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The Role of Teachers in Utilizing ChatGPT to Create Numeracy Literacy Teaching Media at TK BSC School

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Abstract: This research aims to investigate the role of teachers in developing numeracy literacy teaching media using ChatGPT. The effectiveness of using ChatGPT as an aid in creating numeracy literacy teaching media at TK BSC School is also examined, with the goal of capturing children's interest and engagement. This study employs a descriptive qualitative research design. The subjects consist of 25 respondents, comprising 83% with a bachelor's degree education level, including teachers, principals, and parents. Approximately 53% of the teachers have more than 5 years of teaching experience. Data collection techniques include observation, interviews, and questionnaires. Data analysis utilizes triangulation techniques involving data reduction, presentation, and drawing conclusions. The research findings indicate that teachers feel significantly assisted, with approximately 55.3% stating that ChatGPT is beneficial and provides additional material options for creating numeracy literacy teaching media. Additionally, respondents report feeling comfortable using ChatGPT and are able to spend extended periods of time in front of the computer due to their increasing curiosity about the responses generated by ChatGPT.

Keywords: The Role of Teachers, Chatgpt, Numeracy Literacy.

INTRODUCTION

The existence of an individual, whether in the family, society, or nation, cannot be separated from the importance of education. As a nation experiencing national growth, Indonesia requires highly skilled and competent Human Resources (HR). The Ministry of National Education states that education is one way to produce reliable and high-quality human resources (Sriandila et al., 2023). Schools, as one of the formal education institutions, play a crucial role in achieving national educational goals through the teaching and learning process. However, the evolving education landscape, shifting towards open, flexible, and dynamic learning paradigms, needs continuous enhancement (Lestarinigrum, 2022).

According to the Program for International Student Assessment (PISA) 2022, Indonesia ranks 68 out of 81 countries, with scores of 379 in mathematics, 398 in science, and 371 in reading (Alam, 2023). This indicates that the understanding of Indonesian students in mathematics and reading is still low. Most Indonesians are not accustomed to basing their actions on reading and arithmetic. They struggle to actualize information acquired from

reading and tend to ask more questions. In terms of digital culture understanding, Indonesians generally prefer watching or listening to news on television rather than reading or writing. Therefore, Early Childhood Education (PAUD) is one way to start education at a young age to produce quality generations. Children deserve education tailored to their needs and talents as they are social beings and individuals. Young people are given education with the hope that they will mature and develop intellectually according to their potential, becoming valuable young generations in the future (Suyadi, 2017).

PAUD is a developmental program that serves children from birth to 6 years old. It aims to support physical and spiritual development through educational stimulation, preparing them for higher education (Harahap, 2022). Given that basic behaviors and IQ may develop during this age range, PAUD is significant. This period is crucial, often referred to as the "golden period" of infancy. Character development is best done when one is young. If every child's character can be developed during this period, they will grow into strong-charactered generations. This is why early childhood education will always be the best foundation for maintaining the integrity of the nation. The better the intelligence of the nation's children, the higher the quality of early childhood education. Conversely, the characters of future children will become weaker if the quality of education at this level is lower (Suyadi, 2017).

In terms of teaching strategies, what works for one group of students may not necessarily work for another. Applying what is good for adults to young children is not always a good idea. Sometimes, particularly in traditional educational institutions, the value of using certain approaches is overlooked (Asifudin, 2014). Therefore, it is crucial to have a comprehensive understanding of teaching strategies that are acceptable, especially for young children who will become the future generation and will determine the direction of the country. This statement relates to the appropriate methods used in early childhood education, namely numeracy literacy learning media. Numeracy literacy involves the practical problem-solving abilities in various everyday contexts and analyzing information presented in various forms (graphs, tables, charts, etc.) using interpretation of analysis findings to predict and make decisions, known as numerical literacy.

The ability of the younger generation to master numeracy literacy, including the use of numbers, symbols, and arithmetic operations skills, still faces challenges. Tiro defines numeracy literacy as a reasoning technique involving logical thinking and deductive reasoning, transforming sensory experiences into various forms before generalizing them into more common forms (Kusmanto, 2017).

Strategies to improve numeracy skills There are many ways to teach literacy. Literacy movement strategies in schools are implemented gradually, depending on the abilities of stakeholders, school communities, and the availability of facilities and infrastructure (Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi Republik Indonesia, 2021). This includes enhancing training for PAUD teachers and facilitators in using media, models, and teaching strategies to teach numeracy. Developing facilities to support learning resources using the school environment as a learning medium for numeracy understanding. For example, creating or developing numeracy literacy teaching media, particularly for Early Childhood Education. Numeracy learning resources are found in the environment surrounding children. Children can easily access them, thus naturally encouraging them to demonstrate their numeracy skills.

