Comparative analysis of Generation Z's digital history literacy in history education majors on Java Island: A study of history digital literacy

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Abstract

The purpose of this study is to determine the level of digital literacy related to history among students at Universitas Pendidikan Indonesia (UPI) and the State University of Malang (UM). The recent decline in historical literacy among Indonesians has piqued historians' interest. In this context, the gap between technological potential and literacy problems may be advantageous for initiatives to enhance Indonesian young historical literacy. This research uses a quantitative-descriptive approach. The respondents were first-year and second-year history students at UPI and UM. The data collection technique used was a historical literacy test that has Higher Order Thinking Skills (HOTS) levels 1-4. This study used descriptive data analysis and an independent sample t-test. The results of this study show that students from both universities have a low level of historical literacy, both in first-year and second-year students. This condition is a signal for teachers to start improving. Gadget technology is suggested as a solution to the problem because these students belong to Generation Z (a generation that is very aware of current events and technological advancements). The methodology of Scholarship of Teaching and Learning (SOTL) was selected because its principles are appropriate for fostering digital historical literacy. It is student-focused, context-based, collaborative, methodical and well-developed in the community.

Keywords: Generation Z, Historical-digital literacy, History education.

Contents

Contribution of this paper to the literature
This study aims to determine the level of digital literacy related to history among students at the University of Education Indonesia (UPI) and the State University of Malang (UM). This research also contributes to provide solutions to the low level of digital literacy of students majoring in history.

1. Introduction

Our world has entered a digital age where computers and the internet dominate our way of life. This computerized phase has even reached a new height with the arrival of mobile technology, presenting a micro scale of sophistication within one's hands. The ability to access any information through a computer is made possible by the internet which makes this advancement indispensable to human existence.

The literary world is affected by the micro-development of gadgets. Reading and writing proficiency were the only criteria used to define literacy in the past. As time passes, literacy grows and broadens, becoming a discipline that calls for critical thinking, problem-solving, goal-achieving strategies, understanding of the natural world and the advancement of humanity (Subandiyah, 2015). The meaning of literacy has taken a great shift from a technical matter of its origin to fundamental aspects that affect humans. The literary world currently also uses a term called digital literacy. Digital literacy is a skill in understanding and using information from various types of formats and wide sources through a digital device (Monteiro & Leite, 2021). Digital literacy skills are essential to develop as independent learners in the digital age (Jalil et al., 2021). The most commonly used approaches to digital literacy are those from media studies, education studies, computer science, information science and librarianship (Tejedor, Cervi, Pérez-Escoda, & Jumbo, 2020).

The combination of information pragmatism and gadget use has significantly accelerated Indonesia's digital growth. Data from the Indonesian Internet Service Providers Association (APJII) written by Pahlevi (2022) showed that internet users in this country will increase tremendously in 2022 reaching 210 million users. This amount rose from 2019 with 175 million users counted. The user percentage in 2022 reaches 77% of the total population. This turn causes a concern since Indonesia's general index of literacy is low.

The Indonesian government has declared that 2045 will be a golden year for achieving prosperity and greatness. The prominence in the digital field is one example of such magnificence. Unfortunately, due to the new generation's poor literacy rate, that hope is likely to vanish. The PISA result for 2018 showed that Indonesian students within 15 years of age have average score of 371. The result is low and for the average global score, it reaches 487. 55% of Indonesian students are categorized as functionally illiterate which means that although they know letters and words, they cannot understand the text.

This miserable condition is further proven by the data from the Programme of International Students Assessment (PISA) and the Organization for Economic Cooperation and Development (OECD). In 2019, they released the literacy rate of Indonesians and the result is extremely low placing Indonesia at rank 62 out of 70 countries that were surveyed (Nurqamar, Ulfa, Hafizhah, Fadhillah, & Rahmi, 2022). The data shows a worrying condition in Indonesia's literacy level. The solution may be found in the extremely high utilization of the internet among Generation Z.

The Z-generation represents the first generation to grow up completely used to digital technology. They engage with digital gadgets. Generation Z amounts to 100 million people in the total population of Indonesia. The population is not only focused on Java but also spread throughout the country (Rakhman & Haryadi, 2021). They have a lot of potential to improve the literacy level of the country.

