



Needs Analysis for Development of Learning Multimedia to Facilitate Introduction of English in Early Childhood

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Abstract

This study aims to analyze the needs of developing multimedia English learning for early childhood, focusing on supporting children's engagement and understanding. Through surveys and interviews with early childhood teachers. This research identified five main needs: (1) Learning Materials that include basic vocabulary and simple expressions in relevant themes; (2) Visual and Audio Design that is attractive and child-friendly; (3) Interactivity, such as quiz and game features to increase engagement; (4) Flexibility of Use that allows the multimedia to be accessed both at home and school; and (5) Leveled Materials according to children's cognitive development. The results show that interactive and flexible multimedia can increase children's motivation and participation in learning English. In addition, the flexibility of using multimedia also facilitates parental involvement, supporting more sustainable learning. This research supports the theories of constructivism and technology-based learning in early childhood education, and provides practical contributions for developers and educators. The findings' recommendations are expected to guide effective multimedia design for early childhood English language introduction.

Keywords: *learning Multimedia, English, Early Childhood Education*



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INTRODUCTION

English language skills are increasingly needed in various aspects of life. Learning English in early childhood has become the focus of attention in many countries, including Indonesia. This is done as an initial step in preparing a globally competitive generation (Na'imah, 2022). According to Piaget, early childhood is at the pre-operational stage of development, namely learning through sensorimotor experiences which require visual and audio stimuli (Isnaeni, 2020). It is hoped that basic introduction to English from an early age can facilitate children's readiness to learn it at a basic level. So that when they grow up they can adapt to global developments and improve their communication skills.

Early Childhood Education (PAUD) is a crucial period because at this age. At this time children are in the optimal cognitive, motor and linguistic development phase to receive various new language input (Sriyeni & Gumindari, 2021). However, teaching English to early childhood in Indonesia still faces many challenges. The lack of ability of teachers to teach English requires training to increase human resources (Farahsani & Harmanto, 2021; Mar'ah Daulay & Pransiska, 2022). Another important challenge is the availability of learning support resources in PAUD units (Arumsari, Arifin, & Rusnalasari, 2017; Hidayat, 2016). The learning media used must be able to facilitate the process of exploration and direct experience to facilitate understanding of a new language for children.

An interactive and fun approach to learning English has been widely supported by research because it is effective in attracting children's interest and increasing engagement. This approach can increase learning motivation because children tend to be more enthusiastic when learning is designed as a fun experience, such as through games, songs or stories. In addition, this method builds emotional connections by actively involving children in activities such as role-play or storytelling, so that learning English becomes a positive experience. Interactive activities also encourage children's active participation, helping them understand and remember vocabulary and language structures more quickly through direct practice (Otoluwa, Rasid Talib, Tanaiyo, & Usman, 2022). This approach also accommodates various learning styles, whether visual, auditory, or kinesthetic, using pictures, music, or movement. A relaxed and fun atmosphere can reduce children's anxiety in learning a new language, especially because they feel free to make mistakes. In addition, interactive activities often involve group work or social interactions, which not only improve their language abilities but also their social skills (Ansorida, 2022).

Such as through language games and the use of visual media, it is effective in cultivating children's interest in learning English (Adisti et al., 2022). In addition, according to learning theory (Vygotsky, 2006), social interaction is very important in language development in children. In the current digital era, social interaction has developed so rapidly through various electronic media. In the context of language learning, the use of digital applications is often used as a learning medium (Solichah & Hidayah, 2022). The use of electronic modules is also an attractive option in learning activities (Sutama, Astuti, & Anisa, 2021). English language learning that uses digital media and involves interactive activities will be able to encourage learning effectiveness (Septisia, Suhono, Purnamasari, Utama, & Mustafidah, 2021).

Interactive multimedia has been proven to be an effective medium for helping young children learn new languages (Rani Zulfia Khasanah, Leli Fertiliانا Dea, 2024). Through interesting visualizations, interactive sounds, and activities that involve children's active role, multimedia can increase learning motivation and help children understand the material more easily (Saputri et al., 2022). Now Youtube is one of the media most often used to introduce English to early childhood (Resti Citra Dewi, Isa Hidayati, & Supriadi, 2024). However, there are still limitations in developing English language learning multimedia specifically designed for PAUD in Indonesia. Many learning content are not fully suited to the needs and characteristics of young children, both in terms of visual design, simplicity of content, and interactive approaches that suit the learning capacity of young children (Amada & Hakim, 2022). Therefore, attention to appropriate content is important to ensure that the media used is appropriate to the child's needs.