So far, the digital learning movement has received support from the public, educators, and school principals, aiming to support teachers' work more systematically, save time, and facilitate teaching materials search. Numeracy literacy teaching media in this research utilizes ChatGPT. ChatGPT or Conversational Generative Pre-training Transformer is a generative language model developed by OpenAI using deep learning technology to produce realistic and diverse texts. This model is built using transformer architecture, enabling it to process

longer texts and generate more complex texts compared to previous models (OpenAI, 2022). ChatGPT is an appropriate learning innovation to enhance teachers' creativity in presenting more varied learning materials.

In developing or creating numeracy literacy teaching media, the role of teachers is required. According to (Maryati & Suryawati, 2014) a role is complementary to the relationships someone has by occupying a particular social status. Meanwhile, the meaning of a role according to (Soekanto, 2014) is an aspect where from the position or status, if someone carries out his rights and obligations according to his position, it means that he has performed his role. Roles emphasize functions, adaptation, and processes. Therefore, the role of teachers in enhancing students' learning motivation is important. Teachers should have a curiosity about why and how children learn and adapt to the learning conditions in their environment. This will increase teachers' understanding and insight, making the learning process more effective and optimal, as knowledge about children's psychology related to educational issues can be used as a basis for motivating students to learn to the best of their ability (Mulyasa, 2014). Diversification of teaching methods provides reinforcement and can also motivate students to be more enthusiastic in learning, particularly in numeracy literacy. The role of teachers as facilitators is essential in educative interactions, involving the essence of educating work that requires social skills, involving performance in personalization and self-socialization (Djamarah, 2015).

Based on the preliminary study conducted at TK BSC School, it is found that about 75% of educators still prepare teaching materials manually, without utilizing evolving digital tools. This results in work and time not being utilized to the fullest. Educators' lack of utilization and understanding of AI ChatGPT tools become one of the educational constraints that must keep up with the times. This further inhibits students in mastering numbers, symbols, shapes, and weakens children's numeracy competencies. It means that educators at TK BSC School have not yet utilized digital technology. This research aims to explore and analyze the role of teachers at TK BSC School Batam in utilizing ChatGPT as a tool to develop numeracy literacy teaching materials. The focus of this research is to understand the extent to which teachers at the school utilize ChatGPT technology in designing engaging and effective learning media to enhance children's numeracy literacy. Additionally, this research also aims to understand and analyze parents' responses to the use of numeracy literacy teaching media created with ChatGPT at TK BSC School Batam. Thus, this research will provide insight into how teachers and parents play a role in leveraging technology to improve the quality of children's learning in terms of numeracy literacy.

METHOD

This study employs a descriptive qualitative research design using a survey method, aiming to describe the role of teachers in utilizing ChatGPT to develop numeracy literacy teaching media. The research will be conducted at TK BSC School Batam in August 2023. The subjects consist of 25 respondents, with the majority having a bachelor's degree education level, including teachers, principals, and parents. The data collection technique involves primary data obtained from interviews with the respondents (informants), namely the Headmaster and teachers of TK BSC School Batam. Additionally, primary data is collected through direct observations focusing on numeracy literacy teaching activities at TK BSC School Batam. The informant determination technique in this study uses purposive sampling, selecting the Headmaster and teachers of TK BSC School Batam who have worked or taught for at least 1 year at the school.

Data analysis in this qualitative research employs a qualitative analysis model, which identifies the interaction between research components and the data collection process. The qualitative descriptive analysis follows four stages: data collection, data condensation, data

presentation, and conclusion drawing. These stages aid in systematically presenting the findings from the data.

RESULTS AND DISCUSSION

The Role of Teachers in Utilizing ChatGPT to Develop Numeracy Literacy Teaching Media

