STUDENTS' SCIENTIFIC WRITING ABILITIES IN DISTANCE LEARNING: THE IMPACT OF METORING AND ONLINE RESOURCES

Dola Suciana[1*], Ayu Fahimah Diniyah Wathi[2], Faizal Akhmad Adi Masbukhin[3], Inas Sausan[4], Sukma Wahyu Wijayanti[5]

[1, 2, 3, 4, 5]*Universitas Terbuka (INDONESIA)*

[*]dola.suciana@ecampus.ut.ac.id

Abstract

This research examined students' experiences, abilities and challenges in writing scientific articles, especially in the context of distance education in scientific writing courses. The background of this research is based on the importance of scientific writing skills for students, especially in learning environments that rely on online technology. This research aims to understand the extent of the impact of online resources, such as online libraries, artificial intelligence, and e-learning platforms, as well as mentoring through distance learning methods, on students' scientific writing abilities. This research was conducted using a mixed methods design, which combines descriptive qualitative and quantitative approaches to describe students' abilities in writing scientific papers. The instruments used were questionnaires covering various aspects such as writing experience, ability to write articles, use of resources, and effectiveness of mentoring through distance learning. Questionnaires were distributed to 84 students at the Faculty of Teacher Training and Education at Universitas Terbuka who had taken scientific writing courses. The research results show that even though students feel they have basic skills in scientific writing, they still face significant challenges, including difficulties in time management, finding relevant references, and technical problems during guidance in distance learning. This research concludes that quality support in the form of structured guidance and improving the quality and accessibility of online resources is vital to helping students write quality scientific articles.

Keywords: scientific writing course, distance learning, mentoring, online resources

1 INTRODUCTION

In the digital era, which continues to experience rapid development, education is no longer bound by the boundaries of physical classrooms. Distance educationis now rapidly developing into a widely recognised learning model, mainly because it offers flexibility in terms of time and location. This is relevant nowadays, where accessibility and convenience are the primary needs (A. Martin et al., 2024). However, amidst these conveniences, new challenges arise,

especially in maintaining the quality of education, including mastery of scientific writing skills for students. Scientific writing skills have a crucial role not only as an indicator of academic ability but also as a reflection of students' ability to think critically and analytically and convey ideas systematically (Imania, 2016). In distance learning, developing these skills often faces various challenges, both from the side of students and lecturers who provide guidance. These challenges include the lack of face-to-face interaction and technical obstacles in mentoring, which require more structured learning strategies and more adequate resource support.

Distance learning has become a topic that has received significant attention in the last few decades, especially with advances in communication and information technology (Munir, 2020). Distance learning utilises digital technology to connect students and lecturers virtually, enabling broader access to education. The Open University (UT) is one of the universities that has implemented a distance learning system (Masruroh, 2020). UT pioneered the implementation of distance learning in Indonesia (Zuhairi et al., 2020). By offering flexibility for students located throughout the archipelago and abroad, UT allows them to access quality education without being physically present on campus. UT uses digital technology and printed teaching materials to support learning (Zuhairi, 2019). Along with technological advances, UT increasingly integrates Learning Management Systems (LMS) to enrich student learning experiences (Amastini, 2020).

In the distance learning system, students are expected to develop greater independence, especially in academic skills such as writing scientific papers. Scientific writing skills are critical because they reflect an individual's ability to convey ideas systematically and based on evidence and demonstrate critical and analytical thinking skills (Wicaksono, 2021). This ability becomes even more crucial in a distance learning context, where face-to-face interaction with lecturers and peers is limited. Good scientific writing is not just the ability to write but also requires a deep understanding of research methodology, the ability to analyse data, and skills in organising and presenting research results clearly and logically (McDougall, 2015).

Quality scientific writing includes various aspects, from mastering writing techniques and preparing solid arguments to using relevant and accurate references(Curry, 2023). Students must also be able to carry out literature reviews effectively, which requires skills in finding and evaluating reliable sources of information (Zarlis et al., 2018). In an increasingly competitive

academic world, this ability is an essential indicator of a student's success in completing their studies and contributing to their scientific field (Setiawan, 2022).

Furthermore, the skill of writing scientific papers is important not only in an academic context but also in the professional world. Scientific writing is crucial for conveying research findings and knowledge to the scientific community and the general public. This enhances the academic reputation of individuals and institutions (Absah et al., 2024). Therefore, it is important for educational institutions, including the Open University, to provide adequate support in developing these skills through effective mentoring and the use of quality online resources (Darojat et al., 2023). Thus, students are equipped with theoretical knowledge and practical skills that will help them in the future.

However, in a distance learning environment, several factors often hamper the development of these skills. On the one hand, students have broad access to various online resources, such as digital libraries, scientific journals, and artificial intelligence-based writing tools. These resources should make it easier for students to find references and research support materials. However, previous research shows that not all students can utilize these resources optimally (Tressyalina et al., 2023b). Difficulties in filtering relevant information, understanding appropriate methodology, and limited access to quality references are still significant obstacles (Rahmawati, 2019). Although technology can provide better accessibility, structured guidance is still needed to help students navigate their writing process.

Guidance or mentoring in context is also a key element in developing scientific writing skills (Li, 2019). The interaction between students and lecturers in distance learning not only functions as a medium for delivering material, but also as an important means of academic coaching and mentoring (Stillman-Webb, 2016). Distance tutoring involves using technology such as video conferencing, e-learning platforms, and email to assist students in compiling their scientific work (Tatminingsih, 2023). Even though technology allows for more flexible communication, many studies show that students often feel they receive less in-depth and personalized guidance compared to face-to-face guidance (Pratama, 2022). Time management problems, technical difficulties, and limited direct interaction often hinder the effectiveness of remote mentoring (Saghir Ahmad et al., 2019).