The historical–digital literacy paradigm's existence also contributes to the literacy growth of history education. The ability to obtain historical information using digital devices, media and sources is known as historical–digital literacy (Hangen, 2015). Digital literacy in history refers to the ability to use technology to obtain historical material that can foster critical thinking, as history has taught humans to think critically about every problem they face by reflecting on the past (Hänninen, Sanna, Niemi, Lavonen, & Lipponen, 2014).

Generation Z are now taking the history major in college. They use available digital technology to access historical information. These history students can improve their literacy skills through the historical sources they collect to support themselves especially in facing the challenges of the 21st century that require abilities like critical thinking, creativity, collaboration and communication. Therefore, this research has the aim of mapping the historical literacy of history study program students at state-owned universities in Java. The researcher chose the first and second years since they were fully present on campus.

2. Literature Review

The majority of this technologically advanced era's population known as Generation Z was born between 1995 and 2010. They possess a different context in mobility and various realities, social networks and are digital natives (Nofiyanti & Tatsar, 2023). They do not only focus on one matter but also have connections with a wide society. They have a characteristic of being generally open to difference and living pragmatically (Francis & Hoefel, 2018). Generation Z globally grows in a living environment that spells complex uncertainties. They depend on the internet and the convenience of technology around them (Fauzi, Azhmy, Pasaribu, & Arif, 2023). This condition relatively shapes them to adore technology, becoming more flexible, smarter and more tolerant of cultural differences. Their attitudes, perspectives and life goals are influenced by the information they receive on the internet which has become a worldwide culture (Nurqamar et al., 2022).

Several previous studies have shown that Generation Z's brains are structurally different from those of previous generations. Generation Z's brains are surrounded by complex visual imagery and parts of their brain responsible for visual abilities are more developed, making them more reactive to "visual learning" but with shorter attention spans. The quality that sets Generation Z apart from their predecessors is that they are digital natives. Technology is present in Generation Z's environment since they have so many communication devices. Those devices are their means to communicate and collaborate, sharing knowledge and learning to earn advantages (Dolot, 2018). They understand how important it is to develop abilities such as creative and innovative thinking.

They have changed the old perspective which stated that people are workers. They turn into independent people through entrepreneurship. They use skills in running business, graphical design, video production and application development. They are interested in narration and contents that involve real people realistically (Schwieger & Ladwig, 2018).

Generation Z in Indonesia mostly prefers the internet to television although the latter still dominates the media. They spend a remarkable 35.2% of their time on social media which they access regularly. The majority of them spend about 3.5 hours a day on their devices accessing the internet. Almost all Indonesians have a gadget in their hands and the majority of those gadget users are from Generation Z (Hinduan, Anggraeni, & Agia, 2020).Teachers need to provide this generation with practice guidelines. They prefer to think quickly and enjoy themselves because of their chaotic character. They have a strong technological addiction. They become unable to interact and socialize in real life. Their literacy rate also suffers since they prefer visual enjoyment through the internet. Additionally, they think that culture and morals are outdated and uninteresting (Retz, 2015).

The foundation of a country's civilization and the driving force behind efforts to uphold moral principles is education. The globalization of today's world has led to the rapid advancement and dominance of information technology. Information technology is increasingly developing and can be characterized by digital information (Mardiani, Anis, & Hermawan, 2021). Moreover, technological availability has motivated world-class universities to develop innovative programs and new ideas to accelerate and improve both teaching and learning (Tejedor et al., 2020). Historical literacy is a new concept first introduced officially in 2014 in Finland's National Main Curriculum (Hänninen et al., 2014). It explained that students at the very least can work with documents and understand narratives. Before 2014, teachers and history experts used the term "historical thinking competency" which includes historiography criticizing competency and studying history (Purwanta, 2019; Wineburg, 2001). Later, this viewpoint gave rise to the idea of historical literacy which replaced the previous one and established a limit on students' minimal competency requirements.

This minimum skill is crucial because it lays the foundation for historical literacy development in the next grade. It is impossible for students to learn the abilities that are the objectives of history education if they are not capable of comprehending the content of documents. In addition, the competency includes historical awareness, emotion and intellect such as empathy (Retz, 2015). Some examples of those abilities are the ability to recognize continuity and change as well as the importance and relevance of history (Ercikan & Seixas, 2015; Seixas & Peck, 2004).

