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ABSTRACT

This research aimed to assess the readiness and efforts of civics teachers in developing literacy and numeracy skills. For data collection, qualitative methods including surveys and interviews, were employed. A total of 38 civics teachers from junior high schools in Pacitan Regency, Indonesia were selected based on gender, teaching experience, and certification. The data was analyzed using both qualitative narrative and quantitative descriptive analysis, employing percentages. The results showed that civics teachers demonstrated moderate proficiency in literacy skills, while their numeracy abilities were considered sufficient. In addition, teachers exhibited a greater readiness for literacy-oriented learning compared to numeracy. The efforts made by teachers encompassed four aspects, namely i) collaborating with colleagues and implementing student-centered collaborative learning, ii) developing a culture of literacy and numeracy through training and discussions, iii) seeking out learning resources and media that supported literacy and numeracy, and iv) promoting reading, annotating texts, and analyzing numeracy-related readings.

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1. INTRODUCTION

Civics education is a subject that plays a crucial role in shaping students into citizens who actively participate in society and possess a deep understanding of their rights and responsibilities. Extensive research has shown the significant impact of this particular subject on the development of young citizens [1]–[4]. However, the terminology and designations of civics education vary across countries [3]–[11]. In the Indonesian context, based on the 2013 Curriculum, civics education presented in school as a subject is called Pancasila dan civics education. Meanwhile, based on the Merdeka Curriculum on 2022, civics education presented in school as a subject is named Pancasila education. While most schools have transitioned to the Merdeka Curriculum and adopted Pancasila education, others continue to use the 2013 curriculum. Both Pancasila and civics education and Pancasila education represent the implementation of civics education within the Indonesian curricular framework.

In the context of Pancasila education as a civics education subject in Indonesia, the development of literacy and numeracy skills for teachers is very important. The ministry of education in Indonesia, through the Merdeka Curriculum, recognizes the importance of these two abilities as important components of the indicators of educational success. As part of this policy, the ministry has introduced the minimum competence assessment (MCA) system, replacing the national examination, to evaluate the cognitive achievement of students in literacy

and numeracy. Proficiency in these areas is crucial for young citizens to contribute meaningfully to society, irrespective of their future careers or fields of work [12]. Moreover, the MCA employs question frameworks from the programme for international student assessment (PISA) to assess literacy and numeracy skills of students. The adoption of these frameworks in the 2022 Merdeka Curriculum is motivated by the PISA results, indicating that 70% of 15-year-old students in Indonesia fall below the minimum competence level in understanding simple texts or applying basic mathematical concepts.

Literacy and numeracy have become integral indicators of the quality and educational success of teachers in various countries. Teachers with strong literacy and numeracy skills excel in teaching and improving the understanding of students. Programs incorporating these elements into their curriculum empower teachers to gain a deeper understanding of reading, data interpretation, and the effective use of numeracy-related resources in learning contexts. A report from the organization for economic cooperation and development (OECD) in 2019 emphasized the global significance of literacy and numeracy in education, as exemplified by the PISA conducted by the OECD. Additionally, literacy for teachers in the 21st century significance in equipping teachers for the demands of the modern era. This enables teachers to continually develop their knowledge and abilities, access updated educational resources, and adapt to changes occurring in the field of education [13], [14]. Literacy and numeracy skills are paramount for students to comprehend, analyze, and make informed decisions based on relevant information and data. The level of literacy proficiency in students significantly affects their numeracy abilities, including the identification of known information, understanding questions, formulating concepts, and applying procedures [15]. Therefore, teachers play a vital role in developing literacy and numeracy skills of students. Skilled teachers are needed to guide learning experiences that go beyond monotony and actively engage students. The selected stimuli need to be contextually relevant, captivating, and preferably current to spark the curiosity of students. Particularly, in terms of numeracy literacy, these stimuli are crucial for the holistic development of students [16]–[18].

With the increasingly complex demands of developing literacy and numeracy skills, the readiness of teachers emerges as a critical factor that requires attention. Prepared and capable civics teachers can provide meaningful and comprehensive learning experiences for students. Regrettably, existing evidence indicates inadequate proficiency among teachers in terms of literacy and numeracy. Research has examined the proficiency levels of teachers in Indonesia, consistently showcasing deficiencies in these essential skills.