The main problems faced in developing scientific writing skills in distance learning are limited access to quality guidance and difficulties in utilizing online resources effectively. Even though

technology has opened wider access to various reference sources and writing support tools, many students still feel overwhelmed by technical challenges and have difficulty understanding scientific literature. (Munir, 2020) found that students who study online are more susceptible to time management problems, lack of timely feedback from lecturers, and difficulty compiling scientific articles that meet academic standards. Research conducted by (Tressyalina et al., 2023) states that writing a scientific paper requires direct feedback from the lecturer, both verbally and in writing; however, in distance education, students sometimes do not receive it directly. This state-of-the-art research aims to identify the extent to which remote mentoring and online resources can influence the development of students' scientific writing skills, especially in distance higher education environments.

This research aims to describe students' scientific writing skills in the context of distance learning, determine the challenges students face, and describe the impact of long-distance guidance and the use of online resources on students' scientific writing abilities. Using a descriptive approach, this research will analyze data from students at UT, in faculty Teaching and Education Faculty who have taken scientific writing courses. This research will not only provide an overview of students' experiences and challenges. However, it will also offer recommendations that can improve the effectiveness of mentoring and the accessibility of online resources in distance learning environments. The urgency of this research lies in the importance of supporting the development of students' scientific writing skills in the fast-paced digital era. In the distance learning context, where face-to-face interactions are limited, students need more structured support in the mentoring process and access to quality scientific resources. It is hoped that the results of this research can contribute to improving the quality of distance learning, especially in terms of developing scientific writing skills, which will ultimately improve the overall academic quality of students.

2 METHODOLOGY

This research uses a mixed methods design, which combines descriptive qualitative and quantitative approaches to describe students' abilities in writing scientific papers. It is called descriptive research because a variable is explained without comparing it with other variables (Abubakar, 2021). The research was conducted on 84 students at open universities' teaching and science faculties in 2024. The sampling technique used was Non-Probability Sampling, namely Purposive Sampling. The sample was chosen deliberately based on specific criteria,

namely students who had taken the Scientific Work course, so they were considered to have experience writing scientific papers.

The research procedure involves several stages, from preparing research instruments, data collection, and data analysis to reporting results. Data was collected through a questionnaire distributed via Google Forms. The questionnaire contains statements in the form of a 1-5 Likert scale consisting of a range of answers from Strongly Agree (SA), Agree (A), Neutral (N), Disagree (D) and Strongly Disagree (SD). The questionnaire also contains open questions to dig deeper into students' experiences while taking scientific work courses. Before collecting data, this questionnaire was tested for validity using Spearman Brown and reliability testing using Cronbach Alpha. The questions asked in the questionnaire aim to find out the experiences and challenges students face while writing scientific papers. Descriptive analysis was conducted for qualitative data based on frequencies and percentages as applicable. Quantitative analysis was carried out using the chi-square test to see the extent to which age differences, area of residence and experience influence respondents' confidence in writing scientific articles.

3 FINDINGS AND DISCUSSION

3.1 Respondent Demographic Data

84 respondents are students from the Faculty of Teacher Training and Education at Universitas Terbuka. Here is their demographic data.

Table 1. Respondent Demographic Data

Data	Category	Amount	Percentage
Gender	Man	22	26,2 %
	Woman	62	73,8%
Age Range	17-25 years old	22	26,2 %
	26-35 years old	25	29,8%
	36-45 years old	30	35,7%
	46-55 years old	7	8,3%
UT Region of Origin	Western Indonesia	53	63%
	Central Indonesia	25	30%
	Eastern Indonesia	6	7%

The total number of respondents in this study was 84 students from the teaching and science faculties who had previously taken scientific work courses. As shown in the data above, 73.8% of respondents were women, and 26.2% were men. This aligns with the UNESCO report 2019, which shows that women are more interested in education and teaching than men. If you look

at the age distribution, the 35-45-year-old range is the most numerous, namely 35.7%, then 26-35-year-olds are 29.8%, 17-25-year-olds are 26.2%, and the least are those aged 46-55 years by 8%. Based on this data, it can be seen that most students are adults with many other responsibilities outside of education, such as working and raising a family (Stone & O'Shea, 2019). People of this age find distance learning more appealing because of its flexibility. On the other hand, they may rely more on mentoring and online resource support to improve their scientific writing skills.

More than half of the respondents, namely 63%, live in western Indonesia, and the rest live in central and eastern Indonesia. These regional differences are important in the context of access to digital infrastructure and online resources. Existing facts show a disparity in educational attainment between western Indonesia and central and eastern Indonesia (Amin et al., 2020). Apart from that, other research also shows that the distribution of internet use in Indonesia is increasing yearly. However, there is still inequality between provinces in Indonesia, especially those in the western and eastern regions (Mohammad & Maulidiyah, 2023). Better internet access will certainly enable students to more easily access teaching materials, scientific journals and online mentoring programs

3.2 Questionnaire Validity and Reliability Test Results

The validity of the questionnaire was tested using the SPSS application with the Pearson Correlation method. Data from instrument validation results were analysed by comparing values rxy count with rxy table. If value r count $\geq r$ table, then the correlation is considered significant, which means the test instrument is valid. Based on tests carried out by researchers, it was found that all question items had value r calculated greater than r table, so it can be concluded that these items are valid. To test the reliability of instrument items, the following results were obtained:

Table 2. Questionnaire Reliability Test

Part	Cronbach Alpha value
Students' experience using e-learning	0.875
Students' perceptions of implementing webinar tutorials	0.895
Students' challenge to write scientific articles	0.748
Students' self-evaluation in writing scientific article	0.940

An instrument is said to be reliable if a value is obtained from *Cronbach's Alpha* > 0.60 (Ghozali, 2016). Based on the table above, all values *Cronbach's Alpha* obtained are greater than 0.60, which means that all question items in the instrument can be said to be reliable.

