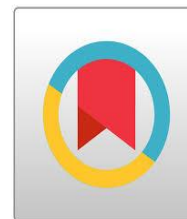


**Communication on the university library websites and students' scientific information-seeking during the Covid-19 outbreak: A comparison of four Asian countries**



**Komunikasi dialogis di website perpustakaan universitas dan pencarian informasi ilmiah mahasiswa selama wabah Covid-19: Perbandingan empat negara Asia**

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**ARTICLE INFORMATION**

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**ABSTRACT**

This study aims to evaluate the quality of dialogic communication on university library websites and its correlation with students' scientific information-seeking behaviour during the Covid-19 outbreak. Internet services that organizations frequently use for communicating with their audiences can provide discussion forum services. The university library's management can investigate their students' novel ideas, needs, and doubts through dialogic communication, so it will activate and enhance the intellectual power. This research proposed dialogic communication from a sample of 171 undergraduate and graduate students from four countries, China, Indonesia, Taiwan, and Malaysia. Data was obtained by an online survey. The results confirm that during the outbreak, the library websites have implemented the principles of dialogic communication. There is a significant correlation between dialogic communication and scientific information-seeking behaviour except for Chinese students. Library websites can serve as an effective conduit for engaging students in seeking scientific information for academic works. Students stated that e-learning increases their satisfaction and commitment to university websites. Lecturers are recommended to develop collaborative activities among students using the library website. Impacts on practice or policy are that website administrators can use dialogic communication to assist students; university top management can assure students' rights to education; lecturers may use library website facilities to support asynchronous case-based learning.

**Kata Kunci**

Komunikasi Dialogis;  
 Pembelajaran Asinkron;  
 Perilaku Pencarian  
 Informasi Ilmiah;  
 Wabah Covid-19;  
 Website Universitas;

**ABSTRAK**

Penelitian ini bertujuan untuk mengevaluasi kualitas komunikasi dialogis di website perpustakaan universitas dan korelasinya dengan perilaku pencarian informasi ilmiah mahasiswa di masa wabah Covid-19. Layanan internet yang sering digunakan organisasi untuk berkomunikasi dengan audiensnya dapat menyediakan layanan forum diskusi. Manajemen perpustakaan universitas dapat menyelidiki ide-ide baru, kebutuhan, dan keraguan mahasiswanya melalui komunikasi dialogis, sehingga akan mengaktifkan dan meningkatkan kekuatan intelektual. Penelitian ini mengusulkan komunikasi dialogis dari sampel 171 mahasiswa sarjana dan pascasarjana dari empat negara, Cina, Indonesia, Taiwan, dan Malaysia. Hasilnya menegaskan bahwa selama wabah, website perpustakaan telah menerapkan prinsip komunikasi dialogis. Terdapat korelasi yang signifikan antara komunikasi dialogis dan perilaku pencarian informasi ilmiah kecuali pada pelajar Tiongkok. Website perpustakaan dapat berfungsi sebagai saluran yang efektif untuk melibatkan siswa dalam mencari informasi ilmiah untuk karya akademis. Siswa menyatakan bahwa e-learning

	<p>meningkatkan kepuasan dan komitmen mereka terhadap situs web universitas. Dosen disarankan untuk mengembangkan kegiatan kolaboratif antar mahasiswa dengan menggunakan website perpustakaan. Dampak terhadap praktik atau kebijakan adalah administrator situs web dapat menggunakan komunikasi dialogis untuk membantu siswa; manajemen puncak universitas dapat menjamin hak mahasiswa atas pendidikan; dosen dapat menggunakan fasilitas website perpustakaan untuk mendukung pembelajaran berbasis kasus asynchronous.</p>
<p><b>Article History</b> Send 19<sup>th</sup> December 2023 Review 25<sup>th</sup> February 2024 Accepted 4<sup>th</sup> April 2024</p>	<p>Copyright ©2024 <a href="#">Jurnal Aristo (Social, Politic, Humaniora)</a> This is an open access article under the <a href="#">CC-BY-NC-SA</a> license. Akses artikel terbuka dengan model <a href="#">CC-BY-NC-SA</a> sebagai lisensinya.</p>



