

Exploring photovoice-based educational games for building self-confidence in middle childhood children

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Abstract:

Self-confidence during middle childhood (ages 6–12) plays an essential role in children's social, emotional, and academic development. At this stage, children begin to evaluate their abilities and form self-perceptions influenced by learning experiences and social interactions. However, limited opportunities for reflective and creative self-expression in elementary school settings may affect the development of children's self-confidence. This condition highlights the urgency of exploring approaches that provide developmentally appropriate expressive spaces for children. This study aims to explore the potential of a photovoice-based approach as a conceptual foundation for designing educational games that support self-confidence development in elementary school children in Bandung. The research employed a descriptive qualitative method supported by literature review and questionnaire-based data collection. Primary data were obtained from 19 parents of children aged 6–12 years from public and private elementary schools in Bandung. The questionnaires explored children's daily activities, confidence tendencies, and preferred modes of expression. As an adaptation of photovoice principles, children were encouraged, with parental guidance, to represent aspects of their self-identity and experiences through visual media. The findings indicate that children tend to express themselves more confidently through visual and creative media compared to purely verbal forms. While positive self-appreciation was observed, situational hesitation and self-doubt were also identified. These results suggest that a photovoice-based visual approach can serve as a relevant foundation for designing participatory educational games that foster self-confidence in elementary school children.

Introduction

Middle childhood (ages 6–12) is a critical developmental phase in which children begin to form a sense of self, self-confidence, and social skills. During this stage, children increasingly evaluate themselves based on learning experiences, social interactions, and feedback from their surrounding environment, particularly school and family contexts (Sitorus, 2023). Several studies indicate that academic pressure, achievement demands, and social comparison with peers can contribute to decreased self-confidence among elementary school-aged children. Such conditions may hinder children's willingness to express opinions, try new experiences, and develop their potential to the fullest (Hadi et al., 2024).

In middle childhood, self-confidence is closely related to children's emerging ability to assess their own strengths and limitations realistically. At this stage, children begin to internalize external evaluations from teachers, parents, and peers, which significantly influences how they perceive their own abilities and self-worth. Positive experiences, such as being trusted, encouraged, and given opportunities to explore, contribute to the development of healthy self-confidence. Conversely, repeated experiences of failure or negative comparison may lead children to develop self-doubt and avoidance behaviors. Therefore, understanding self-confidence in middle childhood requires attention not only to individual traits but also to the learning environments and expressive spaces provided to children.

In addition, confidence in children is strengthened when educational experiences support character formation and provide a meaningful sense of belonging, since feeling accepted and valued in school can shape how children see themselves and participate in learning (Farida et al, 2025; Zaman et al., 2025).

This study was conducted in Bandung, Indonesia, involving elementary school students aged 8–11 years from both public and private schools. Bandung was selected as the research location due to its accessibility for the researcher and its diverse educational environment, which includes schools with varied learning cultures and socio-economic backgrounds. The inclusion of students from both public and private institutions aims to reflect differences in learning environments and family backgrounds that may influence children's confidence development and expressive behavior.

Despite various efforts to understand children's psychological conditions, approaches that rely heavily on verbal expression are often less effective. Children in middle childhood are not always able to articulate emotions, personal experiences, or emotional barriers in a structured and narrative manner (Gramaxo et al., 2023). Research in visual education suggests that children find it easier to express experiences and emotions through visual media and creative activities than through interviews or written questionnaires (Pirker et al., 2023). Therefore, visually based approaches are considered more inclusive and aligned with children's cognitive and emotional developmental characteristics.

Visual expression plays an important role in supporting children's emotional awareness and identity formation during middle childhood. Through images, drawings, and other visual forms, children are able to externalize feelings and experiences that may be difficult to convey verbally. Visual activities allow children to communicate meaning symbolically, reducing the pressure of having to find the "right words" to describe emotions. In this sense, visual media function not only as communication tools but also as reflective spaces where children can recognize, process, and affirm their own experiences in a more comfortable and developmentally appropriate manner.

