Digital Literacy Ability and Learning Style of English Students in the Covid-19 Pandemic

Nadrah[1](✉), Ade Sissca Villa[2], and Arono[3]

[1] University of Canberra, State Islamic University of Fatmawati Soekarno Bengkulu, Bengkulu, Indonesia
Nadrah.Nadrah@canberra.edu.au, nadrah@iainbengkulu.ac.id
[2] Poltekkes Ministry of Health Bengkulu, Bengkulu, Indonesia
[3] University of Bengkulu, Bengkulu, Indonesia
arono@unib.ac.id

Abstract. Learning English as an international language has changed a new paradigm in learning in the Covid-19 pandemic era, both synchronously and asynchronously so that digital literacy and student learning styles are increasing. This research aims to describe the condition of digital literacy and student learning styles in the pandemic era. This research employed mixed method. The technique of collecting data used questionnaires and interview. The data were collected from 100 students by using google form both closed and open-ended. The results showed that the students' literacy skills in learning English during the covid-19 pandemic were in high or good category (3.65). Meanwhile the students' literacy ability in supporting good/high learning practices was in a very high category (4.28). It means that students have predominantly carried out learning activities using online both independently and in lectures. Good digital literacy directly affects the learning styles used by students in their learning. Student learning styles are in the good or balanced category (3.79) in applying six learning styles. The details of each learning style are auditory, kinaesthetic, visual, tactile, group, and individual. Among the six learning styles, the auditory learning style is more dominant than other learning styles. Between learning styles and students' digital literacy skills, there is a balance, namely good or high categories.

Keywords: Digital literacy ability · learning style

1 Introduction

The current pandemic condition affects the behaviour and digital literacy skills of students [1]. This is because almost all lecture activities are carried out online, both synchronously and asynchronously. This condition causes students' abilities to be increased in mastering digital literacy [2]. The higher a person's education, the better the mastery of digital literacy he has [3]. This literacy mastery certainly determines the behaviour of students with varied or different learning styles so that the quality of learning will become a new habit for students in learning.

W. Yunita and M. Fadhli (Eds.): ICETeP 2021, ASSEHR 680, pp. 15–21, 2023.
https://doi.org/10.2991/978-2-494069-19-0_3

Online learning maximizes students' creativity and innovation in developing language skills [4–6]. Students can independently improve their language skills, both in speaking, reading, writing, and listening. Listening skills, for example, students can carry out listening activities as long as students want to train and improve their listening skills through songs or audio, or through YouTube or audiovisuals. Likewise with their productive speaking and writing skills, students are able to communicate with students both in Indonesia and around the world by maximizing social media so that students will be more productive in trying their language skills. Reading skills students are able to read various sources on the internet. Students' scientific insight will develop and improve faster.

Learning styles greatly affect students' digital literacy skills [7, 8]. Learning styles consist of auditory, kinesthetic, visual, tactile, group and individual learning styles [9]. Visual and audiovisual learning styles significantly influence students' digital literacy skills when compared to cystic learning styles. Digital literacy is a combination of power and skill that cannot be quantified, but that is more flexible in analyzing, selecting, information, and critically evaluating data, while raising awareness of individual responsibility and mutual respect for rights and obligations [10]. A person's learning style is how he or she concentrates, processes, internalizes, and remembers new and difficult information or academic skills. A person's style often varies according to age, level of achievement, culture, global versus analytical, processing preferences, and gender [11].

The higher the education and mastery of students' digital literacy skills in the implementation of learning in the era of the Covid-19 pandemic, the more varied or influential on student learning styles, so that it will affect the quality and interest of student learning in higher education. For this reason, this study reveals the condition of digital literacy skills and student learning styles in Indonesia during the Covid-19 pandemic.

2 Methodology

This research method used mixed method using open questionnaires and instruments. Descriptive quantitative analysis describes existing phenomena by characterizing the characteristics of students using numbers in quantity and quality. Interviews were given in the form of questions via google form to 100 students [12]. The sample of this research is 100 students (90% women) who spread in Indonesia by purposive sampling. Two questionnaires were applied to conduct the research: the digital literacy skills questionnaire

Table 1. Criteria for each dimension's capability

Internal	Criteria
1.00–1.80	Very Low
1.81–2.60	Less
2.61–3.40	Moderate
3.41–4.20	High
4.21–5.00	Very High

[13, 14], learning styles [15]. Participants were asked to fill out a digital literacy ability questionnaire totalling 12 indicators with 75 statements and a learning style questionnaire with six indicators with 30 statements. The Likert rating scale with the criteria interval is obtained as in Table 1.

3 Results and Discussion

3.1 Results

Students' literacy skills and student learning styles during a pandemic quantitatively from the results of questionnaires and open interviews can be seen from the data results based on Table 2 explanation.