## Introduction

The Covid-19 outbreak has become a global and multidimensional crisis since the beginning of 2020 (Cucinotta and Vanelli, 2020; Ida et al., 2024; Osman, 2020). Many outdoor activities have been restricted by utilising social distancing, isolation measures, and campus closure to break the chain of virus spread (Selvanathan, Hussin, and Azazi, 2020). This pandemic has forced schools and campuses to implement lockdown procedures (Osman, 2020). As a result, all university in the world is offering online courses (Ching, 2020; Sahu, 2020; Shahzad et al. 2021). Face-to-face lectures between lecturers and students in class, which is a critical tactic (Nieuwoudt, 2020), are significantly reduced or eliminated during this outbreak (Ching, 2020; Shahzad et al. 2021).

Due to the Covid-19 pandemic, China, Indonesia, Malaysia, and Taiwan introduced remote instruction in their educational systems. In Indonesia, following the government's public announcement of the crisis in March 2020, the Ministry of Education and Culture (MEC) established regulations that required education to be conducted online (through distance learning) (Abidah et al. 2020). On June 16, 2020, all universities in Indonesia were closed, and students were prohibited from engaging in face-to-face learning in classrooms (Loasana, 2020). The MEC provided many online learning platforms to complement learning resources, including Google, Smart Classes, Zenius, Quipper, and Microsoft (Abidah et al. 2020). Additionally, the ministry provided 7.2 trillion rupiah in phone credit and data packages to aid the implementation of e-learning (Adjie, 2020). This situation is still occurring in 2022, the MEC released the regulation Number 2/2022 about discretion choices between four ministries (MEC, Ministry of Religion Affairs, Ministry of Health, and Ministry of Internal Affairs) to support the education process during Covid-19 pandemic. It mentioned that all education level should manage their learning system online in line with the pandemic stages.

Similarly, the Malaysian government was compelled to declare a state-wide Movement Control Order (MCO) on March 18, which was later converted to a Conditional Restriction of Movement Order (CRMO) in 2020. All on-site instruction has been discontinued in favour of e-learning and remote teaching, including the Massive Open Online Courses (MOOCs) program (Jan 2020; Shahzad et al. 2021). The government introduced made a policy of providing internet allowances for students to access the internet for free even though it has not yet fully overcome the limitations of the Internet accessibility in remote villages (Selvanathan, Hussin, and Azazi, 2020). After a couple of years, the Ministry of Education decided to start the transition for face to face learning. In early 2022, Health Director-General Tan Sri Dr Noor Hisham Abdullah said the significant increase was recorded after the opening of the 2022

schooling session. He said out of 107 education clusters, educational institutions from the Ministry of Education (MOE) contributed the highest number, namely 56 clusters (52.3%) followed by other educational institutions (24.3%), higher education (20.6%), and private educational institutions registered with MOE (2.8%) (Bernama, 2022). Schools need to conduct risk assessments immediately, so online learning can still be considered as an option for the students. During online learning, however, few students experienced educational problems, such as difficulties in communicating with lecturers, lack of social skills, lack of interaction with fellow students, and limited laboratory access (Jan, 2020; Selvanathan, Hussin, and Azazi, 2020).

China, the country associated with the first Covid-19 case emerging in Wuhan, had an effective strategy to cope with this outbreak. Shortly after the outbreak, the government suspended classes without stopping learning. Universities closed their campuses and shifted to online teaching. Most theoretical courses were conducted online using synchronous and asynchronous methods (Yang, 2020). The government established an education system under a centralised and integrated leadership by the Chinese Communist Party. Families and universities worked together to encourage a smooth development of education. The government also prompted a change in the mindset from emergency strategy policies during the crisis into a transformative educational paradigm (Xue et al. 2020). Pokhrel and Chhetri (2021, 134) indicated that online teaching and learning has various limitations: “the weakness of online teaching infrastructure, the limited exposure of teachers to online teaching, the information gap, non-conducive environment for learning at home, equity and academic excellence in terms of higher education”. The Covid-19 lockdown has also depleted the scarce resources of students from disadvantaged backgrounds, as they have not been able to travel to the library and other public spaces where they could get a fast Internet connection and a space to study. This highlights the pandemic’s role in exposing and, perhaps, widening the gap between the privileged and the disadvantaged students and, thus, societies (Tsegay et al. 2022).

