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ANALYSIS OF GROUP A KINDERGARTEN STUDENTS' DIFFICULTIES IN IDENTIFYING NUMBER SYMBOLS THROUGH NUMBER CARD MEDIA AT TK XAVERIUS METRO

ANALISIS KESULITAN SISWA TAMAN KANAK-KANAK KELOMPOK A DALAM MENGENALI LAMBANG BILANGAN MELALUI MEDIA KARTU ANGKA DI TK XAVERIUS METRO

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Abstract

This study aimed to analyze the difficulties experienced by Group A children at TK Xaverius Metro in identifying number symbols through number card media. Recognizing number symbols is a basic cognitive skill in early childhood that forms the foundation of early mathematics learning, yet some children still have difficulty recognizing, distinguishing, and connecting number symbols with quantities of objects. This study employed a descriptive qualitative design. Data were collected through observation of learning activities, semi-structured interviews with the classroom teacher, and documentation, and were analyzed using the Miles and Huberman model, which consists of data reduction, data display, and conclusion drawing and verification. The trustworthiness of the data was ensured through technique and source triangulation. The findings show that all four indicators, namely visually recognizing numbers, naming numbers correctly, grouping objects according to a given quantity, and connecting number symbols with concrete objects, fall within the moderate difficulty category, with overall percentages of 57%, 56%, 55%, and 42%, respectively. The greatest difficulty occurred in connecting number symbols with concrete objects. The contributing factors include differences in children's cognitive development, limited concentration, insufficient repeated stimulation, the limited number of number cards, and lesson plans that do not describe the use of number card media in detail. Number card media helps children recognize number symbols through visual and play-based experiences, but its effectiveness depends on adequate media, structured planning, and continuous guidance.

Keywords : Number Symbol Identification, Number Card Media, Early Childhood Education, Group A.

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Abstrak

Penelitian ini bertujuan untuk menganalisis kesulitan yang dialami oleh anak-anak Kelompok A di TK Xaverius Metro dalam mengenali simbol angka melalui media kartu angka. Mengenali simbol angka merupakan keterampilan kognitif dasar pada anak usia dini yang menjadi landasan bagi pembelajaran matematika awal; namun, beberapa anak masih mengalami kesulitan dalam mengenali, membedakan, serta menghubungkan simbol angka dengan jumlah benda. Penelitian ini menggunakan desain kualitatif deskriptif. Data dikumpulkan melalui observasi kegiatan pembelajaran, wawancara semi-terstruktur dengan guru kelas, serta dokumentasi, kemudian dianalisis menggunakan model Miles dan Huberman yang mencakup reduksi data, penyajian data, serta penarikan dan verifikasi kesimpulan. Keabsahan data dipastikan melalui triangulasi teknik dan sumber. Hasil penelitian menunjukkan bahwa keempat indikator yaitu mengenali angka secara visual, menyebutkan nama angka dengan tepat, mengelompokkan benda sesuai jumlah tertentu, serta menghubungkan simbol angka dengan benda konkret berada dalam kategori tingkat kesulitan sedang, dengan persentase masing-masing sebesar 57%, 56%, 55%, dan 42%. Kesulitan terbesar ditemukan pada aspek menghubungkan simbol angka dengan benda konkret. Faktor-faktor penyebabnya antara lain perbedaan tingkat perkembangan kognitif anak, konsentrasi yang terbatas, kurangnya stimulasi berulang, jumlah kartu angka yang terbatas, serta rencana pembelajaran yang tidak menjabarkan penggunaan media kartu angka secara mendetail. Media kartu angka dapat membantu anak mengenali simbol angka melalui pengalaman visual dan berbasis permainan, namun efektivitasnya bergantung pada ketersediaan media yang memadai, perencanaan yang terstruktur, serta bimbingan yang berkelanjutan.

Kata Kunci : Identifikasi Lambang Bilangan, Media Kartu Angka, Pendidikan Anak Usia Dini, Kelompok A.

1. INTRODUCTION

Early childhood is a critical period in which children experience rapid development in motor, language, social, and cognitive abilities, and appropriate stimulation during this stage strongly shapes later development (Hurlock, 2013). Cognitive development is therefore an important aspect of early childhood education. According to Piaget, children aged 2 to 7 years are in the preoperational stage, in which they begin to use symbols, including words, pictures, and numbers, to represent objects, although their thinking remains concrete (Santrock, 2012).

Recognizing number symbols is one of the basic abilities in early childhood mathematics learning. Susanto (2011) describes this ability as the capacity to recognize, name, and understand number symbols and to relate them to a certain quantity of objects. Suyanto (2005) emphasizes that early number learning is not merely reciting a sequence of numbers; children also need to understand what each symbol represents through direct experience with concrete objects. Aisyah (2014) adds that learning in early childhood should be carried out through play and supported by concrete media.

Number card media is a simple and practical medium for this purpose. Through play activities such as matching numbers with quantities of objects, arranging numbers in sequence, and naming number symbols repeatedly, children can practice recognizing number symbols in an enjoyable atmosphere. Previous studies have examined the use of number card media for this purpose (Fransiska & Khotimah, 2023; Juandara et al., 2025; Mahrus, 2023). Most of these studies focused on the improvement or effect of number card media. This study, in contrast, focuses on describing the specific difficulties that children experience while learning with number cards.