The research findings reveal that the role of teachers in utilizing ChatGPT to develop numeracy literacy teaching media at TK BSC School Batam is highly significant. They act as key providers/creators of teaching media, packaging and presenting them as engaging as possible to capture children's attention during numeracy literacy learning in the classroom through movement-based games and songs leveraging technology from various applications. Additionally, as learning facilitators, teachers at TK BSC School Batam are greatly assisted by leveraging ChatGPT to produce/present teaching media that specifically engage children, especially in literacy and numeracy. As learning motivators, ChatGPT can stimulate teachers at TK BSC School Batam to create more educational and creative teaching media for children. Regarding the introduction of ChatGPT, teachers within the TK BSC School cluster share information about ChatGPT, its benefits, and how to use the application with other teachers in the cluster, aiding them in preparing numeracy literacy teaching media. Furthermore, as digital mentors, teachers strive to provide information on ChatGPT usage to their fellow teachers in an effort to help present numeracy literacy teaching media. Teachers at TK BSC School Batam also play a role in developing students' skills through teaching media presented with the utilization of ChatGPT, making students more interested in learning literacy and numeracy. Another role of teachers in utilizing ChatGPT to develop numeracy literacy teaching media at TK BSC School Batam is as idea initiators on creating teaching media that can attract children's attention in literacy and numeracy learning. This better understanding of how teachers can play an effective role in developing ChatGPT-based teaching materials encourages the acceleration of students' understanding of numeracy literacy. These findings provide a basis for the development of strategies and guidelines for educators to optimize the use of ChatGPT AI technology, with early childhood education playing a crucial role in laying a strong foundation for future learning. Jianghong Su et al., (2023) stated that AI can be used as a teaching resource to provide advice to early childhood education institutions, policy-makers who need to make important decisions in setting educational standards in the future by using AI literacy. (Mambu et al., 2023) also stated that using Artificial Intelligence (AI) technology as a source of information and reference in the education world opens up new opportunities for teachers to optimize learning, data management, and increase work efficiency in facing teaching challenges in the digital era by providing feedback to students.

In early childhood education, teachers play a multifaceted role in developing teaching materials using ChatGPT AI technology for numeracy literacy. Firstly, they act as Curriculum Designers, crafting materials tailored to the specific needs of young learners and integrating ChatGPT AI seamlessly into the curriculum. Secondly, teachers become Innovative Educators, generating captivating and developmentally appropriate learning content that captivates children's attention and utilizes ChatGPT AI to enhance numeracy literacy skills. Additionally, they serve as Mediators, guiding children in understanding and interpreting information provided by ChatGPT AI, fostering comprehension and critical thinking. Moreover, teachers take on the role of Evaluators, meticulously assessing the quality of teaching materials, evaluating both content relevance and ChatGPT AI's effectiveness in delivering the material. Lastly, they act as Support Providers, offering encouragement and feedback to children, fostering a supportive learning environment that encourages active engagement and participation in the classroom. Through these various

roles, teachers play a pivotal role in leveraging ChatGPT AI to optimize numeracy literacy instruction in early childhood education.

The utilization of ChatGPT yields numerous benefits, enhancing various aspects of educational engagement. Firstly, it facilitates the development of Interactive Stories where children actively engage with story characters to decipher number puzzles, patterns, and challenges, thereby fostering critical thinking skills. Secondly, ChatGPT enables the creation of Edutainment Games, captivating children with AI-driven challenges that combine entertainment with educational content, making learning more enjoyable and effective. Furthermore, the platform facilitates the design of Interactive Worksheets, offering guidance and answers to children facing difficulties, thereby promoting independent learning and problem-solving skills. Moreover, through Interactive Learning Videos, ChatGPT serves as a reliable narrator or guide, delivering additional explanations and insights, enriching the learning experience for children. Additionally, the utilization of Interactive Number ID Cards allows children to scan cards using smart devices, receiving further explanations or instructions from AI about the displayed numbers, thereby reinforcing numerical comprehension in an engaging manner. Lastly, ChatGPT aids in the design of Interactive Number Puzzles or Word Guessing Games, encouraging children to solve puzzles and providing hints or solutions when necessary, promoting active participation and cognitive development. According to research findings (Ariyanto et al., 2023), teachers' roles in literacy learning planning involve designing teaching modules, determining learning media, methods, teaching materials, student worksheets, and lesson evaluation plans. Teachers' roles in learning implementation include creating models, media, and learning strategies, monitoring and guiding students, involving their psychomotor, audio, and visual abilities. Finally, teachers' roles in learning evaluation involve conducting process and performance assessments.