Photovoice is a participatory visual method that enables individuals to express experiences, perceptions, and self-identity through self-produced photographic or visual media. In educational contexts, photovoice-based education refers to learning approaches that integrate visual documentation, guided reflection, and discussion as part of the learning process. Rather than positioning learners as passive recipients, this approach encourages participants to actively construct meaning from their own lived experiences. Previous studies have shown that photovoice is effective as a tool for self-reflection, communication of personal experiences, and strengthening participants' self-confidence (Tan et al., 2024). Studies in visual communication design further indicate that photovoice functions not only as a data-collection tool but also as a medium for constructing visual meaning that can be translated into more empathetic and contextually informed educational media design.

Within the context of children's development, photovoice offers particular advantages because it emphasizes participation, agency, and personal meaning-making. By allowing children to select or create images that represent their experiences, photovoice supports a sense of ownership over self-expression. This process encourages children to recognize their own perspectives as valid and meaningful, which is a crucial element in the formation of self-confidence. From a visual communication design perspective, photovoice also provides rich insight into children's visual

language, preferences, and ways of interpreting their world, which can inform the design of more empathetic and child-centered educational media.

Previous photovoice studies have also shown that visual participation can help surface children's own perspectives on school life, everyday environments, and educational well-being, making the method relevant for child-centered inquiry and design exploration (Rivas et al., 2023; Nanda et al., 2025).

Although numerous studies have examined the development of children's self-confidence through creative activities and educational media, most focus on conventional learning approaches or direct instructional interventions. Some research highlights the use of visual media and educational games as tools for children's emotional stimulation; however, limited studies position children as active subjects in exploring and interpreting their own visual meanings (Bozzato, 2024). Moreover, the application of participatory methods, such as photovoice, in the context of middle childhood remains relatively limited, particularly in the domain of visual communication-based educational media (Hasby et al., 2025). This condition indicates a research gap in how children's visual experiences can be more deeply explored and translated into media design that addresses their psychological and expressive needs.

In the context of educational media design, this gap highlights the need for approaches that do not merely deliver content but actively involve children in the process of meaning construction. Positioning children as active contributors rather than passive recipients allows educational media to respond more closely to their emotional and developmental needs. Visual participatory approaches, such as photovoice, provide an opportunity to shift the focus from outcome-oriented learning to process-oriented exploration, where children's experiences and interpretations become central to the learning design.

As a participatory visual method, photovoice holds significant potential to bridge children's limitations in verbal communication with their need for emotional exploration and expression of personal experience. Through processes of visual selection, creation, and reflection, children can communicate self-perceptions, confidence levels, and personal challenges more authentically (Wibowo & Ahmad, 2025). Other studies also demonstrate that participatory visual approaches enhance participants' sense of ownership, expressive confidence, and self-awareness among school-aged children (Pirker et al., 2023). Within educational and design contexts, this method functions not only as a data exploration tool but also as an approach aligned with child-centered design principles and experiential learning.

Recent work further suggests that the process of participating in photovoice projects can itself become a meaningful learning experience, while the method has also been adapted to explore child-related experiences within family contexts, demonstrating its flexibility across educational and social settings (Murthi et al., 2025; Tukan, 2024).

Based on this background, the present study positions photovoice as the primary exploratory method for designing educational games that foster self-confidence in children during middle childhood. This research seeks not only to understand the conditions of children's self-confidence but also to explore how children interpret experiences, achievements, and challenges through self-generated visual expressions. The results of this exploration are expected to serve as a conceptual and visual foundation for designing educational game media that are more empathetic, participatory, and aligned with children's developmental characteristics. Accordingly, this study contributes to advancing visual communication design approaches oriented toward children's psychological needs and enriches interdisciplinary discourse across design, education, and child development.

Methods

This study employed a descriptive qualitative approach with an adaptive exploration of the photovoice method in the context of middle childhood (ages 6–12). The research aimed to explore patterns of children’s self-confidence and visual self-expression as a foundation for developing photovoice-based educational games. Although questionnaires are often associated with quantitative research, in this study the instrument was designed to obtain descriptive tendencies and interpretative insights rather than to test statistical relationships. Therefore, the study is positioned as descriptive qualitative research supported by simple descriptive numerical data.

The research was conducted in Bandung, Indonesia, involving 19 parents of elementary school children. Parents were selected as respondents because they function as children’s primary daily companions and observers of their emotional and behavioral development. The children represented varied educational settings, including public and private schools, reflecting differences in learning environments.