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Preliminary observation at TK Xaverius Metro showed that some Group A children still confused number symbols, could not recognize them consistently, and had difficulty linking the number of objects with the appropriate symbol. This situation indicates the need to analyze children's ability to recognize number symbols through the use of number cards. Therefore, this study aims to describe the difficulties experienced by Group A children in identifying number symbols through number card media at TK Xaverius Metro. The research question is: What difficulties do Group A children experience in identifying number symbols through number card media at TK Xaverius Metro?

2. RESEARCH METHOD

This study used a descriptive qualitative design. According to Sugiyono (2023), qualitative research examines natural conditions of an object, in which the researcher acts as the main instrument, data are collected through triangulation, and the findings emphasize meaning rather than generalization. Descriptive research, as explained by Nazir (2017), aims to describe systematically and accurately the facts and characteristics of a phenomenon. This design was chosen because the study aims to describe the difficulties children experience, not to test relationships between variables or the effect of a treatment. No intervention or special treatment was given to the children.

The study was conducted at TK Xaverius Metro, Metro City, Lampung Province, from April to August. The population consisted of all Group A children, aged 4 to 5 years. As a qualitative study, it did not use statistical sampling; the participants were the children who were directly involved in number recognition activities using number cards. The classroom teacher of Group A served as a supporting informant. The observation data were focused on 10 children. The study was limited to four indicators of number symbol identification and to the use of number card media, without comparing other learning media.

Data were collected through three techniques. First, observation was conducted during learning activities that used number cards, focusing on children's recognition of number symbols, their responses to the cards, their involvement in the activities, and the way the teacher used the media. The observation instrument consisted of 20 statements grouped into four indicators, with five statements per indicator. Each statement was rated using four categories following the assessment guidelines for early childhood development (Depdiknas, 2007): not yet developed (BB), beginning to develop (MB), developing as expected (BSH), and developing very well (BSB). Second, a semi-structured interview was conducted with the Group A teacher about the stages of teaching number symbols, the difficulties children experience, and the use of number cards. The interview guide was based on the stages of introducing number symbols proposed by Suyanto (2005). Third, documentation was collected in the form of photographs of learning activities, lesson plans (RPPH/RPPM or teaching modules), and children's development notes.

The indicator scores were converted into percentages by dividing the total score obtained by the maximum possible score (10 children × 5 statements × 4 points = 200) and multiplying the result by 100. The data were analyzed using the Miles and Huberman model (Miles & Huberman, 2014), which consists of data collection, data reduction, data display, and conclusion drawing and verification. The trustworthiness of the data was ensured through technique triangulation, which compared the observation, interview, and documentation data, and through source triangulation (Moleong, 2018).

3. RESULTS AND DISCUSSION

Observation Results

The observation results showed that children's ability to identify number symbols was still developing and varied from one child to another. Some children could recognize simple number symbols and name them, but difficulties appeared when they had to distinguish similar symbols, arrange symbols correctly, and match symbols with a quantity of objects. Table 1 summarizes the results for each indicator.

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Table 1. Recapitulation of Observation Results

No.	Indicator	Total Score	Percentage	Interpretation
1	Recognizing numbers visually	113	57%	Moderate difficulty
2	Naming numbers correctly	112	56%	Moderate difficulty
3	Grouping objects according to a given quantity	109	55%	Moderate difficulty
4	Connecting number symbols with concrete objects	84	42%	Moderate difficulty

Visual recognition of number symbols obtained the highest percentage (57%). In some activities, children were able to distinguish number cards from picture cards or letter cards. However, when they were asked to show a particular number or to find a number card among shuffled cards, several children still needed direction and help. Confusion was also seen when children faced symbols with similar shapes, such as 6 and 9 or 2 and 5. This is consistent with Rahmawati (2022), who found that children in Group A often have difficulty distinguishing number symbols that resemble each other, so repetition and teacher assistance are needed.

Naming numbers correctly obtained 56%. Most children could recite the numbers 1 to 10 in sequence while pointing at the cards. When the cards were shown in random order, however, some children took longer to respond and needed help naming particular symbols. This shows that the ability to recite a number sequence does not always translate into the ability to recognize individual symbols. As Suyanto (2005) explains, understanding numbers involves more than reciting their names in order.

Grouping objects according to a given quantity obtained 55%. Children found it easier to work with concrete objects that they could see and touch. Nevertheless, some children had difficulty taking the number of objects requested by the teacher. Others counted objects without systematic order, counted the same object more than once, or failed to stop counting when the target quantity had been reached. Some children also needed help to correct their mistakes when they took too many or too few objects. These findings suggest that children still need concrete experiences before they can fully understand the concept of quantity (Susanto, 2011).

Connecting number symbols with concrete objects was the most difficult indicator, with a percentage of 42%. This indicator included matching number cards with containers holding the same number of objects, placing concrete objects on the corresponding number cards, and matching a number card with a picture card showing the same value. Children could complete these tasks more easily when the concrete objects were clearly visible, but they struggled to understand that a number symbol represents a quantity. This difficulty was the most prominent finding of the study.