Parent Response to the Use of Numeracy Literacy Teaching Media Utilizing ChatGPT

Parental response to the use of numeracy literacy teaching media utilizing ChatGPT at TK BSC School Batam indicates that a majority of parents are already familiar with and involved in the use of AI technology, such as ChatGPT, in the context of early childhood numeracy literacy education. They perceive ChatGPT as quite effective in enhancing their children's understanding of numeracy concepts. However, its effectiveness depends on several factors, including the content or material delivered and parental involvement in providing guidance and additional explanations for a deeper understanding of numeracy concepts. Thus, parents are not concerned, as long as they and the teachers actively accompany their children in interacting with ChatGPT, which is beneficial for facilitating literacy acquisition and easier access. This is because traditional methods used in number introduction at TK BSC School still have not maximally impacted children's understanding of number forms. TK BSC School children still struggle to differentiate between similar numbers, despite the fact that at this age, students should already grasp basic mathematical concepts such as quantity, sequence, and pattern. This highlights the underutilization of educational technology by teachers. TK BSC School teachers are not just facilitators of learning but also curriculum designers tailored to the needs and development of children.

The creative capacity of TK BSC School children is expressed when they are given something new and interesting to turn into a game. TK BSC School children become creative and are always searching for answers to new discoveries. They are always thinking and trying to find solutions and enjoy solving problems. TK BSC School children are always open to new and unknown things. With the creativity of TK BSC School teachers and innovative teaching materials, children's enthusiasm for classroom interaction is enhanced. (Javaid et al., 2023) state that ChatGPT is beneficial in education because of its ability to provide needed information from the database to answer questions accurately to design lessons and teaching

materials and can be used as a virtual teaching tool for students. Numeracy learning sources are all information accessible to children, directly or indirectly, that can support the emergence of children's numeracy skills (Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi Republik Indonesia, 2021). Natural numeracy learning aims to improve children's cognitive abilities, enrich teacher learning media, facilitate children in absorbing knowledge, help develop thinking patterns, provide real experiences to children, make learning more concrete so that children can easily absorb knowledge, and the material is easily obtained and economical (Setyani et al., 2023).

Other supporting data show that 53% of teachers at TK BSC have teaching experience of more than 5 years. However, in the making of teaching materials, they still refer to manuals and publications from 3-4 years ago. However, the development of numeracy literacy is quite rapid. Numeracy literacy can be said to be quantitative literacy closely related to numbers and symbols. However, current numeracy literacy can be developed using technology so that students can gain detailed understanding. This is a challenge faced by teachers to overcome these obstacles. The perspective and perception of teachers regarding literacy concepts in children must be changed using ChatGPT, that ChatGPT is not something difficult and exhausting. Senior teachers must be open to technological developments and willing to accept them. Teachers can feel that ChatGPT is effective in improving numeracy understanding in order to integrate it into the curriculum and daily learning. There are many objects in the home environment related to numerical concepts. After using ChatGPT for two months, a positive contribution to learning effectiveness was felt. The initial challenge of integrating this technology into learning was answered, that teaching materials given to children are more attention-grabbing. However, according to the research results of (Ayinde et al., 2023), many educators see the presence of ChatGPT as a threat in terms of creativity, innovation, and the decline in students' motivation to read lesson materials, one of which is history. This article aims to explore how the use of Chat GPT applications based on Artificial Intelligence poses challenges and opportunities for teachers and students to use it as an additional alternative compared to Google and Wikipedia in providing perspectives and more personal answers, including in answering history questions. This training is expected to stimulate innovation, create an adaptive educational ecosystem, and provide relevant and adaptive learning experiences for students in the digital era (Kaswar et al., 2023).

CONCLUSION

The research findings indicate that the role of teachers in utilizing ChatGPT to develop numeracy literacy teaching media at TK BSC School Batam is diverse. Firstly, teachers act as providers and creators of teaching media, packaging them as attractively as possible to capture children's attention. Furthermore, they also function as learning facilitators, with ChatGPT assisting them in delivering interesting and educational materials. Teachers also serve as learning motivators, using ChatGPT to create more creative and educational teaching media for children. Additionally, teachers introduce ChatGPT to their colleagues and serve as digital mentors in its use. Moreover, teachers play a role in developing students' skills through teaching media presented using ChatGPT. Lastly, teachers also contribute as idea initiators in creating teaching media that can capture children's attention in literacy and numeracy learning.

Meanwhile, parents' responses to the use of numeracy literacy teaching media utilizing ChatGPT at TK BSC School Batam are also varied. Most parents are accustomed to AI technology and view it as a tool that can enhance early childhood numeracy literacy learning. However, they are also aware that the effectiveness of ChatGPT depends on the content or materials delivered and the guidance provided by teachers or parents in giving additional explanations. Nevertheless, parents are not worried as long as they and the teachers are actively involved in guiding children in interacting with ChatGPT. They also acknowledge

the differences in counting abilities among children using AI technology, influenced by various factors such as the quality of AI programs, support from teachers or parents, and the learning environment.

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