Literacy and Numeracy Teaching and Learning in Pandemic Outbreak: A Case Study of Private Primary School in Rural Area

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Abstract: Literacy and Numeracy Teaching and Learning in Pandemic Outbreak: A Case Study of Private Primary School in Rural Area. **Objective:** This research aims to portray the teaching and learning of literacy and numeracy in a private school in rural area with few students in each class. **Methods:** The research method employed is descriptive qualitative. Data revealed that students doing *Kampus Mengajar Angkatan 1* (KMA-1) or student teacher taught literacy and numeracy lesson through playing games and singing. **Finding:** The teaching procedures are claimed in three phases – pre, while and post. The teaching and learning process during the pandemic was carried out in various ways such as using videos and using games and singing. **Conclusion:** Students' challenges are lack of vocabulary and its meaning. Teachers need to develop their teaching and learning based on student and school characteristics. This is done to develop student learning motivation, literacy, and student numeracy can improve

Keywords: literacy, numeracy, rural area, private primary school.

Abstrak: Pembelajaran Literasi dan Numerasi di Masa Wabah Pandemi: Studi Kasus SD Swasta di Pedesaan. ***Tujuan****: Penelitian ini bertujuan untuk menggambarkan pembelajaran literasi dan numerasi di sekolah swasta dengan jumlah siswa sangat terbatas di pedesaan.* ***Metode****: Metode penelitian menggunakan pendekatan deskriptif kualitatif. Data mengungkapkan bahwa mahasiswa yang melakukan Kampus Mengajar Angkatan 1 (KMA-1) atau mahasiswa magang mengajar melaksanakan pelajaran literasi dan numerasi (berhitung) dengan permainan dan bernyanyi.* ***Temuan:*** *Prosedur pengajaran diklaim dalam tiga fase - awal, inti dan penutup. Proses belajar mengajar di masa pandemi dilakukan dengan berbagai cara seperti menggunakan video dan menggunakan permainan dan nyanyian.* ***Kesimpulan:*** *Tantangan siswa adalah kurangnya kosakata dan makna kata. Sebagai kesimpulan, guru perlu mengembangkan pembelajaran berdasarkan karakteristik sekolah dan siswa. Hal ini dilakukan untuk mengembangkan motivasi belajar siswa, literasi, dan numerasi siswa dapat meningkat*

Kata kunci: literasi, numerasi, pedesaan, SD swasta.

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■ **INTRODUCTION**

The ability to read, write and count are skills that have been considered as literacy & numeracy learning (Napoli & Purpura, 2018; Soto-Calvo et al., 2020; Wrahatnolo, 2018). It is explained in Law Number 20 of 2003 concerning the National Education System that the culture of reading, writing, and arithmetic is implemented for all members of society to produce creative, productive, innovative, affective human beings through strengthening attitudes, knowledge, and skills (Irawati & Susetyo, 2017). To achieve this minimum standard of ability as well as to achieve the educational goals set forth in the regulation, the education curriculum in Indonesia places these abilities as basic abilities and is given to students since they are at the level of kindergarten (Khomsiyatun, 2019; Nisa et al., 2019; Setiawati & Novitasari, 2019).

The Covid-19 pandemic has caused learning and teaching is carried out face-to-face; it is recommended that online learning use platforms such as learning management systems, social media, zoom or similar conference platforms (Çubukçu & Aktürk, 2020; Irfan et al., 2020; Jacques et al., 2021). This aims to prevent and reduce the risk of the spread of COVID-19 (Abidah et al., 2020; Almarzooq et al., 2020), although currently the condition of the spread is starting to decline but in general we still have to watch out for an increase in the spread of COVID-19. In the face of drastic changes in the learning era, from face-to-face learning to online learning, as a result of the COVID-19 pandemic, Tejedor et al. (2020) conducted a comparison study of teachers in Spain, Italy and Ecuador which resulted that teachers need to improve key aspects such as teacher digital skills, adaptable learning resources, communication between universities and students, and teaching methodologies that must be appropriate with the current context as a result of the COVID-19

pandemic. In addition, the results of a survey conducted on 42 English teachers in Japan show that they are quite confident in using digital technology to support their teaching both inside and outside the classroom, they realize the importance of developing their digital literacy, and they are actively pursuing skills up to advanced (Cote & Milliner, 2018). In Indonesia, the use of information and communication technology during distance learning encourage teachers to develop technological literacy which results in new habits in the learning process in the future (Wardhana, 2020). In the previous research, it is found a higher level of digital literacy was positively related to the output of learning outcomes in the subjects studied skills, and higher levels of digital literacy positively affected the high output of learning outcomes to student academic performance (Yustika & Iswati, 2020).