Compared to its counterparts, Taiwan did not completely shut down all universities. Hybrid and face-to-face methods are still being implemented in compliance with government regulations that have been carried out since the SARS outbreak in 2003 (Cheng et al. 2020; Luo et al. 2020). The ministry released general guidelines for campus-based risk screening (travel history, occupation, and contacts), isolation, hygiene measures, mask use, and ventilation, as well as regulations regarding school assemblies, suspected case reporting, and policies regarding school closure and make-up classes. A class should be suspended if one person is tested positive, and a school should be closed for 14 days if there are two/more

confirmed cases but can be reopened after meeting health requirements (Cheng et al. 2020). Covid-19 has affected students' online learning behaviours and proposed asynchronous online learning as a method for maintaining university students' learning during the Covid-19 pandemic (Hu, 2021).

Concerns about diminishing educational quality arose due to the absence of face-to-face communication in the classroom. Previous studies have shown that university students prefer face-to-face learning to hold discussions, get a direct feedback, feel more involved, and interact directly with their lecturers in the classroom (Jan, 2020; Kemp and Grieve, 2014). Furthermore, face-to-face learning in the classroom is primarily based on information sources, such as lecturers' explanations, books, and lecture materials. On the other hand, online learning vastly demands students to search for information sources, literature, and materials online (Alshahrani, Ahmed, and Ward, 2017; Smith, 2013).

Changes in the sources of information for lectures can strengthen the role of university libraries. The university library is an academic facility that manages various scientific information sources to support the processes of teaching, research, and community service (Nurdin and Mukhlis, 2019). University library websites play a significant role in the learning process, which helps reduce students' visits to the library during the outbreak. However, because online learning requires less supervision, libraries find it difficult to assist students in accessing learning materials (Kriyantono et al., 2024; Selvanathan, Hussin, and Azazi, 2020). Therefore, the library website must be capable of replacing the interaction and dialogic dimensions of face-to-face communication between students and library staff.

Kent and Taylor (1998) offer a model of dialogic communication used on websites. Dialogic communication is the process of sending and receiving ideas between two participants, which may be approached actively or passively, resulting in the receiver's response. Applying dialogic communication as the principle to organizational websites means that websites should be designed in such a way that they can deliver useful information to the public, give visitors reasons to return to a website, and provide the public with the opportunity to ask questions and receive a timely response (Nugraha & Kriyantono, 2022; Wirtz and Zimbres, 2018). A website that contains the principles of dialogic communication can increase its credibility and encourage users to return to seek scientific information (Kent and Taylor, 1998). Besides, the principle can optimize the website's role as a source of information and a means of sharing scientific information and learning materials between students (Fasola and Olabode, 2014; Sujana et al. 2018).

Based on Kent & Taylor's (1998) model, it can be concluded that in normal situations where mutual and face-to-face communication is possible, the library website is already demanded to be dialogical in nature to be more effective. The principles of reciprocal face-to-face communication can occur through the website when students are looking for scientific material or information. Website as a form of internet communications has been equipped with features that allow users to interact in a personal and two-way manner. The internet has enabled personal face to face communication and mass communication to simultaneously occur (Hinson, 2018; Safitri et al., 2022; Veronika et al., 2023).

However, several studies before the pandemic indicated that university library websites were still not dialogic (Agyemang, Boateng, & Dzandu 2015). Adopting Littlejohn, Foss, & Oetzel (2017), it is argued that, before the pandemic, face-to-face communication that was carried out without physical restrictions or social distancing had the advantage of influencing attitudes and behaviour. However, social restrictions or social distancing make dependence on online communication very large so that the frequency of visiting library websites to search scientific information is assumed to increase. As a result, the demand for the website to be more dialogic in nature is even greater. In addition, suddenly the Covid-19 outbreak is forcing many countries to shift for distance learning, although the facilities are not yet adequate. It is predicted that this distance learning will still continue even after the pandemic ends. The future of education lies in distance learning and this creates a need to change the role of traditional libraries. Distance learning refers to an interactive educational process of material delivery and quick learning between students and teacher that is separated by physical distance and uses communication technology and the internet (Afrilyasanti and Basthomi, 2022).