3.3 Scientific Writing Experience

Based on the diagram shown above, it can be seen that of the 84 respondents, as many as 61 students or 61%, had never had experience writing scientific articles before taking scientific work courses, and only 23% had had experience writing scientific articles. For students who had previously taken this course, as many as 20 respondents (23.8%) had failed it and had to repeat it. These data show that most students start the process of learning scientific writing from a basic level of understanding or without previous experience.

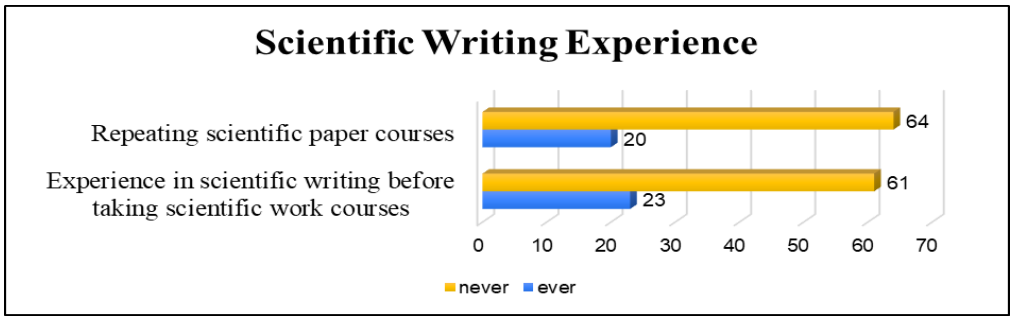

Figure 1. Scientific Writing Experience

Students often face significant challenges in scientific writing, largely caused by a lack of experience compiling scientific papers (Nam Chi et al., 2024). This lack of experience can not only affect technical writing skills. However, it can also affect students' psychological aspects, including causing their low self-confidence in expressing ideas and arguments, which is necessary for writing a scientific article (Anaktototy et al., 2023).Writing skills are not something someone can have instantly but result from a systematic and continuous learning process. To develop effective writing skills, individuals must undergo a series of exercises and practice consistently (Heriyudananta, 2021). Students without experience writing scientific

papers often feel anxious or unsure when faced with academic writing assignments (Nam Chi et al., 2024).

The existence of students who do not pass the scientific work course and have to repeat it shows that it is not easy to produce scientific work. Based on research conducted by (Widodo et al., 2020)stated that the culture of writing scientific papers among Indonesian students is still very low. This can be seen from the small number of students involved in publishing scientific papers in Indonesia. Repetition of courses is often caused by various factors, including inadequate understanding of writing structure, difficulty in organizing ideas, and inability to use online resources effectively for research (Hashim et al., 2022). Their inability to utilize academic guidance and online resources can also cause this (Sitompul & Anditasari, 2022).

3.4 Students' Experience Using E-Learning

Based on the table 3 below, it is known that most participants agreed (28.6%) and strongly agreed (47.6%) that they often used the discussion feature during elearning to hold discussions with lecturers and other students. Interaction between students and between students and lecturers in the online learning environment is important. It is a critical factor in determining student satisfaction in the learning process (Alqurashi, 2019). This aligns with research stating that discussion forums in asynchronous learning enable relevant interaction between students and instructors, fostering a deeper understanding of academic writing (Neha & Kim, 2023). Discussions on e-learning platforms create a collaborative environment, allowing students to exchange ideas, solve problems, and get real-time feedback.

Table 3. Studeny experience using elearning

No item	Questionnaire	SA (n) (%)	A(n) (%)	N(n) (%)	D (n) (%)	SD (n) (%)
D1	I often use the discussion feature on the e-learning page to discuss with lecturers or friends.	24 (28.6)	40 (47.6)	15 (17.9)	5 (6)	0 (0)
D2	I often get feedback from lecturers via the e-learning page	45 (53.6)	30 (35.7)	6 (7.1)	2 (2.4)	1 (1.2)
D3	the time I spend on e-learning pages is effective in improving my abilities	31 (36.9)	37 (44)	12 (14.3)	4 (4.8)	0 (0)

Most respondents also stated that they often received feedback on the scientific article writing assignments they were working on from the lecturers concerned, with 53.6% strongly agreeing

and 35.7% agreeing. Providing feedback, especially in the distance learning process, is very important. Providing feedback promptly from lecturers regarding the assignments carried out makes the students' learning process much better (F. Martin & Bolliger, 2018). Feedback is an important part of the learning process because it helps students recognize deficiencies in their understanding and correct them to improve their abilities (Cavalcanti et al., 2019). In this context, e-learning provides easier and faster access to feedback from lecturers, which significantly helps students improve their writing skills.

From the data displayed, it is also known that the majority of respondents, namely 36.9% strongly agree and 44% agree that the time they spend on e-learning pages effectively improves their ability to write scientific articles in scientific work courses. E-learning platforms allow students to learn independently and access various resources, contributing to increased independence and writing skills (Al-Yafaei & Mudhsh, 2023). Additionally, the flexibility of online learning environments supports time management and productivity, which is important for developing academic writing skills (Kabylzhanova et al., 2024).

3.5 Students' Perceptions of Implementing Webinar Tutorials

Based on the data displayed in the table below, most respondents stated that webinar tutorial sessions at UT positively impacted their ability to write scientific articles.