Firstly, the teaching and learning international survey (TALIS) 2018, conducted by the OECD, involved teachers from various countries, including Indonesia. The survey results indicate that a significant number of teachers in Indonesia need to improve their literacy and numeracy skills. Many struggle with understanding, analyzing, and interpreting complex texts, as well as accurately using numerical data. Secondly, the teachers competency test (TCT), an assessment of competencies conducted by the Indonesian Ministry of Education and Culture, shows that most teachers, including those teaching civics education, still need to enhance their literacy and numeracy levels. The TCT results indicate an average score of 50.64 points for teachers' competencies in Indonesia [19]. This test assesses their knowledge and application of literacy and numeracy concepts in the context of Pancasila education learning. Thirdly, several academic research conducted in Indonesia indicates persistent challenges with literacy and numeracy among teachers. These results point out that most teachers face limitations in understanding complex texts, applying mathematical reasoning to real-world contexts, and effectively using numerical data in their teaching practices [20]–[23].

Civics education is integral to cultivating informed and participatory citizens, yet its implementation and terminology vary globally. In Indonesia, the subject is framed as Pancasila education, reflecting the nation's commitment to civic development. However, the success of Pancasila education hinges on teachers' proficiency in literacy and numeracy, as recognized by the ministry of education through the Merdeka Curriculum and the MCA system. The adoption of frameworks from the PISA underscores the urgency to address literacy and numeracy deficiencies among Indonesian students. Furthermore, research emphasizes the pivotal role of teachers' literacy and numeracy skills in enhancing student achievement. However, existing evidence suggests a gap in teachers' preparedness, as revealed by the TALIS 2018 and the TCT.

Recognizing the importance of the readiness of teachers in developing literacy and numeracy within Pancasila education learning, this research aims to explore the preparedness of teachers to meet these demands. The objective is to examine the efforts, abilities, and confidence of teachers, as well as methods to enhance literacy and numeracy in Pancasila education learning. In this research, literacy refers to the ability of students to read, comprehend, analyze, and evaluate various Pancasila education-related information, while numeracy pertains to their ability to understand, apply, and interpret numerical data. Teachers need to possess the ability to implement literacy and numeracy-based teaching practices to ensure students attain the intended competencies. Indicators of the readiness of teachers in developing literacy and numeracy will be identified through access to references, writing abilities, the clarity of case presentations, the analysis of quantitative data in cases, the effective presentation of understandable quantitative data, and sustained efforts to develop these abilities. By gaining a deeper understanding of the readiness of teachers, this research can provide valuable insights for the development of more effective learning programs, training, and teaching method that prioritize the enhancement of literacy and numeracy skills for teachers.

This research aims to assess the readiness and efforts of civics teachers in developing literacy and numeracy skills. While there is evidence indicating the need for improvement in these skills among civics teachers in Indonesia, there is a lack of specific research examining the readiness of teachers in the context of Pancasila education learning in a particular area. Therefore, a comprehensive investigation is necessary to identify relevant indicators and assess the readiness of teachers in terms of literacy and numeracy to enhance learning quality.

Based on the background, the research problem can be formulated as, how prepared are teachers in developing literacy and numeracy in the field of Pancasila education? To address this research problem, the following questions will be explored: i) to what extent do civics teachers show literacy skills in the context of Pancasila education learning?; ii) to what extent do civics teachers express numeracy skills in the context of Pancasila education learning?; iii) to what extent are civics teachers prepared for Pancasila education learning based on their literacy and numeracy skills?; and iv) what efforts do civics teachers undertake to improve their literacy and numeracy abilities in the context of Pancasila education learning?

2. METHOD

2.1. Research design

The research employed a quantitative survey design to investigate the attitudes, opinions, experiences, and characteristics of the sample [24]. Surveys were used to gather data on the characteristics of the respondents, specifically their opinions, experiences, and beliefs regarding literacy and numeracy variables in Pancasila education learning. This research aimed to describe a single variable based on the responses provided by the sample using alternative responses.

2.2. Sample and data collection

The respondents consisted of civics teachers in junior high schools located in Pacitan Regency, East Java, Indonesia. In this particular area, civics teachers have had limited exposure to socialization or training programs aimed at enhancing their literacy and numeracy skills. A sample of 38 individuals was selected from a total population of 55 teachers in junior high schools in Pacitan Regency using a simple random sampling technique.

2.3. Instruments and procedures

Data were collected using a structured questionnaire administered through the Google Forms application. The questionnaire consisted of items on the readiness of teachers in developing literacy and numeracy in Pancasila Education learning. Quantitative data were collected to examine the perceptions and efforts of teachers in enhancing their literacy and numeracy skills. The instrument used is shown in the Table 1. The following steps were followed during the data collection process.

