Journal of Educational Technology and Instruction
e-ISSN: 2963-458X
2023, Vol. 2, No. 1, pp. 87-100

Analysis of Children's Language Skills and Number Concepts through Technology in the Digital Era

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Received:
16 December 2022
Accepted:
13 March 2023
Published:
31 March 2023

Citation: Rosalianisa, R., Purwoko. B., Nurchayati, & Subrata, H. (2023). Analysis of Children's Language Skills and Number Concepts through Technology in the Digital Era. *Journal of Educational Technology and Instruction, 2*(1), 87-100.

Abstract— Language is one of the elements behind the development of aspects of development that occur in early childhood, as well as a tool or means to communicate with other people and the environment. To develop and stimulate children's language development, they can carry out activities such as listening, speaking, reading, and writing, as well as saying and counting number symbols with digital-era devices. This study aims to describe language skills and recognize the concept of numbers in early childhood through technology. This research method is a literature study or review with a qualitative approach that collects data or is based on scientific writing, combining research with existing literature to solve problems. Collecting library data includes reading, storing, and managing research and concluding research materials. The research results show that developing language skills and recognizing numbers in early childhood requires listening, speaking, reading, and writing, and calling and counting number symbols through technology.

Keywords: language ability; number concept; technology

1. INTRODUCTION

Early childhood is an individual character that experiences a rapid development process and is crucial for the next life. Early childhood is a child with characteristics such as movement (does not like silence), uniqueness, activity, high curiosity, likes to experiment and test, can express himself creatively, imagining, and wanting to talk (Kurnia, 2018:46). According to Fadlilah (Iin, 2015:23-24), early childhood also has spontaneous characteristics, is easily frustrated, has not thought of anything, has a short attention span, is eager to learn and learns a lot from experience, and shows an increased interest in friends. An early age or often referred to as the golden age because this age is the initial stage of forming a child's intelligence.

Children need special attention from the people around them in this golden age. If the golden period is missed, the child's growth and development will not be optimal (Mei, 2019:01), so proper early childhood education must be given according to the characteristics and development of the child. Early Childhood Education is the level of education that precedes primary education, which is part of the obligation to foster and target children from birth to the age of six, which is carried out through the provision of pedagogical encouragement that strengthens the physical and mental support of children so that they continue to further education. Further education is held in formal, non-formal, and informal learning paths (Musfah, 2012:74).

Early childhood education aims to develop all aspects of early childhood development, including moral, religious, physical-motor, language, cognitive, artistic,

and social-emotional aspects. The six development elements must be developed and enhanced in a balanced and sustainable manner. This assumption is correct because the six elements are interrelated (Intan Atika, 2019:01). Language development is one aspect of development that is very important to be stimulated and developed in schools, families, and communities. Language is one of the elements behind the development that occur in early childhood, as well as a tool or means to communicate with other people and their environment (Rakhmawati, 2017:05) because language is the first foundation that is firmly rooted in society.

According to Sonawat (Usman, 2015:03), there are several functions of language, namely: 1) language is a tool for desire, 2) language is a tool for expressing feelings, 3) language is a tool for acquiring knowledge, 4) language is a tool for social interaction, 5) language is a tool for personal recognition. According to Vygotsky (Madyawati, 2016:41), spoken language also provides the tools for mental representation, or in the sense of "verbal mediation," namely the ability to name objects and processes needed to develop concepts, generalizations, and ideas. According to Doherty (Kurnia, 2019:01), early childhood is in the metalinguistic phase. Namely, children understand language as a communication system, know how to form complex sentences and pronouns and verbs correctly, control vocabulary, and manipulate language with the help of word games and puzzles. Riddles and metaphors.