This research aims to analyze the needs for developing English language learning multimedia for early childhood. The focus of the analysis includes aspects needed by children and teachers in using multimedia as an English learning aid. It is hoped that the results of this needs analysis can provide a strong basis for the development of multimedia products that are not only visually attractive, but also effective in improving young children's understanding of English. Apart from that, this research also seeks to identify special features that must be present in learning multimedia to make it more responsive to the learning context in kindergarten. Thus, this research has the benefit of providing practical recommendations for multimedia researchers and developers. Through identifying needs, it is hoped that the resulting multimedia products will become effective supporting media in the PAUD environment. So it can have a positive impact in increasing early childhood interest and English language skills.

METHODOLOGY

This research uses a qualitative approach with a descriptive design to identify the need for developing English language learning multimedia for early childhood (Sugiyono, 2010). This approach was chosen because it is able to explore a deep understanding of the needs of users, namely children and teachers, in the context of using interactive multimedia in the PAUD environment. The subjects of this research consisted of early childhood children aged 4-6 years who participated in PAUD activities and had the potential to become the main users of English language learning multimedia. As well as teachers who act as facilitators of English language learning in PAUD and have an understanding of children's needs in the context of English language learning. In the data collection stage, this research used a number of instruments, namely semi-structured interviews conducted with teachers to identify the needs, hopes and challenges faced in teaching English to early childhood. The interviews were designed to be open to unexpected answers, so as to capture a variety of viewpoints about the need for effective multimedia. Apart from interviews, observations were also carried out on learning activities in PAUD classes to see how children interact with learning materials. Especially when using simple visual aids and technology that may already be present in the classroom. A simple questionnaire was also administered to teachers to obtain additional data about their preferences regarding desired multimedia features, such as visual design, type of activity, and optimal learning duration.

The data collection process was carried out in several stages. First, semi-structured interviews were conducted with teachers selected purposively to explore their views on the need for multimedia features, materials and effective learning methods for children. Second, participatory observation was carried out in PAUD classes to directly observe children's interactions with existing learning media, as well as their responses to the visual and audio elements used in learning. Third, a questionnaire was given to teachers to obtain additional data regarding their preferences regarding the desired multimedia features. All data from interviews, observations, and questionnaires were collected over a one-month period to gain an in-depth understanding of user needs and preferences. This will be the basis for developing appropriate and effective learning multimedia.

Data analysis was carried out using a qualitative descriptive approach through thematic analysis techniques. Each data from interviews, observations and questionnaires is categorized based on main themes related to the need for developing English language learning multimedia for early childhood. The analysis process includes the stages of organizing data, coding, and grouping based on emerging needs themes, such as the need for visual features, interactivity, and the type of learning content desired. To ensure the validity of the data, data triangulation was carried out through comparison of findings from several sources, namely teachers and direct observation results at school. The results of this analysis are then concluded to produce recommendations that will be used in developing multimedia products that are effective and appropriate to the characteristics of early childhood (Fadli, 2021).

RESULTS AND DISCUSSION

Results

The results of this research show several important needs that must be considered in developing English language learning multimedia for early childhood. Based on data analysis from interviews, observations and questionnaires, five main themes were found which include: learning material needs, preparation of learning materials, visual and audio design, interactivity and flexibility.

Table 1. Main Themes of Needs Aspect Findings

No	Needs Aspect	Key Findings
1	Learning materials	Introduction to basic vocabulary, simple sentences and everyday expressions.
2	Material Preparation	Gradually from the simplest to the most complex, according to the cognitive development of early childhood.
3	Visual and Audio Design	Attractive visuals, bright colors, animated characters, child-friendly voice narration, background music and sound effects.
4	Interactivity	Interactive features to increase child engagement.
5	Flexibility of Use	Can be used both at school and at home

Based on the research results, PAUD teachers revealed that English learning materials for early childhood need to be simplified and focused on introducing basic vocabulary related to daily life, such as body parts, names of objects and colors. Teachers also suggest that the material be arranged in stages from the simplest to the more complex, so that children can understand it easily. The vocabulary introduced is expected to be in accordance with themes that are already familiar to children, and each word or phrase is accompanied by an image or animation to aid understanding.