The current focus of historical literacy studies is on students' ability to comprehend and analyze the narratives found in historical texts as well as their sources. Bennett (2014) found that reading and writing activities are important for history teachers. According to Bennett (2014) and Seixas & Peck (2004), school teachers face challenges in creating appropriate learning and literacy rate development instruments but these activities can be successful if the students possess strong fundamental reading skills such as fluency, comprehension and vocabulary mastery. Some of the competencies in learning history include identifying different historical sources, discovering that sources may have different ways of interpretation, understanding the unknown motives of people and explaining why an interpretation may change due to new sources or new methods of examination. However, the literacy of people, especially students about historical materials in Indonesia has not developed as it should due to teaching methods by teachers that are oriented towards mastering materials such as recalling narratives. As a result, both teachers and students believe that the narrative in the textbook is the ultimate truth. According to this perspective, historical literacy may provide a more thorough comprehension of historical phenomena.

SoTL is a process of systematic inquiry into student learning that results in an advancement in the practices of teaching in higher education (Hutchings, Huber, & Ciccone, 2011). Teachers can gain a deeper understanding of what works and what doesn't when it comes to improving student learning and growth in a variety of learning situations including the study of history. Those who use SoTL approaches as well as those who are practitioners themselves can benefit from this knowledge by using it to facilitate more successful teaching (Simmons et al., 2013). The ability to successfully teach material is essential to a teacher's job. The goal of implementing the SoTL technique is to help teachers and students gain deeper comprehension and knowledge related to history learning. SoTL traction can be enhanced by capitalizing on parallel efforts at the micro, meso and macro institutional levels (Simmons, Eady, Scharff, & Gregory, 2021). It will be possible to enhance students' educational capacities towards historical content by increasing the use of SoTL in history education.

3. Research Method

The second phase of the early study took place at Universitas Pendidikan Indonesia (UPI), Bandung and Universitas Negeri Malang (UM), Malang. The data from the early study was acquired from an online test. The respondents were first- and second year's students of history education majors. The web links and passwords for the test were given by the lecturers to their students.

Table 1 shows the composition of respondents consisting of first-year and second-year history education students at UPI and UM.

Table 1. Composition of respondents consisting of first-year and second-year history education students at UPI and UM.

No.	University	Year	Respondent (Student)
1	UPI	1st	80
2	UPI	2nd	92
3	UM	1st	64
4	UM	2nd	55

The questions for the test were designed based on historical narratives that can be found in a book with the title "Sejarah Indonesia untuk SMA Kelas XI". The historical literacy test in this study is based on the OECD PISA levels in 2021 with levels 1 to 4.

a. Level 1: The students can find explicit and slightly vivid information in the text, know the main idea of the familiar topic and know the connection between that textual information and their own daily experience.

b. Level 2: The students can find one or more parts of the information and its conclusion by meeting some conditions. The other tasks in this level are finding the main idea, understanding connections, interpreting a limited meaning when it holds less importance   and building a simple conclusion. They should also involve the comparison of the text and outer knowledge with personal experience and attitude.

c. Level 3: The students can read tasks at an intermediate level like finding information, making connections between different parts of the texts and familiarizing themselves with their personal knowledge. This level requires the capability of integrating several parts of the text, identifying the main idea, understanding connections and interpreting them from words or phrases. They also need to consider many features in the comparison process like contrasts and categories. This level will frequently have conflicting concepts and complex information.

d. Level 4: The students can read a complex text, find hidden meaning, interpret through the nuance of language and critically evaluate the text. The readers must locate and substitute some material for the task at this level. The interpretation of the text's overall meaning should be their next priority.   The next process demands a deep understanding of the category in foreign contexts which ends with the critical hypothesis the reader must offer after running through a complex evaluation. Therefore, they should demonstrate a correct and concise understanding of the text's contents.

There are 2, 4, 6 and 8 scores for each level. According to the widely used scoring system guide in Indonesia, the scores are as follows: 85–100 = A which denotes excellent, 70–84 = B which denotes good, 60–69 = C which denotes satisfying, 55–59 = D which donates poor, 50–55 = E which donates very poor and less than 50 = F which donates fail.