Whether we realize it or not, the effects of online learning, digital literacy possessed by teachers and students have increased (Patmanthara & Hidayat, 2018). Digital literacy is the ability to use ICTs in finding, evaluating, utilising, sharing, and creating information found online (Maphosa & Bhebhe, 2019). The increase in teacher digital skills can be seen from the teacher's ability to use the LMS platform, google meet, zoom, and the teacher's ability to obtain new information from the virtual world (Mishra et al., 2020; Nur, 2021; Wong & Moorhouse, 2021). The positive effects of increasing digital literacy skills during the pandemic, such as a survey conducted on mathematics teachers in senior high and vocational schools in Bali and Nusa Tenggara showed that there was an influence of teachers' digital literacy skills on the ability of teachers to develop HOTS - based assessments (Widana, 2020).

Related to the cognitive skills possessed by students during online learning during the pandemic experiencing lack of clarity in students'

abilities, so that learning during the pandemic with online learning causes lost learning (Arsendy et al., 2020; Bahasoan et al., 2020; Pratiwi, 2021). Online learners feel anxious because they do not understand and are accustomed to online classes, especially for those who have limited computer skills (Yustika & Iswati, 2020). Even though all parties hope that even though learning is carried out online, students' abilities will still increase, or at least not experience a decrease in ability (Dhawan, 2020; Simamora, 2020). As the results of a survey conducted by PISA show that students' literacy skills in 2018 have decreased compared to 2015 (Aditomo & Faridz, 2018; Masfufah & Afriansyah, 2021; Tohir, 2019).

Addressing the problem that cognitive abilities such as literacy and numeracy have decreased, as well as to facilitate students during lectures to have additional competencies, not only have competence according to minimum standards based on the KKNI 6th level, The Indonesian Ministry of Education, Culture, Research, Technology and Higher Education (Kemendikbudristekdikti) held the *Merdeka Belajar–Kampus Merdeka* program (MBKM Program) with 8 excellent programs and one of them is Teaching Assistance (*Asistensi Mengajar*) (Amalia, 2021; Andari et al., 2021; Krishnapatria, 2021; Purwanti, 2021). This program aims to provide opportunities for students to learn and develop themselves through activities at the school closest to the students' residence (Tohir, 2020). In this activity, students are placed in elementary schools throughout Indonesia and help the teaching and learning process (Bali et al., 2022; Nehe, 2021). Three activities are focused on the teaching assistance, namely (1) literacy and numeracy learning assistance, (2) technology adaptation, and (3) school management systems (Fatonah et al., 2021; Maula, 2022). The targeted schools in this program are schools located in the frontier, outermost and farthest or rural areas (Bali et al., 2022), although there are several schools outside rural area that are used as teaching assistants (Fatonah et al., 2021). It is hoped, students throughout Indonesia can provide progress and change in education, there is no too big gap between rural areas and non rural areas.

Indonesia also currently needs teaching and learning assistance, especially for elementary school students to achieve optimal learning opportunities in limited and critical conditions during the pandemic, so that the biggest problems during the pandemic such as loss learning, low literacy and numeracy skills can be resolved. In addition, teaching assistance aims to (1) provide opportunities for students to learn and develop themselves through activities outside of lectures; (2) realizing students as part of strengthening literacy and numeracy learning; (3) provide opportunities for students to learn and develop themselves through activities outside the classroom; (4) helping schools to provide optimal educational services to all students at the elementary level in limited and critical conditions during the pandemic; and (5) provide optimal learning opportunities to all elementary school students in limited and critical conditions during the pandemic.