Multimedia visual and audio design are important aspects that are expected to attract children's attention. Observation results show that children are more interested

in colorful displays and simple but clear pictures. Teachers agree that interesting visualizations, such as animated images and cartoon characters, will increase children's involvement in learning. In addition, the use of child-friendly voices, such as soft and clear narration voices, is highly recommended to guide children in understanding the material. Background music or sound effects are also considered important, but need to be arranged so as not to distract the child's focus.

Interactivity is an important need expressed by teachers because it allows children to actively participate in the learning process. Interactive features such as quiz games, picture matching, and clicking or dragging objects on the screen are expected to help children understand the material more practically. Teachers also state that interactive activities help improve learning retention, as children remember what they learn more easily when they are directly involved. Observation results show that children respond enthusiastically to the interactive elements that are present in everyday learning.

Teachers hope that the multimedia developed can be used both at school and at home as a form of continuous learning support. Multimedia that is easily accessible on devices such as tablets or mobile phones will help them engage children in learning English at home. Teachers also emphasize the importance of flexible multimedia, so that it can be used for group and individual learning. It is hoped that this will facilitate children in continuing their learning process outside the school environment.

Discussion

The results of the research provide an overview of the need for developing English language learning multimedia that is appropriate to the needs of early childhood. This finding is in line with previous research which emphasizes the importance of adapting English language learning approaches to children's characteristics (Mazhabi, 2019). Further findings show that simple and gradual material is needed to facilitate children's understanding. This is in line with the theory of cognitive development (Piaget, 2005) that at an early age children are at the pre-operational stage, where the learning process is through direct experience and concrete understanding. Learning materials that are arranged in stages allow children to build an understanding of English from the introduction of basic vocabulary to more complex language skills. The preparation of material that is relevant to everyday life is also in accordance with the principle of meaningful learning, which links new knowledge with knowledge that children already know.

The material suggested in this research is very appropriate to the characteristics of cognitive and linguistic development of early childhood. At the early age stage, children are in the initial phase of language development. In line with research which states that children learn through the introduction of concrete objects and concepts (Inawati, 2018). Piaget's theory of cognitive development shows that at this age, children learn most effectively through direct experience and concepts that are close to the child's environment (Sasmi Nelwati, 2022). Thus, material related to basic vocabulary such as object names, colors and numbers helps children to recognize and connect English with objects around them. This finding is in line with the theme-based learning approach that has long been used in early childhood education (Simpun, Dina Mardiana, & Sapriline, 2023). A theme-based approach will make it easier for children to connect new vocabulary with situations or activities they are already familiar with. So the learning process becomes more meaningful. It is recognized that the use of

everyday expressions such as "Thank you" and "Please" will also support the development of children's early communication skills (Pertiwi, Rahmawati, & Hafidah, 2021). Vygotsky's theory emphasizes that social interaction is the basis of children's language development (Etnawati, 2022). The use of short sentences and basic expressions also suits young children's attention span and their ability to understand simple instructions (Otoluwa et al., 2022). So introducing children to simple expressions will help them develop the ability to communicate in a relevant and meaningful way.

The next finding is an attractive visual and audio design. This is one of the main needs in developing multimedia for early childhood. This research found that brightly colored visualizations and animated characters can increase children's interest in learning. This is in line with research on the effectiveness of visual media in motivating children (Sugiarto, 2021). In addition, clear and child-friendly voice narration plays an important role in helping children understand instructions and explanations in English. According to Mayer, visual and verbal elements that are combined effectively will help children's working memory to process and understand information better (Mayer, Lee, & Peebles, 2014). Sound effects and background music can also create a pleasant learning atmosphere, but must be arranged so as not to disturb the child's concentration.

Interactive elements that facilitate children's active participation in the learning process are findings that are in line with Vygotsky's (1978) theory about the role of social interaction in learning. Interactive activities, such as language games, quizzes, and drag-and-drop activities, not only help children understand the material in a fun way but also increase their motivation to participate. Interactivity allows children to experiment, practice and be active, which in turn can increase their retention of information and understanding of the material (Susantini & Kristiantari, 2021). As stated by (Qotimah & Mulyadi, 2021), interactive features enable children to learn in a way that is more meaningful and relevant to the learning styles of early childhood.