4. Results and Discussion

The experiment was   carried out by the researcher at two universities. There were 172 respondents in the UPI survey, 80 of whom were first-year students and 92 of them were second-year students. UM had 119 participants of whom 64 were first-year students and 55 were second-year students. The test result shows that students from both universities have low historical literacy rates. The test in UM has 97% respondents while the other three percent are above. The score was also found in UPI with 97% below 60 and three percent above 60. This problem is extremely concerning since students in majoring history education are ideally familiar with texts.

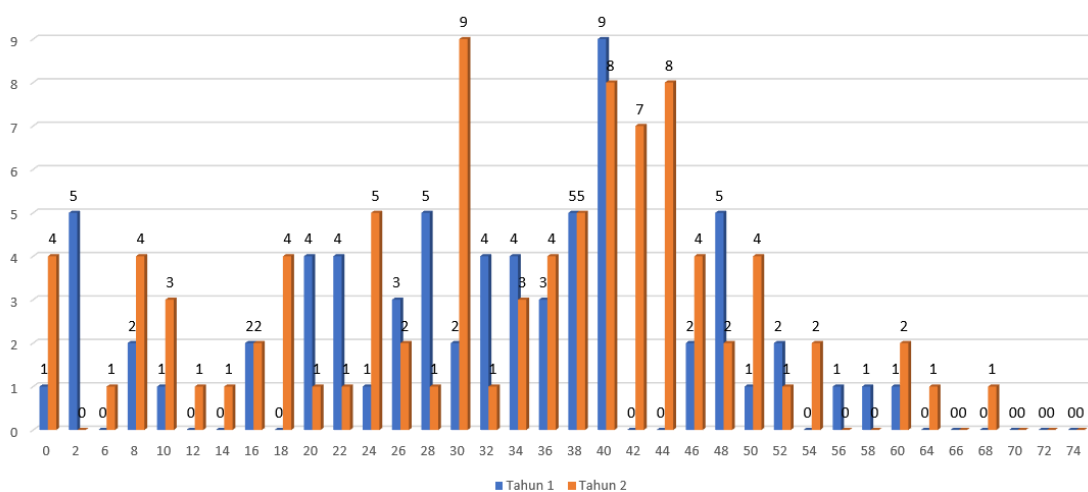Figure 1 shows a comparison diagram of the literacy scores of UPI history education students.

Figure 1. Comparison diagram of literacy score of UPI history education students.

The diagram shows that the average score piles up in the range of 18-64. The average of the first-year students is 35.90 while the second-year students earn 35.96. This result is still far from the ideal historical literacy score which should reach 50.

The low historical literacy rate is also proven by an independent statistical test to examine the sample. The following table shows the test result.

Table 2 presents independent statistical test results to test the level of historical literacy of first- and second-year UPI students.

Table 2. Table of independent statistical test results to test the level of historical literacy of first- and second-year UPI students.

Independent statistical test results	F	df	Sig. (2 tailed)
Equal variances are assumed.	0.023	117	0.983
Equal variances are not assumed.	0.00	0.00	0.983

Table 2 shows a sig value of   0.983. The score of more than 0.05 (0.983>0.05) proves that the test result for the first year and their upperclassmen is just the same. This means that both first-year and second-year students also have the same low rate of history literacy.

On the other side, the test conducted at Universitas Negeri Bandung yielded a result that can be seen in the following diagram.