Data were collected through an online questionnaire consisting of three components. The first component included closed-ended questions that explored observable tendencies related to self-confidence, such as willingness to try new activities, pride after achievement, persistence when facing difficulties, confidence in speaking or performing, emotional awareness, and interest in visual expression. These responses were summarized descriptively to identify general patterns. The second component consisted of open-ended questions that invited parents to describe children’s confidence, challenges, and expressive behaviors in everyday contexts. These narrative responses formed the primary material for qualitative interpretation.

The third component functioned as an adaptation of the photovoice method. Children, with parental assistance, were asked to select or produce photographs representing their identity, favorite activities, or creative works that reflected “who they are.” Parents provided brief explanations of the meaning behind the selected visuals. In this study, parents acted as facilitators to ensure children’s comfort and clarity of expression, considering their developmental stage.

Data analysis was conducted using descriptive qualitative analysis. Closed-ended responses were summarized to describe tendencies, while open-ended responses and visual materials were analyzed thematically to identify recurring patterns related to children’s self-confidence and modes of self-expression. Although photovoice was not implemented in its full participatory form, this adaptive approach provided initial insight into how visual media can function as a tool for children’s self-reflection and confidence development. The overall research procedure is presented in Table 1.

Table 1. Research Flow.

Stage	Description
1	Identification of research problem related to children’s self-confidence and visual expression
2	Literature review on photovoice, visual education, and middle childhood development
3	Development of questionnaire instrument (closed, open, and visual prompts)
4	Distribution of online questionnaire to parents (19 respondents)
5	Collection of narrative and visual data
6	Descriptive and thematic data analysis
7	Formulation of design implications

Result and Discussion

This section presents the results of processing data from questionnaires completed by 19 parents of children in middle childhood (aged 6–12 years) in Bandung, along with a discussion of the findings from the perspectives of visual communication design and the photovoice approach. The data were analyzed to identify trends in children's self-confidence, patterns of self-expression, and preferences for relevant educational media, providing a basis for designing educational games using the photovoice method.

Respondents' Profile

The respondents in this study were parents of elementary school children with a dominant age range of 6–12 years. The majority of children were in elementary school (grades 3–6), with a relatively balanced gender distribution, and came from both public and private schools. These characteristics indicate that the respondents fit the developmental stage of middle childhood, which is the focus of this study. At this stage, children begin to build their self-concept, self-confidence, and social-emotional abilities through daily interactions and learning experiences.

To understand children's habits and confidence-related behaviors, questionnaire responses were summarized and analyzed descriptively. The results of this analysis are presented in Table 2.

Children's Habits and Self-Confidence Levels

Table 2. Descriptive Results of Children's Habits and Self-Confidence Based on Parents' Questionnaire Responses (n = 19)

Statement	Measured Aspect	Mean	Interpretation
Children are willing to try new things even if they are still uncertain	Exploratory courage	4.2	High
Children show pride when they succeed at something	Self-appreciation	4.8	Very High
Children give up easily when faced with difficulties.	Resilience	2.6	Moderate-Low
Children are confident when asked to perform/speak.	Social Confidence	3.9	Moderately High
Children often express self-doubt.	Self-Doubt	3.1	Moderate
Children can explain their feelings quite clearly.	Emotional Awareness	4.2	High
Children like to draw or create visuals to express themselves.	Visual Expression	4.0	High
Children find it easier to tell stories through pictures than words	Visual Preferences	3.4	Moderate

Note: Mean scores were calculated from parents' responses using a 5-point Likert scale to measure observable tendencies in children's habits and self-confidence.

Table 2 presents the results of questionnaire responses completed by 19 parents of elementary school children in Bandung regarding children's habits and self-confidence-related behaviors. The mean scores were calculated from responses measured using a Likert scale, and the interpretation categories describe general behavioral tendencies observed in everyday situations. These results provide an overview of how different behavioral tendencies contribute to the formation of self-confidence in middle childhood.



The findings indicate that children show relatively strong tendencies in self-appreciation and exploratory courage, as reflected in mean scores above 4. This suggests that many children are able to feel proud of their achievements and are willing to try new activities, even when they are still uncertain. In the context of building self-confidence in childhood, such positive experiences play an important role in strengthening children's sense of competence and self-belief.