- Preparation of the questionnaire based on the research problem and the predetermined indicator aspects.
- Distribution of the questionnaire to civics teachers in the research sample.
- Provision of clear instructions on how to complete the questionnaire and set a deadline for completion.

Table 1. Research instrument				
Variable	Indicators			
Literacy ability	 Reading reference books to enhance understanding of Pancasila education subject matter. 			
	- Writing articles, comments, opinions, materials, or news related to Pancasila education topics and teaching.			
	 Asking students to analyze news/cases/issues from the media during Pancasila education courses. 			
	 Ability to present Pancasila education teaching materials based on a new case, hence, it is easily understood by students. 			
	 Having confidence that the analyzed news case taught can be easily understood by students. 			
Numeracy ability	 Reading articles, comments, information, or news related to Pancasila education that contain numbers or quantitative data. 			
	 Asking students to analyze numbers or quantitative data in Pancasila education learning. 			
	 Ability to present Pancasila education teaching materials that contain numbers or quantitative data, hence, it is easily understood by students. 			
	 Having confidence that the analyzed Pancasila education case containing numbers or quantitative data taught can be easily understood by students. 			
The readiness of	 Preparedness to teach Pancasila education with literacy-based materials. 			
teacher	 Preparedness to teach Pancasila education with numeracy-based materials. 			
	- Actions that civics teachers will take to develop literacy and numeracy abilities within the context of the			
	Merdeka Curriculum.			

2.4. Analyzing of data

A quantitative descriptive analysis was employed as the data analysis technique to assess the frequency tendencies of respondent answers and phenomena in the field. This method allowed for the determination of proportions for each question, facilitating easy data analysis. The data analysis process followed an interactive qualitative analysis framework [25], which involved the following steps: i) data reduction, ii) systematic organization of data based on categories, iii) presentation of data through tables or figures, iv) cross-site analysis, and v) presentation of results and conclusions.

3. RESULTS

Based on the conducted survey, data were collected from 38 civics teachers in junior high schools in Pacitan Regency, as shown in the Table 2. Based on the data below, it was observed that the majority of civics teachers in junior high schools in Pacitan Regency were female, had more than 10 years of teaching experience, and held teaching certifications. Possessing a teaching certification was considered a mark of professional teachers.

Table 2. Respondent p	percentage by gender,	years of teaching,	and teaching	certification
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_	Gender (%)	Years of teaching (%)	Teaching certification (%)
	Male =34.2	Less than 10 years $=42.1$	Yes =76.3
_	Female =65.8	More than 10 years =57.9	No =23.7

3.1. Literacy ability

In terms of literacy proficiency, the teachers' responses to the indicator measuring the frequency of reading reference books to enhance understanding of Pancasila education subject matter were analyzed as depicted in Figure 1. The data presented in Figure 1 reveals varying levels of engagement among respondents in reading reference books related to the Pancasila education domain. Approximately 10.5% of respondents consistently read reference books, while the majority, comprising 52.6%, engage with these materials frequently. Additionally, around 34.2% of respondents do so occasionally, with only 2.6% reporting rare engagement with reference materials pertinent to Pancasila education. These findings underscore the significance of reference books as a valuable source of knowledge for the majority of respondents, demonstrating a high level of involvement in utilizing these resources to deepen their understanding of the Pancasila education domain. The responses of these teachers to the indicator measuring the frequency of writing articles, comments, opinions, materials, or news related to Pancasila education topics and teaching were analyzed as depicted in Figure 2.



Figure 1. Frequency of teachers reading reference books



Figure 2. Frequency of teachers writing articles, comments, opinions, materials, or news

Based on the data presented in Figure 2, it can be inferred that the respondents exhibited varying degrees of engagement in writing activities pertaining to Pancasila education and teaching topics. Approximately 44.7% of the respondents reported occasional involvement in such activities, indicating a significant level of interest and participation. Conversely, 26.3% of respondents indicated non-involvement in these endeavors, potentially attributed to either lack of interest or opportunity. Additionally, 21.1% claimed rare involvement, whereas only 7.9% reported frequent engagement, suggesting a smaller subset of respondents actively producing content related to Pancasila education and teaching. The responses to the indicator measuring the frequency of asking students to analyze news, cases, or issues from the media during Pancasila education learning were examined, as depicted in Figure 3.