Furthermore, interactivity in learning multimedia also supports the development of children's motor skills. Activities such as drag and drop help children practice fine motor skills (Wirahno et al., 2024). This is an important part of their physical development at an early age. This activity provides an opportunity for children to use their hands and fingers to carry out simple but meaningful tasks in a learning context. So it supports the development of motor skills along with language skills. These findings indicate that the development of English language learning multimedia for early childhood needs to consider various interactive features that can increase children's involvement. Multimedia developers are advised to integrate activities that allow children to learn actively, such as quizzes, games and interactive tasks. This is in line with other research which reveals that interactivity helps strengthen children's understanding of the material, increases motivation, and supports the development of cognitive and motor skills (Harsiwi & Arini, 2020). Thus, it is hoped that interactivity will make multimedia more interesting and effective as a tool in teaching English to young children.

Flexibility in the use of English language learning multimedia is one of the main needs expressed by teachers and parents. These findings highlight the importance of developing materials that can be easily accessed in various environments, so that the English learning process is not limited to one place. With this flexibility, children can learn consistently at home as part of their daily routine, while continuing or repeating

the lessons they learn at school. Teachers believe that multimedia is flexible and easily accessible via digital devices to help children continue their learning outside the school environment. This is in line with the findings of (Solichah, Solehah, & Hikam, 2022), which states that successful learning media must be able to meet user needs in various contexts. Support from parents in using multimedia at home can also improve children's learning outcomes, because young children tend to need repetition and support from those closest to them to master a new language.

Implications of Findings for the Development of Learning Multimedia

These findings have important implications in the development of English language learning multimedia for early childhood. As a practical implication, the findings of this research provide practical guidance for multimedia developers in designing content that is appropriate to the cognitive and motor development characteristics of early childhood. By focusing on introducing basic vocabulary, simple expressions, and relevant themes, developers can create multimedia that can attract children's interest and support effective English learning. The use of interactive features, such as quiz games and drag-and-drop activities, can also increase children's engagement and strengthen their understanding of the material. This multimedia can be used as part of an early childhood education curriculum that focuses on introducing foreign languages. The curriculum can integrate this multimedia in basic English learning plans, according to a thematic approach relevant to early childhood. Thus, this multimedia can help enrich children's learning experiences and provide a strong foundation in developing their English language skills.

The theoretical implication of this research is that these findings strengthen the concept of constructivism. The concept states that children learn most effectively through hands-on activities and meaningful experiences. Through interactive features in multimedia, children are encouraged to actively participate in the learning process, explore and understand language through concrete contexts that are relevant to their world. Thus, this research contributes to the application of constructivism theory in the context of language development for early childhood through technology. The results of this research contribute to the literature on technology-based learning for early childhood. By showing that interactive and easily accessible multimedia can increase children's motivation, engagement and understanding in learning a foreign language. By integrating visual elements, audio and interactive activities, this research provides insight into how technology can be designed to effectively support early language learning.

CONCLUSION

This research shows that developing English language learning multimedia for early childhood requires a deep understanding of the needs of children, teachers and parents. The main findings of this research include five important aspects that need to be considered in multimedia development: (1) Learning materials that include basic vocabulary, simple sentences, and relevant themes; (2) Attractive, colorful and child-friendly visual and audio design; (3) Interactivity to increase children's involvement through activities such as quiz games and picture matching; (4) Flexibility of use so that multimedia can be accessed both at home and at school; and (5) Preparation of material in stages so that children can learn according to their cognitive development.

This research also shows that interactive and flexible multimedia has the potential to increase children's learning motivation and involvement in learning English, as well as making it easier for parents and teachers to support the learning process. This flexibility in the use of multimedia allows active involvement of parents at home, so that learning becomes more sustainable and comprehensive. Thus, this research provides practical and theoretical contributions in the development of English language learning multimedia for early childhood. It is hoped that the implications of this research can become a reference in designing multimedia that suits children's developmental needs, so that it is more effective in supporting the introduction of English at an early age.

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