However, the resilience aspect shows a lower mean score compared to other indicators. This finding suggests that some children still tend to give up when facing difficulties or challenges. From a developmental perspective, this indicates that children's confidence is still in the process of formation and requires supportive environments that encourage persistence and gradual mastery.

The relatively high scores in visual expression and emotional awareness indicate that children are generally able to express feelings and identity, particularly through visual media. This tendency is relevant to confidence development, as visual expression provides a more comfortable and less pressured way for children to communicate personal experiences and emotions.

Overall, these findings suggest that children's confidence tends to emerge more strongly in situations that feel safe, enjoyable, and expressive. Therefore, visual-based activities and creative media hold strong potential as supportive tools for strengthening self-confidence in a developmentally appropriate manner.

Children's Media Preferences and Educational Activities

Findings in the previous section indicate that children in middle childhood generally show a fairly high tendency toward self-appreciation and willingness to explore. However, they still demonstrate vulnerability in resilience and self-confidence when facing challenges. This condition suggests that children need forms of expression that do not create pressure, while still allowing safe and enjoyable self-exploration. Therefore, this section presents the results of an analysis of children's preferred activities and media of expression based on parents' perceptions, as illustrated in the diagrams.

1. Activities that build children's confidence the most:

19 responses

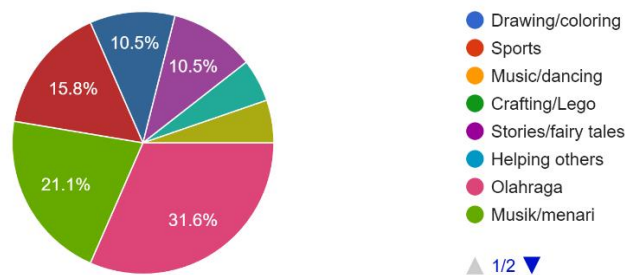


Figure 1. Activities that most strongly enhance children's self-confidence based on parents' perceptions

2. The media of expression that children like most
19 responses

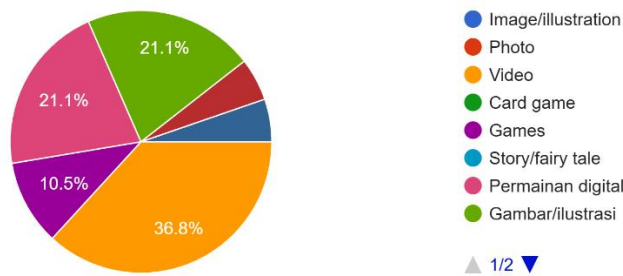


Figure 2. Children’s preferred media of expression based on parents’ perceptions

Based on the diagram of activities that most strongly enhance children’s self-confidence, sports represent the highest percentage (31.6%). This is followed by music or dance (21.1%) and creative activities such as crafting or playing with Lego (15.8%). Drawing or coloring activities also contribute a meaningful proportion (10.5%). These findings indicate that children’s self-confidence tends to develop through active and engaging activities that involve physical movement, emotional expression, and direct experience, whether individually or in social settings.

In addition, the diagram of preferred media of expression shows that visual and audiovisual media are the dominant choices. Video ranks highest (36.8%), followed by images or illustrations (21.1%) and digital games (21.1%). Meanwhile, media that rely mainly on verbal expression, such as storytelling, appear less preferred. These results suggest that children feel more comfortable expressing emotions, experiences, and identity through dynamic and interactive visual forms rather than through purely verbal communication.

Overall, the findings demonstrate that children tend to prefer creative activities and visual media that provide freedom to explore without evaluative pressure. Media that allow children to actively create, experience, and visually present ideas are more relevant in supporting the development of self-confidence in middle childhood. These results provide an important foundation for designing educational media that emphasize visual experience and active participation.

From a visual communication design perspective, these preferences highlight the importance of designing educational media that prioritize interaction, visual storytelling, and experiential engagement. Activities and media that encourage children to actively participate, rather than passively receive information, appear to be more effective in supporting confidence development. By focusing on visual and creative processes, educational media can shift attention from achievement outcomes to personal exploration and enjoyment. This approach aligns with child-centered design principles, where children’s experiences, emotions, and perspectives become the central focus of the design process.