In connection with these problems, the purpose of this study is aimed at determining the literacy and numeracy skills of elementary school teachers/students in the 3T area (*tertinggal* (left-behind), *terdepan* (foremost) dan *terluar* (outermost)) of the MBKM program, the so-called teaching assistance (*asistensi mengajar*). Research related to literacy and numeracy has been done by many experts. As has been done by several researchers who conducted research on campus teaching activities to improve literacy and numeracy skills of elementary school students (Noerbella, 2022; Shabrina, 2022), research related to increasing literacy and numeracy in

junior high school students (Rachman et al., 2021), previous study religious-based elementary schools (Martina et al., 2022). Meanwhile, in this study, the research subjects used were the 5th and 7th semester students from various universities in Yogyakarta as well as teacher and students in a private elementary school in the 3T area.

■ METHODS

Desain of Research

In accordance with the purpose of this study, this research employs descriptive qualitative approach. The case studied was literacy and numeracy teaching and learning that was applied to private elementary school students in a program (KMA-1) carried out by the Ministry during pandemic outbreak. Qualitative research is exploratory research (Creswell, 2012a, 2012b), so this qualitative research serves to help researchers to find out more about the challenges faced by lecturers in implementing e-learning during a pandemic and what basic abilities lecturers have to support their learning. The case studies that are used as the focus of this research include research conducted in the 3T area in Gunungkidul Regency.

Participant

Respondents in this study amounted to 7 university students (teaching apprentices) who participated in KMA-1. This program is a program implemented by the government through the Ministry of Education, culture, research and technology. The seven students are from various departments across universities in Yogyakarta. They are assigned to assist a private school in rural area with limited number of students ranging from grade 1 to 6.

Data collection

The main instrument in this study is the researchers themselves. Literacy is closely related to reading and writing (Yulia & Amirudin, 2021) whereas numeracy deals with numbers (subtraction, addition, multiplication and division (Johnson & Layng, 1992; Ojose, 2011). In collecting data, researchers started from the planning and implementation based on observation. this is what is used as an indicator of literacy and numeracy in this study. researchers as instruments and main data collectors used semi-structured interview techniques and documentation (Creswell, 2012b). Interviews were conducted to clarify teacher qualification, experience, method, strategy, media and challenges in teaching literacy and numeracy in pandemic outbreaks. Observation was conducted to portray the teaching and learning process focusing on literacy and numeracy teaching and learning. The data of this study were obtained from subject participants asking about their experience in teaching and learning. The data obtained during the interview were recorded using a camcorder. In this case, the method used to collect data is Think Out Louds (TOL). TOL is a data collection method, where the subject is asked to voice his/her thoughts during the interview process. It allows the subject to say something or what s/he thinks (Someren et al., 1994).

Analysis of data

The analysis was conducted to find out the teaching of literacy and numeracy in a program the so-called, KMA-1. The procedures of data analysis are (1) preparing and organizing data for analysis, (2) exploring and coding data, (3) coding to develop descriptions, (4) representing and reporting findings, (5) interpreting findings, and (6) validating the accuracy findings (Creswell, 2012a; Fraenkel et al., 2012; Martin & McKneally, 1998; Miles et al., 2014). At the stage of preparing and organizing the data, it was carried out by preparing the results of reports on research subjects participating in KMA-1

activities organized by the Ministry. At the exploring and coding phase, the data was carried out by reducing information by analyzing all data collected from various sources, especially sources originating from reports of research subjects participating in KMA-1, in particular, in the teaching of literacy and numeracy activity. At the coding to build description stage, it is carried out by providing coding in reports of research subjects participating in KMA-1. At the presenting and reporting stage the findings are carried out by displaying the data that has been reviewed. At the stage of interpreting the findings is done by concluding the results of the error analysis carried out by the research subjects. In the step of validating the accuracy of the findings or the data validity stage, it is to make careful, thorough and continuous observations during the research, and to confirm the data obtained from one source with another by comparing the written test results (Fraenkel et al., 2012; Miles et al., 2014). For this reason, triangulation in this study was carried out using theoretical triangulation techniques and data source triangulation.