Figure 3. Frequency of teachers asking students to analyze news/cases

Based on the presented data, it can be inferred that the majority of respondents (47.4%) frequently engage students in analyzing news or cases within the context of their learning. Additionally, approximately 44.7% of respondents undertake such activities occasionally, indicating a recurring incorporation of news or case analysis into the curriculum. However, a small percentage of respondents (7.9%) rarely implement this practice, possibly due to constraints such as time or resources. This observation suggests a prevalent inclination among teachers to integrate news or case analysis as an integral component of learning, with a substantial portion of respondents demonstrating a considerable level of involvement in executing such tasks. The next indicator assessed the proficiency of teachers in delivering Pancasila education teaching materials based on new cases, ensuring ease of understanding for students, as depicted in Figure 4.



Figure 4. Teacher's ability to present material based on a case

Based on the presented data, it can be inferred that a majority of respondents (approximately 73.7%) expressed confidence in their ability to effectively present material derived from a case. This suggests that most respondents felt comfortable and self-assured in their capacity to convey information utilizing case-based presentations. About 15.8% of respondents provided a neutral response, indicating potential uncertainty or a lack of confidence in their presentation skills. Conversely, 10.5% of respondents asserted a high level of proficiency in presenting material based on a case, demonstrating strong confidence in their presentation abilities. This analysis implies that while the majority of respondents possess satisfactory skills in delivering material using cases as a framework, there are variations in their confidence levels. The indicator assessed the confidence of teachers in students' comprehension of the analyzed news cases taught, as depicted in Figure 5.



Figure 5. Teacher's confidence that news case analysis can be easily understood by students

Based on the data presented, it can be concluded that the majority of respondents, around 65.8%, feel quite confident that the news case analysis taught can be easily understood by students. This indicates a considerable level of confidence in their ability to deliver the material clearly and easily understood by students. A total of 18.4% of civics teachers gave neutral responses, which may indicate some uncertainty or doubt in their confidence in students' ability to understand news case analysis. In addition, there were also 10.5% of respondents who claimed to be less confident, and only 5.3% who expressed a high level of confidence. This shows that there is variation in the level of confidence among civics teachers in terms of students' ability to understand news case analysis, although the majority still feel quite confident.

3.2. Numeracy ability

Regarding numeracy ability, the perception of teachers' frequency in reading articles, comments, information, or news related to Pancasila education topics containing numbers or quantitative data is presented in Figure 6. Based on the data presented in the Figure 6, it can be concluded that the majority of respondents, around 63.2%, stated that they sometimes read articles related to Pancasila education topics that contain numbers or quantitative data. This shows that most respondents are interested in reading materials containing quantitative data in the context of Pancasila education. About 21.1% of civics teachers also stated that they often read such articles, indicating a higher interest in diving into materials with quantitative data. Meanwhile, there were 13.2% of respondents who rarely read such articles, possibly due to factors such as lack of time or interest. Only a small proportion of respondents, around 2.5%, stated that they always read articles related to Pancasila education topics that contain quantitative data. This conclusion suggests that most respondents have a tendency to read materials containing quantitative data, with varying levels of frequency among them. Moving on to the next indicator, the frequency of teachers asking students to analyze numbers or quantitative data during Pancasila education learning is depicted in Figure 7.



Figure 6. Frequency of teachers reading articles containing numbers



Figure 7. Frequency of teachers asking students to analyze numbers

Based on the data presented in the Figure 7, it can be concluded that the majority of respondents, about 52.6%, stated that they sometimes ask students to analyze numbers or quantitative data during Pancasila education classes. This shows that most respondents are involved in introducing quantitative data analysis tasks to their students. About 28.9% of respondents reported that they rarely ask students to do such tasks, possibly due to reasons such as lack of time or complexity of the material. Meanwhile, 15.8% of respondents reported that they often ask students to analyze numbers or quantitative data, indicating a greater commitment to the use of this learning method in Pancasila Education classes. Only a small proportion of

respondents, about 2.7%, stated that they never ask students to analyze numbers or quantitative data. This conclusion suggests that there are diverse approaches in Pancasila education teaching with regard to the use and teaching of quantitative data analysis to students, with the majority of respondents engaging students in such tasks in varying degrees of frequency. Moving on to the next indicator, the results regarding the ability of teachers to present Pancasila education teaching materials containing numbers or quantitative data, ensuring ease of understanding for students, are presented as Figure 8.