Tabel 4. Students' Perceptions of Implementing Webinar Tutorials

No item	Questionnaire	SA (n) (%)	A(n) (%)	N(n) (%)	D (n) (%)	SD (n) (%)
E1	I often attend webinar tutorial mentoring sessions with supervisors.	51 (60.7)	26 (31)	4 (4.8)	2 (2.4)	1 (1.2)
E2	Webinar tutorial mentoring sessions helped me overcome difficulties in writing scientific articles.	52 (61.9)	23 (27.4)	5 (6)	3 (3.6)	1 (1.2)
E3	The interaction during webinar tutorial coaching sessions is as effective as face-to-face coaching.	32 (38.1)	42 (50)	7 (8.3)	3 (3.6)	0 (0)
E4	I am more motivated to write scientific articles after attending the webinar tutorial session.	34 (40.5)	39 (46.4)	9 (10.7)	2 (2.4)	0 (0)

Based on the table displayed above, it is known that most respondents actively participated in webinar tutorial sessions while attending scientific work lectures. Webinar tutorials are conducted online synchronously (real-time) at Universitas Terbuka. As many as 61% strongly

agreed, and 27.4% agreed that the webinar tutorial guidance session helped them overcome difficulties writing scientific articles. This supports the argument that synchronous (real-time) guidance can provide direct and specific support to students(Sugilar, 2020). Synchronous interaction in online learning, through the implementation of webinar tutorials, can help create a sustainable dialogue between lecturers and students; this is, of course, very important in clarifying difficult concepts and providing immediate feedback for students. Apart from that, recordings can also be made available through webinar tutorials, which students can watch repeatedly(Gegenfurtner, 2020).

Apart from that, the majority of respondents strongly agreed (38%) and agreed (50%) that interactions during webinar tutorial coaching sessions were as effective as face-to-face coaching. Webinar tutorials enable multi-user two-way communication or create classes in cyberspace with tutors and students so that interaction can occur as in face-to-face learning (Muflikah et al., 2022). This shows that synchronous technology in distance education can effectively replace traditional tutoring. Synchronous learning in distance education allows interactive two-way communication, providing greater flexibility for students and lecturers even though they are separated by distance. This is in line with previous research, which states that students have a good perception of the implementation of webinar tutorials in terms of accessibility, interactivity and so on; apart from that, it also allows the use of multimedia and collaborative tools, which enrich the learning experience (Wijayanti et al., 2022).

As many as 40.5% strongly agreed, and 46.4% agreed they were more motivated to write scientific articles after attending the webinar tutorial session. This indicates that the synchronous guidance approach in distance education helps in technical understanding and provides a motivational boost for students. Support provided through positive interactions during learning can increase intrinsic motivation. Synchronous guidance through webinar tutorials can offer a sense of togetherness even though it is done online, which helps increase students' self-confidence and enthusiasm to achieve their academic goals (Zakirman, 2023).

3.6 Use of Online Resources

Based on the diagram below, it is known that some students often use sources in the form of online journals and online libraries to look for references in writing their scientific articles rather than using artificial intelligence such as GPT chat.

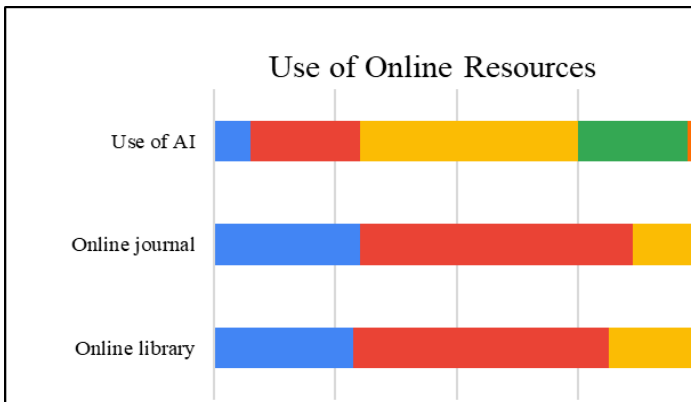

Figure 2. Using Online Resources

The group that often uses online journals and online libraries is quite significant compared to those who never use them, although some answer sometimes or are neutral. Online journals are a vital resource for learning, especially in academic contexts requiring access to the latest scientific literature. The high use of online journals is in line with findings from previous research, which states that students tend to use online journals more often to search for relevant information due to better accessibility and the latest sources available (Kumar, 2023). Online journals allow students to access scientific articles anytime and anywhere without being tied to a physical location like conventional libraries (Mariia, 2023). As with online journals, the frequent use of online libraries shows that students rely more on digital sources to obtain learning materials. According to previous research, online libraries have become integral to student learning because of easy access, various collections, and the ability to obtain resources without visiting a physical library (Aziz et al., 2015).

Meanwhile, using artificial intelligence, such as chat GPT, is still not frequent compared to the other two sources. The graph shows that most participants only use AI occasionally. Meanwhile, the group that often and always uses AI is relatively smaller than the other resources.

No item	Questionnaire	SA (n) (%)	A(n) (%)	N(n) (%)	D (n) (%)	SD (n) (%)
F1	Artificial Intelligence (AI) helps me complete scientific articles more quickly and in a structured manner.	8 (9.5)	21 (25)	35 (41.7)	13 (15.5)	7 (8.3)

From the table, known the usefulness of artificial intelligence in helping them complete scientific articles more quickly and in a structured manner, the majority chose to answer neutral, namely 41.7% of respondents. This reflects that although AI technology is increasingly being used in education, its acceptance and utilization are still limited to a few specific contexts. Learners face challenges such as inadequate understanding, lack of skills, and technological infrastructure readiness, which hinder the use of AI (Sain et al., 2024). In addition, understanding and trust in AI's ability to produce valid and quality academic writing may still be developing (Rane et al, 2024).Other research states that students may feel more comfortable using traditional sources, such as journals and online libraries, which are more familiar and have long been relied on in the research process(Costa, 2024)

3.7 Students' Challenge to Write Scientific Articles

Based on the data described in the table below, many respondents still experience technical difficulties while attending lectures, such as slow internet connections, unsupported devices, and other technical problems. Apart from obstacles, there are also those who experience difficulty managing time to write scientific articles.