Visuals as Representations of Children (Photovoice Adaptation)

As part of the adapted photovoice approach, the questionnaire provided an optional section in which children, with parental guidance, could upload photographs of their work or situations that represent themselves, such as drawings, crafts, or favorite activities that they felt described “this is totally me.” Because this section was voluntary, only some respondents submitted visual materials. The visuals collected were not intended as aesthetic documentation, but rather as representations of how children perceive themselves, their interests, and their experiences.



Figure 3. Examples of children's visual representations as part of the adapted Photovoice approach
Source: primary data collected from parents' questionnaire submissions

The visual results show that children tend to choose activities and creative works as symbols of self-identity rather than emphasizing physical appearance. This tendency indicates that children's self-confidence at this developmental stage is more strongly shaped by experience, participation, and personal interests than by external appearance or social comparison. The visual materials therefore provide meaningful insight into how children understand and express their sense of self.

Although the photovoice approach in this study was implemented in an adaptive form with parental facilitation, the visual outcomes still reveal important patterns of children's self-perception. The tendency to represent themselves through activities suggests that confidence-building interventions should focus on providing opportunities for children to explore, create, and reflect, rather than emphasizing performance outcomes or external evaluation. Visual expression allows children to communicate experiences and emotions in a way that feels more natural and less pressured.

From a visual communication design perspective, these findings strengthen the relevance of visual-based educational media as a tool for supporting children's confidence development. Media that encourage children to actively participate, create visual narratives, and reflect on their own experiences are more aligned with children's developmental characteristics. Therefore, even in its adaptive form, the photovoice approach demonstrates strong potential as a foundation for the design of child-oriented educational games and learning media.

Implications for the Design of Photovoice-Based Educational Games

Based on the findings regarding children's habits, self-confidence levels, activity preferences, and visual self-expression, several implications can be drawn for the design of educational media intended to support self-confidence in middle childhood children. Educational media designed for this purpose should:

1. Prioritize visuals and creative activities as the primary medium of expression, considering children's strong preference for visual and experiential forms of communication.
2. Provide open space for exploration without strict judgments of right or wrong, allowing children to engage in activities without fear of failure.
3. Avoid overly emphasizing verbal communication as the only form of expression, since not all children feel equally confident expressing themselves verbally.
4. Encourage children to reflect on their identity, experiences, and emotions through visual storytelling, in line with the core principles of the photovoice method.

In practice, these implications suggest that photovoice-based educational games should be designed as open-ended experiences that prioritize process over outcome. Such games can provide opportunities for children to explore identity, emotions, and personal achievements through visual creation and reflection. By minimizing evaluative pressure and allowing multiple interpretations, educational games can function as supportive environments where children feel safe to experiment and express themselves.

Overall, these findings indicate that educational games grounded in visual expression and child-centered design principles have strong potential not only as learning tools but also as media for self-exploration and the development of emotional awareness, creative autonomy, and self-confidence in children.

Conclusion

This study indicates that children in middle childhood (ages 6–12) tend to feel more confident expressing themselves through visual media and creative activities rather than through purely verbal communication. Questionnaire results show that children generally demonstrate strong self-appreciation and willingness to explore, although their resilience and confidence when facing difficulties are still developing.

The adaptive implementation of the photovoice approach reveals that visual expression can function not only as a communication medium but also as a supportive space for children's self-reflection. The tendency of children to represent themselves through activities and experiences suggests that self-confidence at this stage is closely related to participation, creativity, and personal engagement rather than external evaluation.

These findings provide a conceptual foundation for designing photovoice-based educational games that emphasize visual storytelling, open-ended exploration, and safe environments for expression. Educational media designed with these principles have the potential to support emotional development, creative autonomy, and confidence building in a developmentally appropriate manner.

However, this study was limited to parent-reported questionnaire data and an adaptive form of photovoice facilitated by parents. Future research should involve more direct engagement with children through participatory visual methods. One potential direction is conducting observational studies in which children are provided with cameras and guided to document their own experiences, environments, and self-perceptions. Such direct visual documentation would allow researchers to better understand how children construct meaning, express identity, and develop confidence through image-making processes.

Further studies may also include prototype testing of photovoice-based educational games to evaluate their effectiveness in strengthening resilience and self-confidence. Expanding the sample size, involving more diverse participants, and conducting longitudinal observations would provide deeper insight into the long-term impact of visual-based self-expression on children's confidence development.

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