Based on Table 2, it shows that the literacy skills of students are in the high or good category (3.65). Students' literacy ability in supporting learning practices is very good/high (4.28). As for the literacy skills of students in the sufficient category, namely seeking information, using information, endogenous motivation, exogenous motivation, operating digital devices, searching, selecting, and evaluating information, using computers and the internet, and engagement using digital. The digital literacy skills are in the sufficient category, namely understanding digital practices and creating information. Meanwhile, the student learning styles can be seen from the explanation in Table 3.

Based on Table 3, it shows that the students' learning styles are in a good or balanced category (3.79) in applying their learning styles. The details of each learning style are auditory, kinaesthetic, visual, tactile, group, and individual. Auditory learning style is more dominant than other learning styles. This happened because the online learning conditions carried out by students during the pandemic were more dominant, thus affecting the new habits of student learning styles. Between learning styles and

Table 2. Student Literacy Ability

No	Dimensions	average	Des.
1	Understanding of digital practice	3,14	moderate
2	Searching for information	3,52	high
3	Using information	3,46	high
4	Create information	3,01	moderate
5	Endogenous motivation	3,70	high
6	Exogenous motivation	3,71	high
7	Operate digital devices	3,58	high
8	Searching, selecting, and evaluating information	3,83	high
9	Using computers and the Internet	3,96	high
10	Engagement using digital	3,93	high
11	Support learning practice	4,28	Very high
Average		**3,65**	high

Table 3. Student Learning Style

No	Dimensions	average	Des.
1	Visual	3,74	good
2	Auditory	4,04	good
3	Kinaesthetic	3,96	good
4	Tactile	3,71	good
5	Group	3,71	good
6	Individual	3,55	good
Average		**3,79**	**good**

students' digital literacy abilities, there is a balance with the categories of the results of the questionnaires given being both good or high categories.

Based on the results of interviews with 101 students in the form of questions, only 4 students' answers were taken which were considered to represent/considered the same answers. In general, learning at home during the COVID-19 pandemic can improve digital literacy skills, as shown in the results of the interview below.

Yes, I mostly access materials digitally to help with assignments and understand limited lecturer materials (M.44).

Yes, because with the covid 19 pandemic, I always use electronic media to do all the tasks given by my lecturer (M.75).

The dominant digital services used by students are google, email, WhatsApp, e-learning, YouTube, google classroom, google meet, zoom meeting, e-books, Microsoft, ppt, Wikipedia, google scholar, e-journal, English learning applications, and skype. The following are the results of several interviews with students.

Yes, because you are used to it and supported by a good Internet network. For example, when there is a lecture. I've been able to use various ways of doing lectures online. I immediately activated internet data. I open a zoom application or something else, such as Zoom Meeting, Campus ELearning, and Google Classroom (M.90).

At home, you only use your smartphone and it depends on the situation. If the light is on, the lecture process is quite smooth. When the light is off, the network automatically disappears, causing lectures to be left behind (M.99).

Based on digital services used by students, students' digital literacy is getting better so that students' language skills are also better, both in listening, reading, writing, and speaking skills.

3.2 Discussion

The covid-19 pandemic condition has formed a new habit for the world of education, especially among universities. Blended learning, which was previously rarely done by lecturers, is now an effective solution in improving the quality of learning. Various application learning services, such as e-learning asynchronously or face-to-face or synchronously such as zoom meeting or google meet are provided. Lectures are not only done in class, but the intensity of lectures can be done online. This improves the quality of the digital skills of students and lecturers. Based on the results of the study, it showed that the literacy skills of students were in the high or good category (3.65). The nearly two-year pandemic has allowed lecturers and students to form new habits in online learning to be comfortable and effective [1].

Students' literacy ability in supporting has good/high learning practices (4.28). This means that students have predominantly carried out learning activities using online both independently and in lectures. There are several aspects of good digital literacy skills, namely looking for information, using information, endogenous motivation, exogenous motivation, operating digital devices, searching, selecting, and evaluating information, using computers and the internet, and engagement using digital. The digital literacy skills are in the sufficient category, namely understanding digital practices and creating information. Students are still skilled in using or using digital literacy, but developing, creating, and practicing with digital or technology is still a sufficient category and it requires practicing efforts from students with the guidance of lecturers in supporting their learning [3].

The old pandemic condition in learning activities will find its own pattern and form new habits in learning, one of which is student learning styles. Based on the results of the study, it showed that the students' learning styles were in a good or balanced category (3.79) in applying the six learning styles. The details of each learning style are auditory, kinaesthetic, visual, tactile, group, and individual. Among the six learning styles, the auditory learning style is more dominant than other learning styles. The habit of students in studying online makes the students listen more auditory in learning given by lecturers, both synchronously and asynchronously [4–6]. Between learning styles and students' digital literacy abilities, there is a balance with the categories of the results of the questionnaires given being both good or high categories.