Table 5. Students' Challenge to write scientific articles

No item	Questionnaire	SA (n) (%)	A(n) (%)	N(n) (%)	D (n) (%)	SD (n) (%)
C1	I experienced technical difficulties while attending scientific work lectures	7 (8.3)	28 (33.3)	23 (27.4)	16 (19)	16 (19)
C2	I feel that technical challenges affect my writing ability.	11(13.1)	27 (32.1)	23 (27.4)	17 (20.2)	17 (20.2)
C3	I find it difficult to manage my time writing scientific articles	6 (7.1)	21 (25)	35 (41.7)	17 (20.2)	17(20.2)

The number of respondents who stated that they experienced technical problems was 33.3% agreeing and 8.3% strongly agreeing. Of course, these technical obstacles can hinder students' learning process in taking scientific work courses. 32.1% agreed and 13.1% strongly agreed

that the technical challenges they experienced could affect their ability to write scientific articles. Technical obstacles, such as slow internet connections, unsupported devices, or instability of e-learning platforms, can reduce the effectiveness of online learning (Roy & Al-Absy, 2022). In the context of scientific work courses, these obstacles can affect students' access to important sources such as online journals, digital libraries, and other writing support tools, as well as communication with supervisors. Limited access to technology can exacerbate gaps in learning, especially in learning that requires intensive interaction and access to learning resources, such as lectures on scientific papers. Other research states that lack of internet access and other technical challenges significantly affect student engagement and motivation in online learning(Ramli et al., 2022).

Apart from technical obstacles, another thing that needs to be considered is students' ability to manage time. As a distance learner, the ability to manage time is very important to support the success of their studies. As many as 25% of students agreed, and 7.1% strongly agreed that they experienced difficulty in managing time during lectures. Meanwhile, the majority (41.7%) answered neutral. Research conducted by (Joshi et al., 2024) states that the flexibility offered in open and distance learning requires greater independence and discipline, which can challenge students not used to self-regulation. Time management is one of the key skills that influences success in online learning. Students not used to manage their time effectively tend to have difficulty completing assignments and maintaining consistent learning. Students who manage their time well tend to achieve higher academic rankings (Kanwal et al., 2024).

3.8 Students' Self-Evaluation in Writing Scientific Article

After attending lectures on scientific work courses, students are asked to evaluate or assess themselves, as shown in the table below.

Table 6. Student Self-Evaluation

No item	Questionnaire	SA (n) (%)	A(n) (%)	N(n) (%)	D (n) (%)	SD (n) (%)
A1	I able to compose clear and interesting titles	9 (10.7)	47 (56)	23 (27.4)	4 (4.8)	1(1.2)
A2	I able to write concise and informative abstracts.	12 (14.3)	48 (57.1)	18 (21.4)	4(4.8)	2(2.4)
A3	I understand the structure and format of article writing	20 (23.8)	46 (54.8)	13 (15.5)	3(3.6)	2 (2.4)
A4	I able to collect and analyze data	14 (16.7)	47 (56)	19 (22.6)	3(3.6)	1 (1.2)
A5	I able to compose logical arguments and support research objectives.	13 (15.5)	49 (58.3)	20 (23.8)	2(2.4)	0(0)

A6	I able to write appropriate Conclusions	14 (16.7)	51 (60.7)	17 (20.2)	2(2.4)	0 (0)
A8	I feel confident that the articles written meet academic standards	25 (29.8)	42 (50)	14 (16.7)	3 (3.6)	0 (0)

Based on the data displayed in the table above from the eight self-evaluation questions asked, the majority of respondents agreed and strongly agreed that they were able to compose clear and interesting titles, were able to write concise and informative abstracts, understood the structure and format of article writing, were able to collect and analyze data, be able to prepare logical arguments and support research objectives, be able to write appropriate conclusions, feel confident in your ability to write articles, feel confident that the articles written meet academic standards.

This shows that implementing distance learning in scientific work lectures by combining online resources, e-learning, and webinar tutorials makes them feel capable of compiling a scientific article that meets academic standards. This aligns with research conducted by (Taffs & Holt, 2013) which states that students' confidence in writing scientific papers indicates that all resources, such as lecturer involvement, e-learning design and appropriate media, align with their needs. Research conducted by (Nappu et al., 2022) also states that online learning positively influences students' writing skills; synchronous meetings conducted online are one of the reasons for improving their abilities.

3.9 Analysis of Demographics and Experiences with Students' Satisfaction in Writing Scientific Article Course at Distance Learning

The data displayed in the table below shows the relationship between student satisfaction after attending scientific work lectures in distance learning and several indicators, namely age, regional distribution, and experience writing articles.

Table 7. Analysis of Demographics and Experiences Vs Students' Satisfaction

Indicator	Category	Less satisfied (n)	Satisfied (n)	P Value
Age	20-35 Years	15	32	0.006
	over 35 years old	2	35	
Regional Distribution	Western Indonesia	17	36	0.001
	Central and Eastern Indonesia	0	31	
Article Writing Experience	Never	12	49	0.064
	Ever been	5	18	

Based on the data, there are significant differences in two indicators, namely age and regional distribution, while article writing experience does not show a significant difference. The age indicator, based on statistical tests with chi-square, shows a p-value of 0.006 (<0.05), which means that there is a relationship between age and student satisfaction after attending scientific work lectures in distance education. Research conducted by (Ke & Kwak, 2013) states that age differences impact student performance in distance learning; older students require greater effort to understand learning in online learning than younger students.

