to explain reality from various aspects of life (Adiwijaya et al., 2024; Jayawardana, 2025). The study was conducted at Al Khodijah Serut Boyolangu Kindergarten. The research subjects consisted of two teachers, namely one teacher responsible for the IFP media and one homeroom teacher, as well as twenty children from Group B. The subjects were selected purposively because the teachers had experience and understanding related to the use of IFP media in learning activities.

Observations were conducted directly on children's activities during learning using IFP media to examine the motor and socio-emotional development that emerged throughout the activities. Interviews were conducted with teachers using a series of questions prepared in advance. The questions focused on the use of IFP media, the implementation of deep learning in the learning process, and its impact on children's motor and socio-emotional development (Kurniawan, 2019).

The study began with a preparation stage, which included developing interview instruments and obtaining research permission from the management of Al Khodijah Kindergarten. (Muhammad

Yeyen Hendrianto, 2024) After conducting observations and interviews, the researchers collected the required data (Dewi & Noviyatni, 2022). The collected data were then analyzed descriptively by organizing the interview results based on themes aligned with the objectives of the study, such as the use of IFP media, the implementation of deep learning, and children’s motor and socio-emotional development. The results of the analysis were used to provide a comprehensive description of how IFP learning media can be utilized in education and its contribution to children’s development at Al Khodijah Kindergarten.

Result and Discussions

Based on the results of learning activities using IFP media, it can be observed that each activity was able to stimulate children’s motor and socio-emotional development. The children demonstrated high enthusiasm, became more active in participating in activities, dared to try new things, and were able to cooperate with their peers throughout the learning process. It can be pictured by this table below:

Table 1. Learning Activities Using IFP and Developmental Aspects

No.	Activity	Motor Development	Socio-Emotional Development
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1	Identifying the initial letter that corresponds to an object picture	Children practice fine motor skills through activities such as pointing, selecting, and pressing the letters that correspond to the picture, thereby improving eye-hand coordination.	Children learn to be confident when answering, dare to try, patiently wait for their turn, and cooperate with their peers during the activity.
2	Moving according to the screen display	Children practice gross motor skills through movements such as jumping, bending down, walking, and avoiding obstacles, thereby developing balance, body coordination, and agility.	Children learn to be confident in moving, focus on following instructions, solve simple problems, and exercise self-control while performing movements according to the directions.
3	Drawing number symbols according to the number of fruits corresponding to their attendance number	Children practice fine motor skills when holding writing tools and drawing number symbols, thereby developing finger strength and hand coordination.	Children learn to complete tasks independently, confidently present their work, and carefully match the number of fruits with the number symbols.

4	Listening to the story entitled “Don’t Let the House Become Dirty”	Children practice small motor coordination by sitting calmly, observing pictures, and focusing on listening to the story delivered by the teacher.	Children learn discipline, develop a sense of responsibility for maintaining cleanliness, care for the environment, and cultivate habits of cleanliness in their daily lives.
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The implementation of Deep Learning can create more meaningful and enjoyable learning experiences. However, previous studies have primarily discussed the use of educational technology in general, whereas this study specifically examines the use of IFP media in children’s motor and socio-emotional development through the implementation of Deep Learning. Therefore, this study provides new insights into the utilization of IFP media combined with the Deep Learning approach to support early childhood motor and socioemotional development.

Based on the results of using IFP media in learning activities, it was evident that each activity had a substantial influence on children’s motor and socio-emotional development. In the activity of identifying the initial letter corresponding to an object picture, the researchers found that children actively used their fingers to point to and select letters on the screen. This activity trained the coordination between eye movements and hand movements and improved the accuracy of children’s finger movements, thereby optimally stimulating their fine

motor development. Thus, the use of interactive digital learning media can serve as an effective means of stimulating early childhood fine motor skills through learning by playing activities (Hendraningrat & Fauziah, 2022).

From a socioemotional perspective, children learned to dare to try, became confident in choosing answers, and learned to control their emotions when the selected answer was incorrect. This activity not only trained eye-hand coordination but also reflected the mindful principle of Deep Learning because children consciously connected letter symbols with real objects around them. This finding is consistent with previous studies showing that deep learning in early childhood education focuses on meaningful and mindful learning processes, in which children actively connect real experiences with symbolic concepts through reflection, exploration, and meaningful sensorimotor involvement. In line with Tri (2026) the process became meaningful because it was directly related to children's daily experiences and joyful because it was carried out through engaging interactive media.

During the activity of moving according to the screen display, such as jumping over rocks and bending down under bridges, the activity strongly stimulated children's gross motor skills. Children moved all parts of their bodies actively, training balance, flexibility, leg strength, and responsiveness to visual stimuli. These findings are in line with previous research showing that rhythm games based on animated

videos can significantly improve gross motor skills among children aged five to six years through audiovisual stimulation that encourages active movement, balance, and appropriate responses (Asisa et al., 2025).