Early childhood language skills based on Permendikbud No. 137 (2014) regarding standard proficiency levels for language development in children are 1) understanding language. Expected developmental states are: understanding several commands at once, repeating more complex sentences, understanding the game's rules, enjoying reading and appreciating it; 2) language expression. Expected developmental statuses are: answering more complex questions by mentioning groups of images with the same sound, verbally recognizing vocabulary and symbols to prepare for reading, writing, and arithmetic, and building simple sentences into complete structures (subject-predicate-adverb) Words to express ideas to others; 3) literacy. Expected developmental statuses are: mentioning the name of a familiar letter symbol, recognizing the sound of the first letter in the name of an object in the surrounding environment, mentioning a group of images that have the same initial sound/letter, understanding the relationship between sound and letter shape, reading self-names, writing names themselves, understand the meaning of words in history (Permendikbud, 2014). But in reality, many young children still do not understand the language and expressive language and literacy, which interferes and hinders learning in class.

Based on the results of observations made in Kindergartens in Surabaya and Sidoarjo. The problem is that many children still need optimal language skills. Even though language is essential in everyday life because language is a communication tool for children. Judging from how the teacher carries out the teacher-centered learning process and the selection of media that has not varied, the methods used in learning still need to be more varied, so children quickly feel bored in the learning process (Oktapiani et al., 2021:286 Therefore the teacher must be able to carry out a quality learning process through learning methods and media and be able to evaluate every learning process that is carried out. Utilization of the learning environment can clarify the messages conveyed to children, help children increase learning motivation and variety of learning, and it is hoped that children's education will become more meaningful (Tomia et al., 2020:02).

However, this learning video media still needs to be used in kindergartens due to limited facilities and school infrastructure. For various reasons, schools usually do not use this learning video media in learning activities. Even though the use of media is

e-ISSN: 2963-458X
2023, Vol. 2, No. 1, pp. 87-100

exciting for children because children generally like pictures, especially in the form of audio-visual, the media is not only attractive but also has educational value, so it is hoped that the use of the media will be effective in developing children's language (Nurhamsa et al., 2020:02). In addition to language skills, there is the ability to recognize the concept of numbers which is also very important to be stimulated and developed in early childhood using technology in this digital era. Mathematical intelligence is crucial if it is taught to children early because mathematics in counting is often needed in everyday life. So it is necessary to introduce the concept of number symbols from early childhood.

According to Ramaini (Gunanti et al., 2021), the concept of numbers is one of the activities related to connecting objects or symbols of numbers. Number symbols are writing number names in the form of logos or characters, while number names are names for numbers. The concept of numbers is a mathematical concept that has a crucial role in early childhood, which consists of counting the number of numbers, getting to know the idea of symbol numbers, connecting the number of objects with symbol numbers, and comparing symbol numbers.

The opinion of Suprapti (2016), namely children's mathematical abilities, including children's can sort numbers. Children can count and relate the number of objects with the numbers. According to Suryana (Faizatun, 2018:108) states that the level of achievement of child development in the scope of cognitive development to improve the concept of numbers at the age of 4-6 years, namely: 1) Knowing the concept of many and few, 2) Recognizing the concept of numbers, 3) Recognizing symbols numbers, 4) Saying the number symbols 1-10 and matching the numbers with the number symbols.

The introduction of the concept of numbers taught in schools and kindergartens is one of the cornerstones of science and technology skills, as well as the basic concepts of mathematics, which is the readiness to start arithmetic for children to enter a more advanced level of education. An understanding of numbers from an early age can develop reasoning abilities in children, which are reflected through the ability to think critically, logically, and systematically, have an objective nature, be honest, and be disciplined in solving problems both in mathematics, other fields, and in everyday life. From skills that are expertise to understanding that is appreciation will succeed in developing high enough scientific and technological abilities (Kobandaha, 2015:02).

Based on the results of interviews and observations at several kindergartens in Surabaya and Sidoarjo, several problems were found: children's low ability to recognize number symbols was influenced by several factors. Factors from outside the child that can affect the standard ability to recognize number symbols, for example, the introduction of number symbols using conventional media so that they are less attractive, which makes children bored and less enthusiastic and interested, less engaging or fun, less varied and less innovative and monotonous.