.Hence, this present study aims to evaluate the quality of dialogic communication on university library websites in the pandemic era. The research question: Is the library website still not dialogic, as the findings of several studies conducted before the pandemic era? (As cited in Agyemang, Boateng, & Dzandu, 2015). Since previous studies have focused more on analysing website content (Agyemang, Boateng, and Dzandu, 2015; Kent and Taylor, 1998; Oliveira and Huertas, 2014), this current study focused on student opinions about the quality of dialogic communication on library websites.

The focus is also due to the findings of several studies that the website as a part of internet communication has the capacity to combine personal communication channels and mass communication (Hinson, 2018). Then, each different communication channel affects different behaviour for the audience (Littlejohn, Foss, & Oetzel, 2017). This latter opinion is in line with McLuhan's (1964) argument that the media is the message, and the media or

communication channels themselves, not the content they carry, has the impact on the audience. The channel affects the society in which it plays a role not by the content delivered over the channel, but by the characteristics of the channel itself. It can be concluded that, as a means of searching for scientific information online in the era of social distancing, the presence of a website that combines personal and mass communication will affect the behaviour of students. Hence, the current research also evaluates whether the dialogic communication correlates with students' scientific information-seeking behaviour in the pandemic era that has made education systems run online.

During the Covid-19 pandemic, learning takes place in the form of distance learning or e-learning. Sources of scientific information that are usually dominant directly from lecturers have turned into online sources of information so that the role of the library website becomes very important. The process of finding information or lecture materials as part of the educational processes must be dialogical or interactive- therefore the library website must be able to collaborate on the principle of personal communication. As a result, this study aims to prove that in the era of social distancing, library websites are increasingly able to adopt dialogical principles to replace direct interaction between librarians and students. The dialogic communication model has not been used in library website research as part of the educational process that focuses on extracting user perspectives.

This study contributes to developing education communication studies related to libraries because user studies have not been done much, even though the essence of the library is the users (Fasola and Olabode, 2014). Furthermore, the current research contributes to strengthening previous researches, such as Zhou (2022), that as a form of education, distance learning currently shows great promise of education and the role of online libraries in delivering off-campus information services increases so that the capability of scientific information services through the website library should increase. The capacity to serve can be completed by applying the interactive communication. This research also has a novelty because it applies the concept of dialogic communication, a concept of communication science, in e-learning research as part of education science and practice.

The websites of university libraries in China, Indonesia, Malaysia, and Taiwan were compared in this study. It would be interesting to investigate whether the four countries' e-learning policies also reflected the use of dialogic communication on their university library websites. There is, however, little evidence of the quality of dialogic communication on websites and the extent correlating with their function as a source of information gathering and sharing among students within those four countries. The study findings are critical since it

provides insight for the managers of universities' library websites-therefore it then will enhance the quality of online learning in four countries studied.

## **Literature Review and Hypothesis Formulation**

### **University Library Website and Principles of Dialogic Communication**

Considering the growth of Internet use and the other emerging media platforms in web-based public relations (Lee et al. 2015), it is not surprising that Kent and Taylor (1998) principles of dialogic communication have been applied to these communication channels. Communication is a tool to build and negotiate relationships (Pang et al. 2018). Through dialogic communication, a good relationship can be accomplished because transparency, organisational credibility, and public support can be generated (Lee and Desai, 2014); therefore, dialogic communication is said as "a feature of ethical/moral communication." (Kent and Taylor 2002, p. 23). Along with technological developments, communication to build relationships with the public is also done through websites, so dialogic communication principles should be attached to the website's content as well (Kent and Taylor, 1998; Oliveira and Huertas, 2014; Pang et al. 2018). Other research revealed that the more an organisation incorporates dialogic principles through its website, the more likely it can foster an interactive relationship with the public (Hinson, et al. 2019).