Interview Results

The interview with the Group A teacher revealed that number symbols were taught gradually. Children were first given experience with concrete objects to understand the concepts of "many" and "few." They were then guided to count objects directly, after which number symbols were introduced through number cards, and finally children were asked to match symbols with quantities. This sequence corresponds to the stages proposed by Suyanto (2005). The teacher also explained that children who still had difficulties needed repeated instructions, examples from the teacher, and individual support. These statements are consistent with the observation results, which showed that the difficulties were concentrated in the link between symbols and quantities.

Documentation Results

The photographs showed that the teacher used number cards to introduce number symbols to the children. The cards covered the numbers 1 to 10, but their number was limited and not sufficient for all children, so not every child could handle the cards at the same time. The lesson plans (RPPH/RPPM or teaching modules) used an inquiry model and included the introduction of number symbols. However, the steps for using number cards were not described in detail in the learning

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sequence. Consistent with Arsyad (2017), adequate media is important for supporting understanding, and in this case the limited availability of cards restricted the opportunities for children to interact with the media directly.

Triangulation

The observation, interview, and documentation data were consistent with one another. All three sources indicated that children were relatively stronger in visual recognition and verbal naming than in connecting number symbols with quantities. They also revealed two supporting conditions: the limited number of cards available for the children and the lack of detail about card use in the lesson plans. Based on this triangulation, the difficulties of Group A children at TK Xaverius Metro can be summarized as moderate and concentrated in the relationship between symbols and quantities.

Discussion

Overall, the findings show that Group A children at TK Xaverius Metro are at a moderate level of difficulty in identifying number symbols. Their ability to recognize symbols is emerging, but it is not yet stable and still depends on the context of learning and the teacher's guidance. This finding is consistent with Piaget's account of the preoperational stage. Children at this stage are able to use symbols, but their thinking is still concrete and they require direct experiences to understand abstract representations (Santrock, 2012). Number symbols are an abstraction of quantity, so it is understandable that the connection between symbols and concrete objects was the most difficult aspect for the children in this study.

The gap between verbal counting and symbol recognition also deserves attention. Children could recite numbers in sequence more easily than they could identify randomly presented symbols or link symbols to quantities. This suggests that memorizing number names is not the same as understanding what the symbols mean. Sriningsih (2008) emphasizes that number learning in early childhood should take place through play, with concrete objects introduced before symbols, so that children gradually connect symbols with the concept of quantity. The findings of this study support this view, since children performed best when concrete objects were visible.

Several factors appear to contribute to these difficulties. These include differences in cognitive development among children, limited concentration, insufficient repetition and consistent stimulation, the limited number of number cards, and lesson plans that did not specify the steps for using number card media. These factors interact with one another and affect children's ability to identify number symbols. The role of the teacher is also important. Following Vygotsky's view, as presented in Morrison (2012), children learn with the help of adults or more capable peers. Therefore, repeated guidance and individual support are particularly important for children who experience difficulties.

The findings are also relevant to previous studies on number card media. Fransiska and Khotimah (2023), Juandara et al. (2025), and Mahrus (2023) reported that number card media can support children's recognition of number symbols. The present study adds that this benefit depends on the conditions in which the media is used. Not all children benefit equally, and the children who experience difficulties need more individualized support and more opportunities to practice. In this sense, the effectiveness of number card media is shaped by how it is provided, planned, and supported in daily learning.

These findings have several implications. For teachers, number symbols should be introduced gradually, moving from concrete experiences to symbolic representations, and children who still struggle should receive individual support and repeated practice. For schools, the availability of number cards should be increased so that all children can interact with the media directly, and the steps for using number cards should be described clearly in the lesson plans. Parents can also reinforce children's learning at home by counting objects around the house, playing with number cards, and naming numbers on everyday objects. Such activities can strengthen children's understanding of number symbols in a familiar context.

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4. CONCLUSION

Based on the results and discussion, Group A children at TK Xaverius Metro experienced moderate difficulties in identifying number symbols through number card media across four indicators: recognizing numbers visually (57%), naming numbers correctly (56%), grouping objects according to a given quantity (55%), and connecting number symbols with concrete objects (42%). The most prominent difficulty was in connecting number symbols with concrete objects, which indicates that children were still developing their understanding of symbols as representations of quantity. The difficulties were associated with differences in cognitive development, limited concentration, insufficient repetition, the limited number of number cards, and lesson plans that did not describe the use of number card media in detail.

Number card media helps children recognize number symbols through visual and play-based experiences. However, its effectiveness depends on the availability of adequate media, structured lesson planning, and continuous guidance from teachers. This study has several limitations. Its qualitative descriptive design means that the findings describe conditions at one point in time and cannot be generalized to other populations. The study was conducted in a single class in one kindergarten, did not include any intervention, and relied on an observation instrument that may not capture every aspect of children's behavior. Future studies may use action research or the development of learning media to test strategies that can help children overcome these difficulties.

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