4 Conclusion

The type of student literacy ability in learning English during the covid-19 pandemic is in the high or good category (3.65). Students' literacy ability in supporting is good/high learning practices (4.28). It means that students have predominantly carried out learning activities using online both independently and in lectures. The good news is that digital literacy directly affects the learning styles used by students in their learning. Student learning styles are in the good or balanced category (3.79) in applying the six learning styles. The details of each learning style are auditory, kinaesthetic, visual, tactile, group, and individual. Among the six learning styles, the auditory learning style is more dominant than other learning styles. Between learning styles and students' digital literacy abilities, there is a balance with the categories of the results of the questionnaires given

being both good or high categories. The covid-19 pandemic condition has affected students' digital abilities to be high or both aspects of supporting learning practices; use computers and the internet; and engagement using digital. Student learning styles are getting better, especially aspects of auditory and kinaesthetic styles. The covid-19 pandemic condition maximizes and affects the auditory learning style of students, but does not dampen the interest of students in learning styles who want an aesthetic learning style despite the pandemic conditions.

Acknowledgments. Thanks also to my beloved husband for his prayers and support, Professor Arono, has helped a lot in initiating this research so that it can be presented at international seminars and published in this proceedings. We would like to thank students of English language education both on the island of Java and on the island of Sumatra, Indonesia, for being willing to fill out a questionnaire and willing to be interviewed in collecting data for this research.

Authors' Contributions. Nadrah: Concept and design, data acquisition, data analysis/interpretation, and admin. **Ade Sissca Villa:** Drafting manuscript, critical revision of manuscript, technical or material support. **Arono:** Statistical analysis, securing funding, supervision, and final approval.

References

1. Dadaczynski, K., Okan, O., Messer, M., Leung, A. Y., Rosário, R., Darlington, E., & Rathmann, K. (2021). Digital health literacy and web-based information-seeking behaviors of university students in Germany during the COVID-19 pandemic: Cross-sectional survey study. *Journal of Medical Internet Research*, *23*(1), e24097.
2. Martin, A., & Grudziecki, J. (2006). DigEuLit: Concepts and tools for digital literacy development. *Innovation in Teaching and Learning in Information and Computer Sciences, 5*(4), 249–267.
3. Arono, A., Arsyad, S., Syahriman, S., Nadrah, N., & Villia, A. S. (2022). Exploring the effect of digital literacy skill and learning style of students on their meta-cognitive strategies in listening. *International Journal of Instruction*, *15*(1). https://doi.org/10.29333/iji.2022.15130a
4. Thieman, G. (2008). Using technology as a tool for learning and developing 21st century skills: An examination of technology use by pre-service teachers with their K-12 students. *Contemporary Issues in Technology and Teacher Education, 8*(4), 342–366.
5. Condie, R., & Livingston, K. (2007). Blending online learning with traditional approaches: Changing practices. *British Journal of Educational Technology, 38*(2), 337–348.
6. Boling, E. C., Hough, M., Krinsky, H., Saleem, H., & Stevens, M. (2012). Cutting the distance in distance education: Perspectives on what promotes positive, online learning experiences. *The Internet and Higher Education, 15*(2), 118–126.
7. Dunn, R., Thies, A. P., & Honigsfeld, A. (2001). Synthesis of the Dunn and Dunn learning-style model research: Analysis from a neuropsychological perspective. St. John's University, Center for the Study of Learning and Teaching Styles.
8. Zacharis, N. Z. (2011). The effect of learning style on preference for web-based courses and learning outcomes. *British Journal of Educational Technology, 42*(5), 790–800. https://doi.org/10.1111/j.1467-8535.2010.01104.x
9. Nja, C. O., Umali, C. U. B., Asuquo, E. E., & Orim, R. E. (2019). The influence of learning styles on academic performance among science education undergraduates at the University of Calabar. *Educational Research and Reviews, 14*(17), 618–624.

10. Calvani, A., Cartelli, A., Fini, A., & Ranieri, M. (2008). Models and instruments for assessing digital competence at school. *Journal of e-Learning and Knowledge Society, 4*(3), 183–193. https://doi.org/10.20368/1971-8829/288
11. Shaughnessy, M. F. (1998). An interview with Rita Dunn about learning styles. *Clearing House Journal, 71*(3), 20–22. https://doi.org/10.1080/00098659809599346
12. Howell, D. C. (2011). Fundamental statistics for the behavioral sciences. Wadsworth Cengage Learning.
13. Soomro, K. A., Kale, U., Curtis, R., Akcaoglu, M., & Bernstein, M. (2017). Development of an instrument to measure faculty's information and communication technology access (FICTA). *Education and Information Technologies, 23*(1), 253–269. https://doi.org/10.1007/s10639-017-9599-9
14. Yazon, A. D., Ang-Manaig, K., Buama, C. A., & Tesoro, J. F. (2019). Digital literacy, digital competence and research productivity of educators. Self-assessment tool of the european digital competence framework for educators (DigComEdu). *Universal Journal of Educational Research, 7*(8), 1734–1743. https://doi.org/10.13189/ujer.2019.070812
15. Reid, J. (1995). *Learning styles in the ESL/EFL classroom.* Heinle & Heinle Publishers.