From the socio-emotional perspective, this activity increased children's self-confidence and courage because they felt challenged to overcome every obstacle that appeared on the screen. Children also learned to solve problems in simple ways through movements adjusted to specific situations. This activity reflects the meaningful principle of Deep Learning because children not only observed and understood the displayed instructions but also immediately practiced them through body movements. The joyful element was evident in children's enthusiasm while participating in game-like activities, which enhanced their learning motivation. Meanwhile, mindfulness emerged when children had to maintain focus and respond appropriately to stimuli. This finding supports the argument that movement-based learning combined with technology is capable of increasing children's engagement as well as their cognitive and socio-emotional development.

Similar findings indicate that an appropriate digital environment can provide positive socio-emotional stimulation while also enhancing the communication skills and emotional expression of early childhood learners (Hadisa, 2026). In the activity of drawing number symbols according to the number of fruits corresponding to the children's attendance numbers, it was clearly observed that the activity

contributed to the development of fine motor skills. Children controlled the movements of their hands and fingers while forming numbers on the screen, which was highly beneficial in preparing them for writing. This finding is consistent with previous studies indicating that drawing activities can help develop fine motor skills in early childhood. Through such activities, children learn to move the small muscles in their hands and fingers in a directed and coordinated manner. These skills serve as an essential foundation for children's readiness to learn how to write (Mayasari Henni, 2024).

From a socio-emotional perspective, children learned to complete their tasks independently. They felt proud when they successfully drew and correctly identified the numbers, and they demonstrated confidence in the results of their work. This activity reflects the principle of mindful learning in Deep Learning because children understand numerical concepts while simultaneously practicing them directly. Furthermore, the learning process becomes meaningful because it is connected to real-life experiences, making it easier for children to understand.

In the activity of listening to a story about keeping the house clean, the impact was more evident in children's socio-emotional development. After the activity, children became accustomed to cleaning up spilled food and disposing of trash in its proper place without always being reminded. This behavior indicates the development of responsibility

and environmental awareness among children. This finding is consistent with previous studies explaining that storytelling activities connected to children's daily lives can help make learning more meaningful and foster a sense of responsibility (Ulfah, 2023).

From the motor development perspective, the habit of throwing garbage into its proper place and tidying up the area after eating still involves simple coordination of hand and body movements. This activity reflects the meaningful principle of Deep Learning because the values conveyed can be directly applied in everyday life. Mindfulness is reflected when children begin to understand the importance of maintaining cleanliness and taking responsibility, while joyfulness emerges through the presentation of engaging and easily understandable stories. After the activity, children became accustomed to cleaning food leftovers and disposing of trash properly without reminders, indicating the development of a deeper understanding. Children's motor and socioemotional development cannot be maximized by relying solely on IFP.

Although IFP can support learning, the stimulation it provides is limited. Early childhood learners need a wide variety of activities to train their muscles and movements. Children need direct physical activities such as running, jumping, holding objects, and engaging in active play to ensure optimal motor development. The same principle applies to socio-emotional development. Children are not sufficiently

stimulated by merely looking at screens; they also need direct interaction with friends and people around them. Through playing together, sharing, and communicating, children learn to regulate their emotions and understand others. Teachers and adults also need to provide positive role models because children tend to imitate what they observe every day.

IFP learning media is highly effective in supporting children's development and training various skills. However, the role of teachers remains crucial in designing activities that balance digital experiences with real-world activities. This finding is in line with previous studies explaining that teachers play a decisive role in the success of early childhood education, including when using instructional media. Teachers do not merely prepare tools and materials; they also design activities that are appropriate for children's developmental stages. When teachers successfully integrate digital media with real-life activities, learning becomes more enjoyable and provides positive support for the balanced development of children's skills (Shari et al., 2024) The use of IFP in learning has both positive and negative impacts on children. On the positive side, children can develop digital literacy skills from an early age. They learn that technology is not only used for playing games but can also be utilized for learning and creative activities. Interactive IFP media also increases children's involvement in

learning activities. IFP helps children understand concepts more deeply, indicating that learning is not merely understood superficially.

However, there are also negative impacts. If used for extended periods, screen light can cause eye fatigue in children. Children may also become accustomed to fast-paced media, making them less patient when learning through books or conventional media. In addition, children may become overly dependent on technology and less interested in learning activities that do not involve IFP learning media. Therefore, IFP learning media should only be used as an introductory tool and should be followed by real-world activities such as playing, moving, or hands-on practice. The success of Deep Learning-based instruction can be observed when children are able to consistently apply what they have learned in their daily lives, not merely on a single occasion. For example, after listening to a story about cleanliness, children become accustomed to throwing garbage into the proper place without being instructed to do so. Children are also able to explain what they have learned and demonstrate self-confidence and independence. This indicates that learning is not only understood at a basic level but has also been internalized more deeply (Najibah et al., 2026).

Conclusion

The use of Interactive Flat Panel (IFP) learning media integrated with the Deep Learning approach has been proven to support the motor and socio-emotional development of early childhood learners. Learning

activities implemented through the principles of Mindful, Meaningful, and Joyful learning are capable of increasing children's participation, enthusiasm, self-confidence, cooperation skills, as well as their fine and gross motor abilities throughout the learning process. However, the use of IFP media must be balanced with real-life activities and teacher guidance to ensure that children's development can take place optimally. Therefore, IFP media can serve as an effective alternative learning medium in creating interactive, enjoyable, and developmentally appropriate learning experiences for early childhood learners.

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