Figure 8. Teacher's ability to present material containing numbers

Based on the data presented in the Figure 8, it can be concluded that the majority of respondents, around 42.1%, feel quite capable of presenting Pancasila education teaching materials that contain numbers or quantitative data. This indicates that most respondents have an adequate level of confidence in presenting materials involving quantitative data to students. About 39.5% of respondents gave a neutral response, which may indicate uncertainty or doubt in their ability to present such material. There were also 10.5% of respondents who stated that they were not very capable in presenting teaching materials containing quantitative data, and only the remaining 7.9% expressed a high level of confidence. This conclusion shows that there is a variation in the respondents' level of confidence in presenting Pancasila education materials containing quantitative data, although the majority felt quite capable. Moving on to the next indicator, the results regarding the confidence of teachers in the analysis of Pancasila education cases containing numbers or quantitative data being easily understood by students are presented as Figure 9.



Figure 9. Teacher's confidence that analysis of Pancasila education cases containing numbers can be easily understood by students

Based on the data presented, it can be concluded that the majority of respondents showed varying levels of confidence related to the topic in question. About 47.4% of the respondents expressed moderate confidence, indicating that almost half of them felt confident in their knowledge or ability related to the subject. A total of 28.9% of respondents gave a neutral response, indicating uncertainty or doubt in their confidence on the topic. In addition, there were 21.1% of respondents who claimed to be less confident, indicating a lack of confidence in their knowledge or ability related to the topic in question. Only a small proportion of respondents, around 2.6%, expressed a very high level of confidence, indicating that only a few of them felt very confident in their knowledge or ability in the matter. This conclusion suggests that there is significant variation in respondents' confidence levels related to the topic in question, with the majority showing mixed levels of confidence.

3.3. The readiness of teachers

The indicator related to the readiness of teachers, when asked to teach Pancasila education with literacy-based materials, is presented as Figure 10. Based on the data presented, it can be concluded that the majority of civics teachers around 68.4%, felt adequately prepared when asked to teach using literacy-based materials. This shows that most of them feel ready to face the challenge of teaching by utilizing literacy in the context of Pancasila education learning. A total of 15.8% of teachers stated that they were very prepared, indicating a high level of readiness in implementing this learning approach. Meanwhile, there were also 15.8% of respondents who gave a neutral response or stated that they were less prepared, perhaps for various reasons such as lack of training or experience in using literacy-based materials. This conclusion shows that there is a mixed level of readiness among civics teachers in using literacy as part of their teaching strategies. The indicator of the readiness of teachers, when asked to teach Pancasila education with numeracy-based materials, is presented in the following Figure 11.



Figure 10. The readiness of teachers to teach Pancasila education with literacy-based materials





Based on the data presented in the figure, it can be concluded that half of the total respondents, i.e. 50%, felt adequately prepared when asked to teach Pancasila education using numeracy-based materials. This shows that most respondents have a sufficient level of readiness in facing the challenges of teaching by utilizing numeracy in the context of Pancasila education learning. About 26.3% of respondents gave neutral answers, indicating uncertainty or doubt in their readiness to teach using numeracy-based materials. Furthermore, about 13.2% of respondents claimed to be less prepared, which may be due to a lack of training or experience in using numeracy materials in teaching. Only about 10.5% of the remaining respondents felt very prepared, indicating a high level of readiness in facing teaching with numeracy-based materials. This conclusion confirms the variation in respondents' level of preparedness in teaching Pancasila education by utilizing numeracy, with most showing sufficient preparedness, while others faced different levels of preparedness. The Table 3 showed the indicators of literacy and numeracy abilities that civics teachers prepared in the Merdeka Curriculum.

The conclusion from the findings is that collaboration between teachers, improving quality as educators, developing literacy and numeracy skills, finding contextualized learning resources, adapting to various contexts, and promoting reading habits and maintaining math skills are important steps in preparing teachers to face learning challenges in the Merdeka Curriculum era and the needs of the Industrial Revolution 4.0. With this comprehensive approach, teachers are expected to be more effective in delivering relevant and quality learning to students.

Basic literacy, including numeracy literacy, is a critical aspect in preparing students for the Industrial Revolution 4.0. The Merdeka Curriculum emphasizes the importance of literacy and numeracy-based learning in all subjects, and this is in line with the demands of the times that demand critical thinking skills. However, the relevance of numeracy skills may vary depending on the context, such as in Pancasila education subjects which emphasize literacy and critical thinking in the context of information and archives. Nevertheless, literacy and numeracy-based learning and assessment are considered essential as basic competencies required by all students, confirming the universal value and relevance of literacy and numeracy in all areas of life.