Carrying out learning in current conditions is very difficult for teachers because teaching students requires media that can make students interested and interested in learning. Approximately 60% of children need help correctly naming the number symbols sequentially, using the number symbols to count, matching the number symbols with the number symbols, and inaccurately making the sequence of number symbols 1-10. In addition, the need to use natural and concrete learning media as a tool during the learning process occurs. Hence, children still feel lacking and need help understanding what the teacher conveys in class during the learning process. Teachers only use children's worksheets and notebooks as learning tools to make learning less challenging for children. Thus, the child needs to be more confident answering questions posed by

the teacher in the class about recognizing the concept of number symbols. Based on these problems, it is essential to introduce the idea of number symbols from an early age using the correct method and according to the stages of child development (Asri Devi, 2020:260).

One effort that can be made to overcome this problem is through technology. Technology in the digital era has become a foothold in the world of education which can trigger learning motivation for students so that they are enthusiastic and interested in learning. One of the facilities provided by the development of digital technology is learning videos. Learning videos have functions and benefits for student learning motivation and motivate teachers to provide innovative and creative learning given to students (Amada & Hakim, 2022:10). With the rapid development of technology, it requires teachers to equip themselves with the ability to use technology because learning videos are an essential component in supporting the learning process.

Therefore the selection of learning videos needs special attention because learning videos help teachers achieve learning goals and are popular and widely used in the current learning process. Video is a capture, recording, processing and s, and storage technology that can present a more dynamic visualization of material. Video learning is one of the learning media which includes a type of multimedia that makes learning more innovative, varied and fun because it can become an intermediary for information or material from the teacher to students (Udiani & Kristiantari, 2021:203). Based on the background of the problems described above, the researcher is interested in researching language skills and recognizing child numbers through technology with learning videos in this digital era.

2. METHODS

This research uses a qualitative approach, namely the method of library research or library research. Library research or library research, namely research activities based on a collection of materials or scientific writing, is to write a research subject or group of materials or to conduct research later to solve a problem and, as appropriate—library depth. Before researching library materials, researchers must know for sure about the source of scientific information and, with certainty, where the head of scientific knowledge comes from. Some of the sources used include; textbooks, scientific journals, research results in the form of theses, theses, dissertations, and the internet, as well as other relevant authorities (Wandi & Mayar, 2019:354). In library research, existing library resources are used to obtain research materials so that researchers do not have to do research directly.

There are three reasons for using library research: 1) this research question can only be answered through library research, and 2) library research is needed as a separate step, namely. Preliminary research, through which one can gain a deeper understanding of new phenomena that are developing in the field or society, 3) there is reliable information literature to answer research questions. According to Wandi and Manyar (Mukarromah et al., 2020:398), library research is carried out by utilizing library resources to obtain research materials so that library research can limit activities to only the collection of library materials without field research.

This research uses the literature study method by examining several literature journals related to language skills, knowing the concept of numbers and technology. The data collection technique used is documentation, namely documents in the form of literature related to research topics, such as articles. Data analysis in this study is content analysis and uses data analysis techniques from miles and hubermen, namely data

reduction, data presentation, and data verification (Siregar et al., 2020:721). The results of various literature studies will be used to identify language skills and recognize the concept of child numbers through technology with learning videos. The stages of the research carried out adopted the steps of library research as follows:

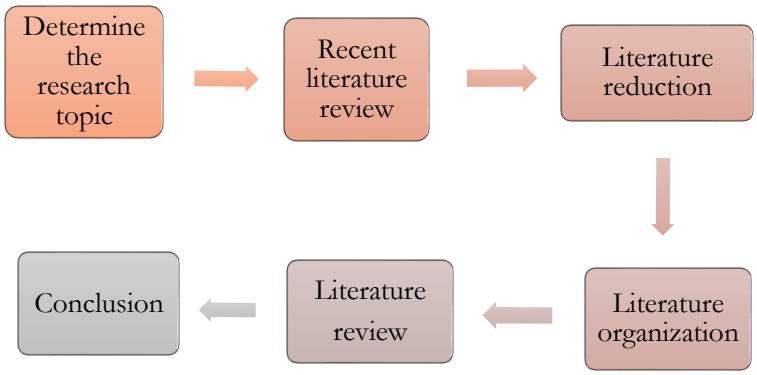

Figure 1. Research Stages

To analyze the data, researchers used qualitative data analysis techniques because the data used were not in the form of numbers but in the form of literature. Data analysis methods use a descriptive way to explain the study results in depth, detail, and detail. This research begins with defining the research topic, followed by a review of the latest literature, reducing the literature, organizing the literature, reviewing the literature, and drawing conclusions (Wiresti, 2020:644).

3. RESULTS

Some of the findings of journal articles which become references and library materials in literature study research are presented in table form below:

Table 1. Journal articles

No.	Journal Title	Variable	Results
1.	Analysis of Children's Language Development Through Group A Interactive Video Learning Media at Al-Khairat Skep Kindergarten, Central Ternate City	Language Development	Through Interactive Video Learning Media in Group A Kindergarten Al-Khairat Skep Ternate City, interactive video media can improve early childhood language development.
2.	The Effectiveness of Using Learning Video Media Against Oral Language Ability of Early Childhood	Oral Language Ability	Audio-visual media has proven effective and efficient in stimulating the oral language skills of children aged 5-6 years at Immanuel Christian Kindergarten, Pontianak.
3.	Efforts to Improve English Vocabulary in Early Childhood Using	English Vocabulary Ability	Wayang media, through learning videos, get very high qualifications and

	Puppet Media Through Learning Videos		feasible for early childhood learning. Besides that, it can help teachers support the learning process so that children can improve their English vocabulary skills.
4.	Interactive Multimedia Based Learning Videos in Improving Early Childhood Listening Skills	Listening Skill (Language)	Development of interactive multimedia-based videos on language aspects, in particular listening skills can be used This learning media can be used as learning to improve children's skills, especially listening skills.
5.	Using Learning Videos for Early Childhood in Online Learning	Language skill	The use of learning videos as a medium for conveying content to students. Learning videos are designed according to the age and learning themes set and implemented. Designing and making videos can be done simply by utilizing existing media such as cell phones with taking pictures alternately between teachers.
6.	Utilization of Learning Video Media "Playing with Numbers" to Improve the Introduction of Number Concepts in Kindergarten Al Hidayah Krembangan Surabaya	Numbers Concept Ability	Utilization of video media learning "Play with Numbers." as a learning medium for improve group student learning outcomes An on the subject of getting to know numbers at TK Al Hidayah Krembangan, Surabaya.
7.	Learning Video for Introduction to Number Symbols Based on Bruner's Theory for Early Childhood	Ability to Know the Concept of Numbers	Based on Bruner's theory, video learning media for recognizing number symbols is feasible and has excellent qualifications for use in early childhood.
8.	Analysis of Number Concept Ability for 3-4 Years Old Children with Montessori Number Rods Media	Numbers Concept Ability	Montessori number rods media can improve the ability to recognize numbers for children aged 3-4 years at Kober Mentari Preschool for the 2019/2020 Academic Year. Because Montessori number rods media is a learning medium that can improve aspects of early childhood development when using Montessori number rods media, children don't feel they are learning. Still, they feel happy playing, and by using Montessori number rods media, children's learning activities become more enjoyable so

			that Children are more interested and interested in participating in learning, and the learning outcomes obtained will be better.
9.	Introducing the Concept of Numbers Through Audio Visual Media to Children Aged 5-6 Years	Numbers Concept Ability	Introducing the Concept of Numbers Through Audio Visual Media in Children 5-6 Years," it can be concluded that the ability of children aged 5-6 years in kindergarten Tualang One Roof Country is already good. Based on the results of observations, the researcher's review of students' homes, and the effects of interviews with parents, the source said that the child can already recognize numbers even though some still need guidance. Every child's ability to know numbers varies depending on the children's learning interests and the support and assistance each receives.
10.	Getting to Know the Concept of Numbers Through Multimedia Learning in Children 4-5 Years	Numbers Concept Ability	Through multimedia-based learning, the ability to recognize numbers in group A1 pre-kindergarten Lazuardi Kamila GIS Surakarta has increased and progressed.