Figure 2 shows a comparison of the   historical literacy results of UPI and UM history education students.
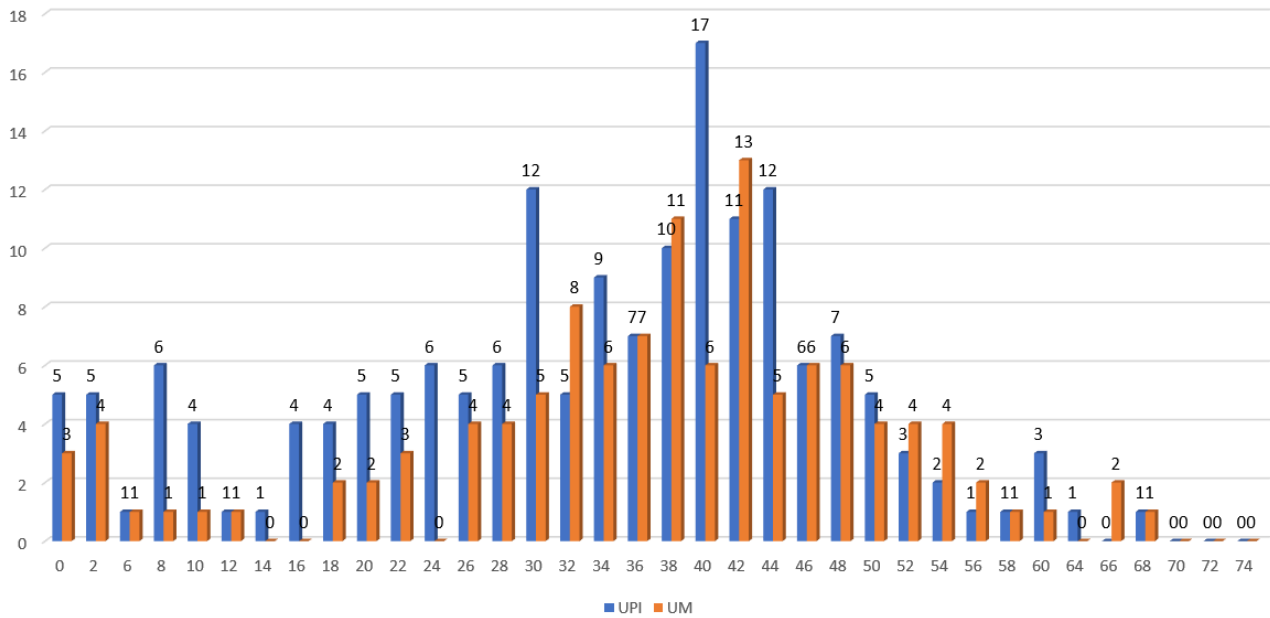
Figure 2. Comparison of historical literacy results of UPI & UM history education students.

The freshmen have an average score of 32.6 while the second-year students get 33 with scores ranging from 0 to 64. Their score result is not significantly different thus their historical literacy is also low. This low score range is within a dangerous threshold for history education students. They could not expect to complete a historical literacy exam with that low rate.

The SPSS statistical analysis test also confirms the low literacy rate. The independent sample test result is as follows:

Table 3 presents the SPSS statistical analysis test results table.

Table 3. SPSS statistical analysis test results.

SPSS statistical analysis test results	F	Df	Sig.(2 tailed)
Equal variances are assumed.	1.234	0.266	0.834
Equal variances are not assumed.	0.00	0.00	0.842

History education students of Universitas Pendidikan Indonesia from both years have no different result since the sign is more than 0.05 (0.834>0.05). Thus, they also suffer the same problem as their friends from UM.

The students majoring in history education at both universities have different literacy rates. The test results are far from desirable since the score range is around 0-68. The average scores of both universities are not yet known. 32.78 for UPI and 35.92 for UM. This is also confirmed by the outcome of an independent statistical sample test.

Table 4 presents independent sample statistical test results on UM and UPI student literacy levels.

Table 4. Independent sample statistical test results on UM & UPI student literacy levels.

Independent sample statistical test results	F	df	Sig.(2 tailed)
Equal variances are assumed.	1.260	0.263	0.071
Equal variances are not assumed.	0.00	0.00	0.070

Table 2 shows 0.071 for the sig value which reveals that the sig value is larger than the standard value (0.071>0.05). This outcome suggests that the exam results provided to the students at the two universities are identical. Their historical literacy rate is low. They are in need of remedies to improve their abilities.

Digital literacy which is closely related to general literacy is not limited to Indonesia. It is also present in certain other countries worldwide. For example, Japan which is generally considered to be a highly developed and literate country has problems with digital literacy. Japanese college students may have smartphones and other computer devices but they cannot maximize them for literary activities (Shahreza, 2017). Turkey has the same issue which was discovered through a survey of recently enrolled college students. Their use of digital devices for literary activities also requires assistance and support (Julia, Kurnia, & Sudin, 2018).