Question	Answer
In the current Merdeka Curriculum, are literacy and numeracy-based learning and assessment highly recommended?	 Yes. To face the era of the Industrial Revolution 4.0., education is needed to develop students who can think critically, creatively, and innovatively, as well as possess communication and collaboration abilities. Therefore, students are required to master basic literacy abilities, which include fundamental abilities in reading, writing, and numeracy. Good numeracy literacy indirectly enhances intelligence and critical thinking abilities. The Merdeka Curriculum demands that all subjects are always based on literacy and numeracy, following the types of questions in MCA. Yes, because by enriching students' knowledge through literacy and numeracy, they will be able to think critically and acquire abilities in line with the development of the times. Yes, but numeracy may be less suitable for Pancasila education subjects. Yes, because literacy and numeracy-based learning and assessment are fundamental approximation.
What will civics teachers prepare to have literacy and numeracy abilities?	 Competencies needed by an students, regardless of their ruline professions and apprations. Collaboration can be conducted with all teachers and implement student-centered collaborative learning. This way, teachers can collectively analyze students' learning achievements and work towards common goals. By improving quality as educators, teachers can be more prepared to face the Merdeka Curriculum. This can be accomplished by developing a culture of literacy and numeracy in schools, attending training sessions, as well as seeking guidance from colleagues regarding any areas of misunderstanding. To enhance my literacy and numeracy abilities, civics teachers will expand my knowledge base by attending seminars and reading books. Teachers will search for contextual learning resources related to the subject matter and create motivating teaching materials that help students understand numeracy. Adapting to various personal, social, and professional contexts is important. Promoting the habit of regular reading, developing the intention to read at the right time, recording the titles of the books read, jotting down important points from the readings, as well as maintaining good mathematical abilities to maximize my potential and make a positive contribution.

Table 3. Survey results on teachers' preparation to have literacy and numeracy abilities in the Merdeka Curriculum

4. DISCUSSION

The readiness of teachers in developing literacy and numeracy skills in Pancasila education yielded three key results, including perception of literacy ability, perception of numeracy ability, and the efforts made as part of the readiness of teachers in developing these skills. Firstly, a comprehensive assessment of

teachers' literacy ability in Pancasila education was conducted, examining five key indicators: the frequency of reading reference books, writing, analyzing news, teaching cases, and the perceived ease of literacy learning for students. Analysis of the data revealed noteworthy findings: 52% of respondents reported frequent reading of reference books, 45% engaged in occasional writing, 47% regularly encouraged students to analyze news, 74% demonstrated proficiency in teaching cases, and 66% expressed confidence in their students' ability to comprehend case analyses presented in class. Additionally, 68% of teachers reported being adequately prepared for literacy-oriented Pancasila education, while 16% stated they were highly prepared. Consequently, it was concluded that the literacy proficiency of civics teachers was at a moderate level. The data shows that most teachers have shown a commitment to improving their literacy skills but there is still room for further improvement especially in terms of active reading and overcoming technological challenges.

Further research conducted by the Lab Sosio Department of Sociology at the University of Indonesia indicated persistent weaknesses in the literacy abilities of both teachers and students [26]. The Federation of Indonesian Teachers' Union (FITU) and the Center of Education Regulation and Development Analysis identified a significant factor contributing to the country's low literacy levels: many teachers exhibited reluctance to engage in reading. However, it's noteworthy that teachers' literacy proficiency plays a pivotal role in shaping students' knowledge, as highlighted by international organizations such as UNESCO and PISA, which underscored the considerably low reading skills among Indonesian children. This was further supported by data from the Indonesian National Assessment Programme (INAP), reporting a societal literacy rate of approximately 46.83%. Additionally, a survey by the Ministry of Education and Culture revealed that 67.11% of teachers faced challenges in operating digital devices [27]. Weaknesses in teachers' literacy skills have a direct impact on students' literacy skills, which is reflected in the low reading levels of Indonesian children according to data from INAP and international organizations.