Meanwhile, on the indicator of article writing experience, although there is a difference between students who have written articles and those who have not, the results of the significance test show that this difference is not significant, with a P value of 0.064. This means that the experience of writing articles does not significantly influence student satisfaction after taking scientific work courses. A p-value of 0.001 (<0.05) was obtained in the regional distribution indicator, which means a relationship exists between the distribution of domicile areas and student satisfaction after attending scientific work lectures. Research conducted by(Lembani et al., 2020) states that in distance learning, students in urban areas have a much better learning experience than those with limited access to technology and facilities.

4 CONCLUSION

The conclusion needs to be concise and coherent. Based on the research results described above, it can be concluded that, overall, scientific work lectures remotely have had a positive impact on students' ability to write scientific articles. Most students felt they could master important skills such as writing abstracts, constructing arguments, analyzing data, and writing appropriate conclusions, even though most had never written scientific articles. This is possible thanks to support from e-learning platforms, implementation of webinar tutorials, and access

to online resources, such as digital libraries and academic journals. This research also identifies obstacles students face, such as technical problems related to internet access, availability of facilities and infrastructure, and challenges in time management. Quantitative analysis using the chi-square test shows that age and regional distribution significantly influence student satisfaction after attending scientific work lectures on distance learning.

As a recommendation, it is important to increase access to technology and resources that support distance learning and provide effective time management training for students. In addition, more targeted support programs need to be prepared for students from various age groups and regions so that all students can maximize their potential in writing scientific articles in this digital era.

REFERENCES

Absah, Y., Situmorang, S. H., Sembiring, B. K. F., & Gea, S. (2024). Pelatihan dan Pengembangan Peningkatan Kompetensi Penulisan Karya Ilmiah Bagi Dosen Universitas Prima Kota Medan. Jurnal Solusi Masyarakat (JSM), 2(1), 41. https://doi.org/10.29103/jsm.v2i1.15526

Abubakar, R. (2021). Pengantar Metodologi Penelitian. SUKA-Press UIN Sunan Kalijaga.

Al-Yafaei, Y., & Mudhsh, B. A. (2023). International Journal of Linguistics Studies A Review Study on the Impact of Online Collaborative Learning on EFL Students' Writing Skills. International Journal of Linguistics Studies. https://doi.org/10.32996/ijls

Alqurashi, E. (2019). Predicting student satisfaction and perceived learning within online learning environments. Distance Education, 40(1), 133–148. https://doi.org/10.1080/01587919.2018.1553562

Amastini, F., Sari Kaunang, C. P., Nefiratika, A., Sensuse, D. I., & Lusa, S. (2020). Collaborative Learning in Virtual Learning Environment using Social Network Analysis: Case study Universitas Terbuka. 2020 7th International Conference on Electrical Engineering, Computer Sciences and Informatics (EECSI), 262–269. https://doi.org/10.23919/EECSI50503.2020.9251904

Amin, A. M., Asani, R. N. C. P., Wattimena, C. R. J., & Yuniasih, A. F. (2020). Determinan Ketimpangan Capaian Pendidikan Di Indonesia Tahun 2017. Seminar Nasional Official Statistics, 2019(1), 593–601. https://doi.org/10.34123/semnasoffstat.v2019i1.212

Anaktototy, K., Sekawael, M., Latief, M. R. A., & Bin-Hady, W. R. A. (2023). Beyond Linguistics: Exploring the Cognitive and Motivational Barriers to Essay Writing for Tertiary Students. International Journal of Language Education, 7(3), 447–468. https://doi.org/10.26858/ijole.v7i3.37070

Aziz, L. A., Irhandayaningsih, A., & Kurniawan, A. T. (2015). Upaya Perpustakaan Dalam mengurangi Plagiarisme Pada Karya Ilmiah mahasiswa. Jurnal Ilmu Perpustakaan, 4(3), 1–13. https://ejournal3.undip.ac.id/index.php/jip/article/view/9733

Cavalcanti, A. P., Mello, R. F. L. de, Rolim, V., André, M., Freitas, F., & Gaševic, D. (2019). An Analysis of the use of Good Feedback Practices in Online Learning Courses. 2019 IEEE 19th International Conference on Advanced Learning Technologies (ICALT), 2161-377X, 153–157. https://doi.org/10.1109/ICALT.2019.00061

Costa, K., Mfolo, L. N., & Ntsobi, M. P. (2024). Challenges, Benefits and Recommendations for Using Generative Artificial Intelligence in Academic Writing – A case of ChatGPT. https://doi.org/10.31222/osf.io/7hr5v. In MetaArXiv Preprints.

Curry, A. N. (2023). In Best Practices to Prepare Writers for Their Professional Paths. In Scholarly Writing (pp. 120–134).

Darojat, O., Idrus, O., & Sri ardiasih, L. (2023). Disruptive Change and Learning Innovations: Challenges And Opportunities For Universitas Terbuka. Turkish Online Journal of Distance Education, 24(3), 60–70.

Gegenfurtner, A., Zitt, A., & Ebner, C. (2020). Evaluating webinar-based training: a mixed methods study of trainee reactions toward digital web conferencing. International Journal of Training and Development, 24(1), 5–21. https://doi.org/10.1111/ijtd.12167

Ghozali, I. (2016). Desain penelitian kuantitatif dan kualitatif: untuk akuntansi, bisnis, dan ilmu sosial lainnya.