Several studies in various types of organizations have proven that websites could potentially establish dialogic communication because of their ability to combine one-way mass communication and two-way interpersonal communication (Hinson et al. 2019; Ingenhoff and Koelling, 2010; Kent and Taylor, 1998). At least, this dialogic communication can cover the absence of face-to-face communication due to the policy of maintaining social distancing during a pandemic. However, studies on the application of dialogic communication on university library websites have not been widely carried out. Agyemang, Boateng, and Dzandu (2015) have used the dialogic communication model to evaluate university websites based on content analysis of website's features. Yet, the study was not conducted by investigating students' opinions. Furthermore, the previous study did not associate the quality of dialogic communication on websites with the behaviour of seeking and disseminating information to students. Student opinion is highly important since it can work as a recommendation toward the enhancement of educational process, due to the fact that students are universities' primary stakeholder (Macleod et al. 2013).

Applying the concepts to organizational websites means that websites are established to provide relevant information to the public, encourage users to return to the website, and



allow the public to ask questions and receive acceptable responses. Kent and Taylor also provided organizations with practical recommendations, such as hiring specifically trained staff personnel to connect with the public online (Wirtz and Zimbres, 2018). Kent and Taylor (1998) promoted dialogic communication for websites as part of public relations activities to build a relationship with the public. In this current study, referring to Kriyantono and McKenna (2019) library website communication is part of public relations approaches as a function of communication management in dealing with pandemic crises so that a good reputation is built. Although websites have been investigated as a means of communication in the context of public relations in various business and government companies (Akwari, 2017; Kent and Taylor, 1998; Kriyantono, 2019), these public relations concepts are not yet widely known in library management. In fact, there is a tendency to reject these concepts in library practice (Agyemang, Boateng, and Dzandu, 2015).

Furthermore, the website must serve as a product of continuous communication and relationships between the organization and the public (Kent and Taylor, 1998). The website's dialogic communication combines five dimensions: usefulness, dialogic loop, ease of interface, return visits, and conservation of visitors. Usefulness implies that the information on the library website should be useful to students in their scholarly works. The term "dialogue loop" refers to a website that allows for reciprocal interactive two-way communication. The ease of interface is related to structuring the website to make it easier to use and navigate. Return visits imply that the website must include various appealing features that encourage students to regularly return to the library website. Conservation of visitors means that the website allows students to access the website for a long duration and not quickly move to another site (Kent and Taylor, 1998).

These five dimensions have adopted interactive communication principles that make online relationship quality identical with face-to-face communication (Taylor, Kent, and White, 2001). The presence of discussion forums and a means of feedback enable library managers to adapt website content to public needs (Yeon Hong, Yang, and Rim, 2010). Additionally, online discussions can drive students to feel involved in active collaboration learning, leading to satisfaction (Pérez-López et al. 2020). Discussion forums play an important role so that students will not lose their social skills, although they cannot directly interact with other students as usual (Jan, 2020).

Dialogic communication has worked as a crucial factor in establishing good relationships. However, before the Covid-19 outbreak this model was not widely accepted in website communication, both in companies and in university libraries (Agyemang, Boateng,

and Dzandu, 2015; Oliveira and Huertas, 2014). The change from dominant face-to-face learning to e-learning can stimulate better website management. Before the outbreak, students could interact and have a direct dialogue with the staff of university's library. Therefore, the library website could still play a role as "one of the academic library's most visible artefacts for communicating with users" (Agyemang, Boateng, and Dzandu, 2015). This role should be registered during this outbreak because much of the learning process is conducted online. Face-to-face communication habits before the outbreak should be integrated with online communication habits during this outbreak so that dialogic communication can be carried out through the website.