4. DISCUSSION

The Relationship between Technology and Children's Language Ability

Research that supports that improving language skills can be obtained from technology through learning videos is conducted (Halim, 2015) which pr, which proves that the application of technology through learning videos influences and provides high effectiveness and improves children's spoken language skills. There is a very significant increase in language skills. The aspect of language skills studied is spoken language, especially saying, but it can also affect children's literacy skills, including reading and writing. Learning videos in the form of audio-visual media, namely modern instructional media that are by the times (science and technology), include media that can be seen and heard by children (Hermawan, 2007). During the learning process, children can understand the content conveyed by the teacher in the learning video. In addition, children can also answer questions related to the material in fruit and vegetable-themed learning videos.

In making learning videos, there are speaking strategies that need to be considered by the teacher because children learn to imitate what they hear and see. The teacher provides the steps that need to be taken before the media is used, such as preparing lesson plans, preparing media and tools for making learning videos in the form of recording devices, learning tools and applications, and the process of editing the learning videos. Furthermore, in the form of sending learning videos to parents through the Microsoft Teams application. Similar research was also conducted by (Oktapiani et al., 2021) that there was an increase in language development by implementing learning

videos. The results of the analysis of the data obtained from experts on the subject matter and learning media through learning videos get very high qualifications. They are appropriate for the early childhood in learning process. In addition, it can assist teachers in supporting learning so that children can improve their language vocabulary skills.

This is due to several factors, namely as follows: First, learning media through learning videos that are developed are feasible to apply because they can increase early childhood interest in learning and are possible to use because of the attractiveness and clarity of the media. The beauty of learning media can increase students' interest in education (Chang et al., 2021). Second, teaching media through learning videos that are developed is feasible to apply because it can increase vocabulary in early childhood. Learning video media presents interesting vocabulary material, king it easier for students to remember the vocabulary presented in the video. Appropriate media will make it easier for students to understand the material presented in the video (Rahmatia et al., 2021). Third, learning media through learning videos that are developed are feasible to apply because they can create a fun learning atmosphere for children. Through this learning video, children will feel happy and interested in learning because they will be given language vocabulary with various pictures through the learning videos provided. The use of media that is easy for students to understand will create a pleasant learning atmosphere (Diyantari et al., 2020).

Furthermore, research conducted by (Nurhamsa et al., 2020) found that the results obtained were an increase in the implementation of children's language development through interactive learning video learning media. The teacher develops aspects of child development, namely cognitive, motor and language. The teacher also determines the objectives of the interactive video. In terms of children's language development goals in the interactive video, the teacher looks at essential competencies in children's language skills through interactive video tools. The videos provided include educational videos recognizing letters, recognizing symbols, and connecting vocabulary. According to Cheppy (2007), to produce learning videos that can increase the motivation and effectiveness of their users, the development of learning videos must pay attention to their characteristics and criteria. From some of the descriptions of the research results above, it can be concluded that technology is an effective and efficient way of developing language skills in early childhood with learning videos. Because children generally like pictures, especially in audio-visual form, these media are attractive and have educational value, so learning videos are practical and efficient in children's language development.

The Relationship between Technology and Children's Ability to Recognize the Concept of Numbers

Research that supports that increasing the ability to recognize number concepts can be obtained from technology through learning videos is research conducted by (Cahyanto, 2014), proving that the use of learning video media "Playing with Numbers" can improve cognitive abilities in recognizing number concepts in students and influences the learning process. In using the "Playing with Numbers" instructional video media, the teacher should review it before implementing it in the learning process and formulate learning strategies that are appropriate to the conditions of the students, the material, and the video media. The learning video media "Playing with Numbers" is one of the media developed to assist students in carrying out the learning process; therefore,

e-ISSN: 2963-458X
2023, Vol. 2, No. 1, pp. 87-100

learning media should match the characteristics of students and be produced by involving people who are experts in this field.