People's digital literacy level is low in the West Java and East Java Provinces. West Java has the highest score of 3.47 while East Java got 3.55. The scoring of the literacy rate was based on four indicators: digital skills, digital ethics, digital safety and digital culture.

In this regard, gadgets can have a positive influence on digital literacy. The survey that was conducted Djumingin, Hajrah, Weda, and Maman (2021) showed that digital devices help students in colleges. Gadgets can help students find learning material when they are in a discussion forum with their lecturer. Digital gadgets help with daily tasks, providing comfort and keeping the user informed about news around them. They can find a broad variety of material sources through the internet giving them opportunities to discover knowledge that supports them.

Digital devices provide everything that student's need. They can be extremely helpful because of their instantaneous internet access and ability to store data in multiple media formats which can be used with almost no limitations. They can even assist teachers or students in evaluating their progress in learning (Bayanova et al., 2019; Julia et al., 2018). In fact, gadgets can encourage students to learn important knowledge but they have not used their devices to their full potential. They can even assist teachers or students in evaluating their progress in learning.

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The majority of students use their gadgets for purposes other than education. They use them to access social media which is a waste of time because the information they get is largely superficial and random. In addition, students who use their devices excessively frequently behave inappropriately during class activities. During class, they are frequently observed using social media because of their frequent disregard for others including their professors and friends. Their excessive use of technology may severely damage their morality and character (Julia et al., 2018). Low levels of digital historical literacy can damage the future of the nation along with the destruction of student character.

Generation Z as digital natives faces a real threat of moral decline. People who are excessively dependent on technology require extra attention in order to properly use their gadgets. They will be taught constructive ways to use their gadgets such as raising their literacy level rather than remaining alone with their addiction to social media. Students' digital literacy can be a useful tool for enhancing their 21st century skills (Felten, 2013). They must be quite competent in keeping with the 21st century's needs.

Digital literacy can be combined with historical literacy to design a digital literacy curriculum to improve students' literacy rates. The key is digital competence which includes skills like using a device, critical thinking, evaluating and conceiving ideas, character education, self-awareness as a human and a student and social digitalization (Monteiro & Leite, 2021).

This learning design is suitable for historical-digital literacy since it facilitates students with both physical (artifacts) and digital archives. Students will use various identifying exercises and research techniques in a guided context to use their digital skills to create a history. Experience with this learning model allows for demonstrating versatility in both tool use and openness towards historical sources. They become innovators with an abundance of historical understanding (Hangen, 2015).

The approach of *Scholarship of Teaching and Learning* (SoTL) may become a solution for improving students' historical-digital literacy. SoTL's guiding concepts are well suited for developing competency and the inquiry process. It focuses on the students and characters who are methodical, collaborative and develop with society (Felten, 2013). This inquiry method is the right method for instilling character values in children (Sainab & Herna, 2022). The existing contexts in the learning materials are also based on valid and reliable sources so that the students can develop their literacy skills critically. SoTL also orients towards collaborative learning between fellow students and lecturers.

SoTL has three dimensions of application: micro-individual, meso-institutions and macro-nationals. Students in a micro-individual environment work with academicians at the curriculum level as consultants, partner and research team members. Within meso-institutions, they act as a consultant that influences the institution. At the macro-national level, they research and publish their findings nationally and internationally (Francis & Hoefel, 2018).

Students' low literacy rate has become a warning for responsible colleges. As agents of national change, they should improve their skills in college. The rapid development of the digital era has potential to improve their literacy rate. They have many devices they use for communication and amusement purposes which can also become easy tools for more beneficial use. SoTL as a form of inquiry will comprehensively involve micro scope up to the institution level in implementing holistic learning that supports the students to improve their literacy skills.

5. Conclusion

The historical digital literacy skills of history education major students at UPI and UM show a low level. The result of this research concludes that the test results of the students from both universities show no major difference which means their literacy rate is low and they need treatment. Providing Generation Z with support to raise their literacy level can be greatly helped by the technology that surrounds them. Digitized historical materials that are accessible through their gadgets, combined with the SoTL learning approach can offer a useful treatment that can improve their capability.

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