Hashim, S., Omar, M. K., Ab Jalil, H., & Mohd Sharef, N. (2022). Trends on Technologies and Artificial Intelligence in Education for Personalized Learning: Systematic Literature Review. International Journal of Academic Research in Progressive Education and Development, 11(1). https://doi.org/10.6007/IJARPED/v11-i1/12230

Heriyudananta, M. (2021). Analisis Kompetensi Menulis Karya Tulis Ilmiah Mahasiswa di Indonesia. Ascarya: Journal of Islamic Science, Culture, and Social Studies, 1(1), 47–55. https://doi.org/10.53754/iscs.v1i1.5

Imania, K. A. N. (2016). Problem Based Learning Dalam Meningkatkan Kemampuan Menulis Karya Ilmiah Mahasiswa. Petik: Jurnal Pendidikan Teknologi Informasi Dan Komunikasi, 2(1 SE-Articles), 24–35. https://journal.institutpendidikan.ac.id/index.php/petik/article/view/1596

Joshi, B., Acharya, U., & Khatiwada, S. (2024). Difficulties in Open and Distance Learning Mode of Education: Students' Perspectives. Education and Development, 33, 17–28. https://doi.org/10.3126/ed.v33i1.66764

Kabylzhanova, B., Kenzhetayeva, G., & Tashkenova, D. (2024). Developing EFL student's writing skills with the use of online platforms. Scientific Herald of Uzhhorod University Series Physics, 1524–1530. https://doi.org/10.54919/physics/56.2024.152mr4

Kanwal, M., Abbasi, S., Kiran, S., & Quratulain. (2024). Role of Time Management in Developing Self- Regulating Study Habits among Students at University Level. Bulletin of Business and Economics, 13(2).

Ke, F., & Kwak, D. (2013). Online learning across ethnicity and age: A study on learning interaction participation, perception, and learning satisfaction. Computers and Education, 61(1), 43–51. https://doi.org/10.1016/j.compedu.2012.09.003

Kumar, S. (2023). The Importance of Library Websites in Accessing Electronic Resources Suresh Kumar. Library Progress (International), 43(1), 24–27.

Lembani, R., Gunter, A., Breines, M., & Dalu, M. T. B. (2020). The same course, different access: the digital divide between urban and rural distance education students in South

Africa. Journal of Geography in Higher Education, 44(1), 70–84. https://doi.org/10.1080/03098265.2019.1694876

Li, Y. (2019). Mentoring Junior Scientists for Research Publication BT - Novice Writers and Scholarly Publication: Authors, Mentors, Gatekeepers (P. Habibie & K. Hyland (eds.); pp. 233–250). Springer International Publishing. https://doi.org/10.1007/978-3-319-95333-5_13

Mariia, S. (2023). Modern electronic services of the library to support educational and scientific. Vìsnik Hmel′nic′kogo Nacìonal′nogo Unìversitetu, 317(1), 205–208.

Martin, A., Pengel, N., Haag, M., & Wollersheim, H.-W. (2024). Learning in the Context of (Digital) University Teaching: Flexibilisation and Individualisation. Higher Education Research, 9(2), 31–37. https://doi.org/10.11648/j.her.20240902.11

Martin, F., & Bolliger, D. U. (2018). Engagement Matters: Student Perceptions on the Importance of Engagement Strategies in the Online Learning Environment. Online Learning, 22(1). https://doi.org/10.24059/olj.v22i1.1092

Masruroh, F. (2020). Praktek Pendidikan Jarak Jauh Di Universitas Terbuka Indonesia. Edutech, 19(2), 200–213. https://doi.org/10.17509/e.v1i2.24179

McDougall, D., Ornelles, C., & Rao, K. (2015). A primer on the pathway to scholarly writing: helping nascent writers to unlearn conditioned habits. College Student Journal, 49, 262+. https://link.gale.com/apps/doc/A419267905/AONE?u=anon~bdd57618&sid=googleScholar&xid=2e5650df

Mohammad, W., & Maulidiyah, N. R. (2023). Pengaruh Akses Internet Terhadap Aspek Kualitas Kehidupan Masyarakat Indonesia. Triwikrama:Jurnal Multidisiplin Ilmu Sosial, 01(02), 30–45.

Muflikah, B., Kusuma, V. A., & Swidarto, S. (2022). Analisis Penggunaan Tutorial Webinar di Masa Pandemi Covid-19 dengan Pendekatan Technology Acceptance Model Pada

Universitas Terbuka. Kelola: Jurnal Manajemen Pendidikan, 9(1), 52–59. https://doi.org/10.24246/j.jk.2022.v9.i1.p52-59

Munir, M. (2020). Tantangan dan Peluang Pembelajaran Jarak Jauh di Pendidikan Tinggi Indonesia. Jurnal Pendidikan Terbuka, 12(1), 56–70.

Nam Chi, N. T., Thi Thuy, T., & Nhan Ai, N. (2024). Exploring Factors Influencing Students' Challenges in Academic Writing: A Qualitative Analysis Based on Student Perspectives. International Journal of Advanced Multidisciplinary Research and Studies, 4(3), 32–37. https://doi.org/10.62225/2583049x.2024.4.3.2737

Nappu, S., Dewi, R., Hasnawati, H., & Hamid, R. (2022). The Effect of Online Learning on Academic Writing Course During Covid-19 Pandemic. VELES Voices of English Language Education Society, 6(1), 247–257. https://doi.org/10.29408/veles.v6i1.5220

Neha, & Kim, E. (2023). Relevant Interaction among Learners and Instructors in Asynchronous Academic Writing Course. 2023 11th International Conference on Information and Education Technology (ICIET), 298–303. https://doi.org/10.1109/ICIET56899.2023.10111158

Pratama, F. (2022). Pembimbingan Jarak Jauh: Kualitas dan Tantangan di Pendidikan Tinggi. Jurnal Teknologi Pendidikan, 9(2), 45–59.