Given the substantial challenges and limitations in improving teachers' literacy levels, it is imperative to enhance this skill among both educators and students for the educational advancement of the nation. This becomes particularly crucial considering the rapid advancements in technology and information characteristic of the fourth industrial revolution, which necessitate fundamental skills such as literacy [28]–[32]. Moreover, it's essential for students to develop spatial literacy during the learning process, as it fosters their ability to reason and apply spatial concepts in real-life situations. With a strong foundation in spatial literacy, students will be better equipped to tackle scientific inquiries and navigate the social complexities of the 21st century [33]. In the era of the fourth industrial revolution, where technology and information are developing rapidly, basic skills such as literacy are becoming increasingly important to perfect in order to prepare future generations [34].

Furthermore, within the context of Society 5.0, which prioritizes human-centeredness, improving literacy abilities in education is paramount. Such enhancements have demonstrated positive impacts on teaching and learning styles, contributing to the overall enhancement of human capabilities and creating opportunities for humanity. Therefore, this transformative journey requires a concerted effort towards improving literacy abilities in education, paving the way for a brighter future. The development of spatial literacy for students is also an important aspect in the learning process, as it can shape their ability to rationalize and apply spatial concepts in real life. In the context of Society 5.0 which emphasizes on humanity, improving literacy skills in education is crucial to improve overall human capabilities and create opportunities for future human development.

Secondly, the assessment of teachers' perception regarding numeracy ability was conducted utilizing various indicators. These indicators comprised the frequency of engaging with numerical or quantitative information, facilitating the analysis of quantitative data within Pancasila education materials, delivering Pancasila Education content containing numerical data, confidence in presenting such materials, and self-assurance in understanding and conveying quantitative concepts. Analysis of the available data revealed insights into teachers' numeracy practices and capabilities. Firstly, 63% of teachers reported occasional engagement with articles in the realm of Pancasila education containing numerical or quantitative data, indicating a moderate level of exposure to quantitative information. Additionally, 53% of teachers sometimes tasked students with analyzing Pancasila education news containing numerical information, further demonstrating a moderate level of integration of numeracy within instructional practices.

Regarding the ability to deliver quantitative materials, findings indicated that 42% of respondents felt adequately capable, while only 8% expressed high capability. Furthermore, 47% expressed sufficient confidence in students' comprehension of materials containing quantitative data, with a mere 3% stating high confidence. Similarly, in terms of readiness to teach numeracy-oriented Pancasila education materials, 50% of teachers reported being adequately prepared, while 11% claimed to be highly prepared. These statistics suggest that while some teachers possess basic proficiency in numeracy instruction, there remains room for improvement in enhancing confidence and preparedness levels.

However, it's noteworthy that despite the identified shortcomings, teachers generally exhibited sufficient skills in delivering Pancasila education content with numerical components. One prevalent challenge observed in the field was the lack of exposure of students to numeracy-based questions, potentially stemming from teachers' limited understanding and proficiency in designing and developing such test items [35]. Numeracy skills are essential as they involve the application of mathematical concepts and principles in real-life scenarios. The national literacy movement (NLM) defines numeracy as the competency in utilizing numbers and symbols in basic mathematics to solve daily problems, including the ability to interpret information presented in various formats such as graphs, tables, and charts [19]. Given that mathematics scores in Indonesia are still below average according to the 2018 PISA results, it's evident that teachers play a crucial role in enhancing students' numeracy skills and fostering positive academic outcomes [36]. In conclusion, while there are areas of improvement, the findings underscore the importance of further enhancing teachers' numeracy proficiency to effectively equip students with essential mathematical skills, thereby contributing to their academic success and overall development.

Thirdly, the importance of literacy and numeracy skills for students has been widely acknowledged by civics teachers, especially in the current era characterized by the fourth industrial revolution. Education plays a pivotal role in nurturing students' creative and innovative thinking, as well as fostering their communication and collaboration skills. Literacy and numeracy abilities serve as fundamental prerequisites for students to engage in critical, creative, and innovative thinking processes. The Merdeka 2022 Curriculum underscores the significance of these abilities, as evidenced by their inclusion in MCA questions. Regardless of students' future professions or aspirations, literacy and numeracy are indispensable skills that all students must possess. This aligns with the understanding that literacy and numeracy constitute the minimum competencies or essential skills necessary for effective learning. The implementation of assessments focusing on literacy and numeracy during the mid-schooling period serves as a catalyst for teachers and schools to enhance educational quality [37]–[39]. Schools that prioritize instruction in these areas often witness positive outcomes, as evidenced by improvements in students' reading, writing, and problem-solving abilities [21]. Moreover, literacy and numeracy skills are crucial for students to meet the demands of the 21st century effectively. According to Jusmirad *et al.* [40], these skills extend beyond basic reading, writing, or arithmetic proficiency and encompass the development of critical and creative thinking abilities.