■ **RESULTS AND DISCUSSION**

Findings show participants (university students) learn how to teach and motivate primary school students by practicing (doing the activity) with planning and evaluating as well after the teaching learning process. They keep discussing among friends and teachers to run the teaching learning process. They discuss and learn together though most of time, the students seem to conduct teaching and learning process themselves without monitoring from class teachers. Example student-teacher interaction

Guru: Kita bermain sambil berhitung ya…siapa yang dapat menjawab… ibu membeli jeruk 3 dan 1 pepaya; berapa jenis buah buahan yang dibeli ibu?
S1 : 4 bu…

S2 : 2 bu…
Guru : Baiklah, jumlah ada…empat buah dan jenisnya ada berapa jenis?
S2 : 2 bu….

This result is in line with a report from one of the respondents noting that literacy and numeracy lessons need to be given to students at the beginning of learning (see figure 1). This is intended so that the literacy and numeracy skills possessed by students can increase.

Figure 1. A sample of respondents' activity about literacy and numeracy teaching & learning

Teaching and learning process seems to be conducted in three phases – pre, while and post. By the time the teachers were asked, they mention that they lacked of professional development. Participants and primary students, eventually, always motivate students through interesting learning such as playing games and singing.

pembelajaran Literasi, Numerasi, adaptasi teknologi dan membantu administrasi sekolah. Adapun penjelasan dari masing-masing kegitan tersebut adalah sebagai berikut

1. Kegiatan Literasi dan Numerasi Atau Mengajar

    a) Membantu guru dalam melaksanakan pembelajaran daring dan luring

    b) Menanamkan literasi kepada siswa dengan cara membacakan buku-buku cerita yang menarik dan menyuruh peserta didik untuk membaca cerita-cerita yang ada pada buku tema juga menyanyi bersama dalam upaya meningkatkan motivasi belajar peserta didik.

    c) Membantu guru dalam numerasi kepada siswa dengan cara mengajarkan rumus-rumus matematika dari mulai yang mudah sampai dengan yang sulit.

    d) Melakukan pembelajaran *Daring* dan *Luring*.

2. Membantu Adaptasi Teknologi

    a) Membantu bapak/ibu guru dalam mengoprasikan computer

    b) Membantu peserta didik melek teknologi dengan cara menggunakan metode pembeajaran yang berbasis teknologi.

    c) Membantu guru mengoprasikan aplikasi-aplikasi pembelajaran.

Figure 2. A sample of respondents' activity regarding literacy and numeracy teaching and learning (reading books and teaching mathematical formula)

Data show student participants focus their teaching and learning on numeracy aspects by playing games and singing regarding 'simple counting' on adding and subtracting. As shown in Figure 2, it can be seen that literacy and numeracy activities can be carried out by reading story books, singing, and teaching mathematical formulas

In preparing teaching and learning, participants of KMA-1 wrote in brief what the topic and followed by what techniques/procedures that can motivate students to learn happily. After greeting and asking students' condition then the next activity is usually having songs, in Bahasa Indonesia as well as in English. Literacy and numeracy aspects are taught subsequently. Participants/university students create games to drive students' enthusiasm and participation. This is in line with previous research which states that learning with games can hone students' ability to make decisions (Chow et al., 2011; Kaczmarczyk et al., 2016; Rumeser & Emsley, 2019), and improve cognitive abilities such as critical, creative, literacy and other skills (Bork, 2012; Nachiappan et al., 2014; Sari, 2021; Supriyatno et al., 2020).

Regarding the aim of teaching primary, teachers said that the goal of teaching and learning in elementary school was to develop students' competence on literacy and numeracy. Teachers accordingly said that vocabulary mastery is the focus of their teaching and learning for literacy. This is in line with previous research that there is a reciprocal relationship between vocabulary mastery and reading comprehension. The better the students' vocabulary knowledge, the better their performance with reading comprehension tasks. Similarly, the more students read using appropriate skills and strategies, the more their vocabulary develops (Constantinescu, 2007). Although the results of other studies show that there is no correlation between vocabulary mastery and students' reading ability (Bishry, 2018). But in general, there is a correlation between students' vocabulary skills and students' literacy skills because, without having vocabulary skills, students will find it difficult to read (Susanto, 2017; Wasik & Hindman, 2018).