Similar research was also carried out by (Udiani & Kristiantari, 2021). The study found that the validity test and individual trials of learning video media products based on Bruner's theory obtained excellent results. The findings obtained in this development research are as follows: The first finding relates to the review results of the learning content expert, who received a score of 95.8% with excellent qualifications. The material in this learning video media is visualized in digital form. This can provide exciting messages and impressions in the learning process. Teachers, educators, and leaders are responsible for students' learning success (Fazriah, 2021). The second finding relates to the results of reviews from learning design experts; the learning video products developed obtained a percentage of 83% with excellent qualifications.

Based on these results, teachers must develop and adapt learning strategies to the learning conditions implemented. At this time, the teacher must find the right plan to facilitate students' learning. Teaching is an activity about conveying information and encouraging students in the learning process to achieve learning goals (Fahreza & Husna, 2017). The third finding relates to reviews from learning media experts; the learning video products developed obtained a percentage of 87.5% with excellent qualifications. Various learning media, such as teaching videos,s can attract students' attention, interest, and enthusiasm for learning. Video learning is a modern learning media that utilizes technology and has a positive, effective, and efficient influence on education. Learning videos have the advantage that they can be used anytime and anywhere that can be accessed via a mobile phone, so they are suitable for use in online learning (Batubara, 2017). The fourth finding relates to individual trials; the learning video products developed obtained a percentage of 91.3% with excellent qualifications.

Learning videos can be used as learning media that can increase student interest in learning and become a solution to problems found in online education, especially in teaching media (Agustin, 2021). The use of learning videos in the learning process can foster students' interest in learning because learning videos are multimedia with audio-visual elements that can be used as an attraction for learning media. Furthermore, research conducted by (Tahirah, 2022) shows that using interactive learning videos can improve the ability to recognize numbers in early childhood. This can be seen from the significant increase in children's ability to recognize numbers. When the teacher sings a song about the characteristics of numbers and then displays an interactive learning video with a video duration of about 2 minutes through a projector and is watched by students, students will listen to the video until it's finished. The teacher repeats it, but the video pauses at each emerging number. The child is then appointed by the teacher or volunteers one by one to count the number of animal pictures in the video; then, they are asked to sort, name, and group numbers 1-10 through the video.

The students are then provided with cardboard for sticking and animal pictures; the animal pictures are pasted on the number symbol that the teacher has written on the cardboard. In carrying out activities, it is necessary to plan carefully so that the activities carried out are more focused so that aspects of the abilities to be improved can run more optimally, and increasing the ability to recognize the concept of numbers requires lesson hours centered on these activities so that students can focus, not rush, and not quickly tired in understanding the material and participating in activities so that the class becomes more conducive (Arianti, 2017:41-61). From some of the descriptions of the research results above, it can be concluded that technology is an effective and efficient way of developing the ability to recognize the concept of numbers in early childhood

with learning videos because learning videos are an essential component in supporting the learning process of the learning process. So that it can trigger learning motivation for students so that they are excited and interested in learning to recognize the concept of numbers.

5. CONCLUSION

One of the abilities of early childhood that must be stimulated and developed by the teacher is language skills and the ability to recognize the concept of numbers. Language ability is a tool or means to communicate with other people and their environment for children. The ability to recognize the idea of numbers also needs to be developed because mathematics in counting is often required in everyday life, as well as the basic concepts of mathematics, which are readiness in starting arithmetic in children to enter a more advanced level of education. Technology using learning videos can trigger learning motivation for students so that they are excited and interested in learning. It can be concluded that language skills and the ability to recognize numbers in early childhood require technology through learning videos.

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e-ISSN: 2963-458X
2023, Vol. 2, No. 1, pp. 87-100

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