Literacy and numeracy education play a vital role in equipping students with the fundamental skills needed for success in life. They enable students to gather information from diverse sources, evaluate the accuracy and authenticity of information, and cultivate strong critical thinking skills. These abilities form the cornerstone of quality education across all stages and curricula [17], [18], [41], [42]. Furthermore, literacy and numeracy skills contribute to the development of individuals as global citizens, empowering them to make meaningful contributions to society. In conclusion, literacy and numeracy skills are indispensable components of education that enable students to thrive in the 21st century. Their cultivation not only enhances academic performance but also equips students with the essential tools for success in life and as contributing members of society. Therefore, it is imperative for educators and policymakers to prioritize the development and reinforcement of literacy and numeracy skills within the education system.

The readiness of civics teachers to foster literacy and numeracy abilities is evident through a range of proactive measures: i) collaborative learning: teachers collaborate with peers and engage in collaborative learning centered on student engagement. By working together, educators exchange ideas and best practices to enhance literacy and numeracy instruction, ensuring that teaching methods are dynamic and responsive to student needs; ii) cultivating a culture of literacy and numeracy: teachers actively participate in training sessions and discussions with colleagues to promote a culture of literacy and numeracy within schools. By emphasizing the importance of these skills, educators create an atmosphere where literacy and numeracy are valued and integrated into all aspects of teaching and learning; iii) utilizing motivating learning resources: teachers actively seek out learning resources and media that inspire student engagement with literacy and numeracy concepts. By incorporating engaging materials into lessons, educators motivate students to actively participate in developing their skills and understanding; and iv) encouraging active engagement: teachers motivate stakeholders, including students, to actively engage in literacy and numeracy activities such as reading, note-taking, and numerical analysis. By fostering a culture of active participation, educators empower students to take ownership of their learning and develop essential skills for success.

Effective strategies for enhancing literacy and numeracy can be implemented through various means, including expanding access to relevant reading materials, providing guidance, and connecting these skills to real-life applications. Moreover, the availability of supportive infrastructure and facilities is crucial, and collaboration among teachers or between teachers and the entire school community is necessary to emphasize the improvement of these abilities in teaching and learning [43]–[46].

Furthermore, literacy and numeracy skills enable teachers to make informed decisions when selecting appropriate assessment strategies, activities, and tools for their students. These strategies aim to

develop the critical skills necessary for success in the 21st century, including critical thinking, effective communication, and problem-solving abilities. In conclusion, teachers play a vital role in supporting students' development of literacy and numeracy skills by implementing innovative teaching methods, fostering a culture of active engagement, and utilizing motivating learning resources. Through their concerted efforts, educators empower students to become critical thinkers, effective communicators, and proficient problem solvers, preparing them for success in an ever-evolving world.

5. CONCLUSION

In conclusion, the assessment of literacy and numeracy levels among civics teachers was conducted based on their self-perception of teaching ability, which revealed a moderate level of literacy proficiency and a sufficient level of numeracy ability. This categorization was substantiated by teachers' engagement in various activities such as reading literature, writing, analyzing news, and teaching cases, as well as their confidence in student comprehension and readiness to teach Pancasila Education with a focus on literacy or numeracy. The majority of teachers (68%) reported adequate preparedness for literacy-oriented Pancasila education, while a smaller portion (16%) indicated high levels of preparedness. Similarly, half of the teachers (50%) expressed adequate preparedness for numeracy-oriented teaching, with 11% indicating high preparedness.

Furthermore, teachers unanimously acknowledged the high importance of literacy and numeracy skills for students in the current era, underscoring the need to prioritize these skills in education. The respondents also expressed their commitment to ongoing efforts in developing these abilities. These efforts were evident through collaborative learning, fostering a culture of literacy and numeracy through training and discussions, actively seeking learning resources and media that support student literacy and numeracy, and promoting reading, annotation, and analysis of numeracy-related materials. In light of these findings, it is imperative for educational institutions to continue supporting teachers in enhancing their literacy and numeracy instruction methods and providing resources to further develop these essential skills among students. This not only ensures academic success but also equips students with the critical thinking and problem-solving abilities necessary for success in the 21st century.

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