Furthermore, teachers also confirmed that they always try to create interesting learning environment to increase students' achievement; this is done by combining singing and playing games. To achieve better learning outcome, teachers motivate students by creating various activities as well as media to after singing or playing (games), learning is carried out using various techniques and media so that learning becomes interesting for students. Primary students continued learning by doing activities provided by participants, such as drawing and coloring as well as finishing the task outside or inside the class.

When using songs, participants consider some aspects such as context, vocabulary, pronunciation, and practice (Brewster et al., 2004; Burri & Baker, 2019). Using songs for learning English can also be used to develop students 'memory skills, making classes more enjoyable, making students happy during the learning process, training students' social sense, used to learn pronunciation, rhythm, and emphasis. Songs that can be used as learning media in elementary schools have many types, such as active songs, animal songs, sports songs, food songs, learning songs, lullabies, patriotic songs, parody, counting songs, traditional songs, and so on.

With time constraints due to the pandemic, media are needed to design; The media can be in the form of realia and or social media for students to learn such as using the WhatsApp application (see Figure 3). The purpose of using various media can be to increase student interest in learning because of the limited offline learning space facilitated by the school. Video is also a medium used by teachers in learning as well as students in doing assignments, such as the task of reading students' iftar prayers.

Figure 3. Students' learning activity

The data reveals that learning is carried out through two modes at once, offline, and online. The online media used is through WhatsApp group whereas offline class is conducted at school with limited school time and learning materials are from textbook. They claimed also that the teaching learning process in pandemic outbreak is to develop students' character as well as motivation. Learning materials are expressions in English that are used daily (literacy) and addition and simple subtraction (numeracy). In teaching and learning process, primary school students learn both literacy and numeracy through songs and games and vocabularies are learnt through daily expressions such as day, month, and parts of the body. It is claimed that this teaching and learning can develop students' character.

Kid songs in teaching and learning process such as parts of the body, primary school students were excited during teaching and learning process. Students are engaged and they can conclude about the meaning in the song, identify the vocabulary, write the lyrics of the song into the students' note, and pronounced the vocabulary.

Teachers said that the goal of teaching and learning in elementary school was to develop students' competence on literacy and numeracy (Yuniharto & Nisa, 2022). Teachers accordingly said that vocabulary mastery is the focus of their literacy teaching and learning. By the time the researchers ask about teachers' challenges in teaching and learning in pandemic outbreak, the language teacher concludes.

Students found difficult to learn vocabulary and its meaning when the teaching and learning is conducted online. Teachers need breakthrough what techniques and strategies should be developed in facilitating students to improve their vocabulary teaching.

Teachers claim that students found difficult to memorize vocabularies and impact upon their motivation in learning.

Overall, literacy and numeracy learning strategies require teacher creativity to increase student motivation. A research conducted in Malaysia, for example, concludes that selecting appropriate spoken, written or visual texts or materials are best suited for pupils' needs and interests, decide on the most suitable methods, approaches and techniques; plan the most appropriate activities to be carried out; and choose, design or adapt the teaching materials that are best suited for their pupils in different settings and from diverse numeracy or literacy proficiency levels (Md-Ali et al., 2016).

Teachers, accordingly, develop their pedagogical competence by engaging students in teaching and learning such as giving questions that triggering students' thinking to answer the questions (Hamzah & Asokan, 2016; Yulia & Budiharti, 2019). Added to this, the national education curriculum demands students to be actively engaged in class and they have critical thinking in the learning process. Study shows that most students become less active when teachers ask them questions (Yulia & Budiharti, 2019).

■ CONCLUSIONS

KMA-1 contributed much to teaching and learning process since pandemic outbreak. University students/participants always try to improve their teaching and learning through games and interesting activities including media, such as the use of videos in learning and combining literacy and numeracy together with playing games as well as singing. To summarize, teaching learning process is conducted through various and interesting ways to develop student motivation. Singing and playing games is one of strategies to teach primary school students both literacy and numeracy. Three pillars of education during

pandemic outbreak needs to facilitate; so, parents, schools and communities are responsible for teaching and learning activity. are needed when primary students are assigned to watch and learn from video. Parents are also asked to engaged actively though they might have insufficient knowledge on technology. Ki Hadjar Dewantara pinpoints three pillars of education, family, school, and community. The success of teaching and learning depends on the participation of these pillars.

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