Rahmawati, N. (2019). Kendala dalam Pemanfaatan Sumber Daya Daring untuk Penulisan Ilmiah. Jurnal Inovasi Pendidikan, 7(3), 34–47.

Ramli, M. F., Majid, M., Badyalina, B., & Shaari, N. F. (2022). an Assessment of the Internet Access and Accessibility Initiatives on the Effectiveness of Online Learning Among Students At Higher Learning Institutions. International Journal of Education, Psychology and Counseling, 7(47), 164–170. https://doi.org/10.35631/ijepc.747015

Rane, N., Choudhary, S. P., & Rane, J. (2024). Acceptance of artificial intelligence: key factors, challenges, and implementation strategies. Journal of Applied Artificial Intelligence, 5(2), 50–70. https://doi.org/10.48185/jaai.v5i2.1017

Roy, R., & Al-Absy, M. S. M. (2022). Impact of Critical Factors on the Effectiveness of Online Learning. Sustainability (Switzerland), 14(21), 1–12. https://doi.org/10.3390/su142114073

Saghir Ahmad, Ayesha Batool, & Abid Hussain Ch. (2019). Path Relationship of Time Management and Academic Achievement of Students in Distance Learning Institutions. Pakistan Journal of Distance & Online Learning, V(II), 191–208. https://users.ugent.be/~mvalcke/CV/TIME_JLD_2011.pdf

Sain, Z. H., Ayu, S. M., & Thelma, C. C. (2024). Exploring the ChatGPT Era: Finding Equilibrium between Innovation and Tradition in Education. Middle East Research Journal of Humanities and Social Sciences, 4(04), 116–121. https://doi.org/10.36348/merjhss.2024.v04i04.001

Setiawan, I. (2022). Keterampilan Menulis Ilmiah: Kunci Sukses Mahasiswa di Era Digital. Jurnal Penelitian Pendidikan, 15(1), 23–35.

Sitompul, S. K., & Anditasari, A. W. (2022). Challenges in Writing Academic Research: an Exploration of Master'S Students' Experiences. Getsempena English Education Journal, 9(2), 136–148. https://doi.org/10.46244/geej.v9i2.1805

Stillman-Webb, N. (2016). Writing beliefs and mentoring practices: Advisor perspectives on post/graduate writing instruction in the sciences. In Research literacies and writing pedagogies for masters and doctoral writers (pp. 257–276). Brill.

Stone, C., & O'Shea, S. (2019). Older, online and first: Recommendations for retention and success. Australasian Journal of Educational Technology, 35(1), 57–69. https://doi.org/10.14742/ajet.3913

Sugilar, S. (2020). Effectivity and students' satisfaction to a tutorial in statistics through a webinar. Journal of Physics: Conference Series, 1663(1). https://doi.org/10.1088/1742-6596/1663/1/012035

Taffs, K. H., & Holt, J. I. (2013). Investigating student use and value of e-learning resources to develop academic writing within the discipline of environmental science. Journal of

Geography in Higher Education, 37(4), 500–514. https://doi.org/10.1080/03098265.2013.801012

Tatminingsih, S. (2023). Effectiveness of Online Mentoring in Scientific Writing for Students in The Early Childhood Education (ECE) Teacher Program. ICOMUS, 19–27.

Tressyalina, Indriyani, V., & Triana, H. (2023a). Comparative of face-to-face and online learning in project-based learning for students ' scientific article writing skills . Al-Ta'lim Journal, 30(1), 247–262. https://doi.org/10.15548/jt.v30i3.869

Tressyalina, T., Indriyani, V., & Triana, H. (2023b). Comparative of Face to Face Learning vs Online Learning: Analysis of Students' Scientific Article Writing Skills Through Project-Based Learning. Al-Ta Lim Journal, 30(3), 247–262.

Wicaksono, A. (2021). Keterampilan Menulis Ilmiah di Era Digital. Jurnal Literasi Akademik, 8(4), 85–89.

Widodo, A., Kadir Jaelani, A., Novitasari, S., Sutisna, D., & Erfan, Mu. (2020). Analisis Kemampuan Menulis Makalah Mahasiswa Baru Pgsd Universitas Mataram. Jurnal Didika: Wahana Ilmiah Pendidikan Dasar, 6(1), 77–91. https://doi.org/10.29408/didika.v6i1.1946

Wijayanti, S. W., Ekoresti, S. N., & Rusyana, E. (2022). Persepsi Mahasiswa Universitas Terbuka Bogor Terhadap Tren Tuweb Sebagai Layanan Belajar Daring. Journal of Learning and Technology, 1(1), 34–43. https://doi.org/10.33830/jlt.v1i1.3370

Zakirman. (2023). Deskripsi Minat Belajar Mahasiswa Melalui Tutorial Webinar pada Mata Kuliah Konsep Dasar IPA Di SD. SAP (Susunan Artikel Pendidikan), 7(3), 423–432.

Zarlis, M., Astuti, S., & Salamuddin, M. (2018). Analysis of Reading, Reference and Information Management on the Quality of Scientific Writing. Aptisi Transactions on Management (ATM), 2(1), 63–69. https://doi.org/10.33050/atm.v2i1.782

Zuhairi, A. (2019). the Operational Aspects of Open and Distance Learning. Jurnal Pendidikan Terbuka Dan Jarak Jauh, 20, 52–67.

Zuhairi, A., Karthikeyan, N., & Priyadarshana, S. T. (2020). Supporting students to succeed in open and distance learning in the Open University of Sri Lanka and Universitas Terbuka Indonesia. Asian Association of Open Universities Journal, 15(1), 13–35. https://doi.org/10.1108/AAOUJ-09-2019-0038