This appears to be the strategy chosen by various universities as a form of adaptation to counteract the impact of Covid-19. As a result, the first hypothesis can be stated as follows: H1: The university library websites during the Covid-19 outbreak have implemented the principles of dialogic communication. Website's dialogic communication and student scientific information-seeking behaviour. In addition to its ability to present one-way mass communication and dialogic interpersonal communication (Ingenhoff and Koelling, 2010), library websites have the same opportunities as other Internet products in assisting the learning process. This interactive capacity has led to social networking sites (SNS), such as Facebook, Twitter, YouTube, Instagram, and LinkedIn, which allow users to access and share information, produce their own content, and collaborate online (Pérez-López et al. 2020). Previous research findings proved that communication on social media could encourage students to spend more time thinking and fostering their performance (Pérez-López et al. 2020; Smith 2013).

As one of the dialogic communication dimensions, ease of interface requires the library website to link with external search gateways and link to social media. Another dimension, conservation of visitors, makes the website have discussion forum facilities between managers and users or between users (Agyemang, Boateng, and Dzandu, 2015; Kent and Taylor, 1998). This discussion forum is similar to the concept of corporate discussion service (CDS) introduced by (Lopez-Nicolas and Molina-Castillo, 2008). In the context of university libraries, it can be called a library discussion service (LDS), which allows for the participation of a large and diverse set of users to discuss the library's services collaboratively. LDS also encourages the public to expressing their needs, doubts, adapting aims and contributing some novel ideas (Maswera, Dawson, and Edwards, 2005).

Two-way interactive dialogic communication can facilitate students in the process of seeking for information. The search for scientific information is determined mainly by the availability, credibility, and reliability of information sources. It is not one-way in nature, but dynamics, since it facilitates interactions between thoughts, feelings, and actions to address a need (Kwanya and Nyariki, 2019). Information-seeking relates to sources and channels of information, information-seeking, and information use (Yap et al. 2020). Further, information-seeking behaviour includes the choice of information sources, satisfaction, and information-sharing interactions. The dimensions of dialogic communication can propel a library website to be similar with SNS's ability to build a community of students who share and exchange scientific information, so the authors propose:

H2: Dialogic communication on the website has a positive correlation with student behaviour to pursue scientific information.

## **Method**

The authors conducted an online survey and scripted it in Google form. The respondents were university students from China, Indonesia, Malaysia, and Taiwan who utilized university library websites. The selection of the countries was based on the principle of ease of access and accessibility of data (convenience sampling) (Kriyantono, 2021; Wimmer and Dominick, 2011). The Google form link was distributed to several lecturers in those four countries for further distribution to their students. After two months of deployment, 171 respondents were willing to complete the questionnaire. The respondents were: 9 Chinese students, 84 Indonesian students, 52 Taiwanese students, and 26 Malaysian students.

The questionnaire incorporated dimensions of dialogic communication (Independent variable) from previous research (Agyemang, Boateng, and Dzandu, 2015; Kent and Taylor, 1998; Kriyantono et al., 2023; Oliveira and Huertas, 2014; Safitri et al., 2022; Veronika et al., 2022), as follows:

Usefulness dimension:

Does the library website provide general information: about the library, organisational and staff structure, and web-dates?

How is the quality of the maps and directions?

Are the vision and mission clearly stated?

Is there clear information about working hours/services?

Has information about library regulations, user education, memberships, and instruction guides been conveyed clearly?

Are the literature collections and reading materials complete? (e-books, journals, thesis, etc.)

Dialogic loop dimension:

Does the website provide a form, e-mail, or feedback channel?

Has the administrator's contact information been appropriately provided?

Are there any facilities that can create a feeling of interaction, such as a welcome note?

How is the quality of the suggestion box or suggestion link?

The ease of interface dimension:

How is the quality of the link to the external search gateway?

Does it provide links to social media?

How fast is the website loading?

How easy is it to navigate information?

How easy is it to access information?

Does it have lots of graphics?

Dimensions of return visits:

Are there messages inviting students to always use the e-library?

How is the quality of the online catalogue and CD-Room database?

Does the library website update news about the university, or is it linked to the university website?

Dimension of conservation of visitors:

How is the image/picture quality?

Does it provide a discussion forum between the administrator and users or between users?

Does the website provide loan services with other libraries (Library Network)?

The constructs were measured using a 5-point scale, from 1 (completely disagree) to 5 (completely agree). Respondents were also provided with 0 for the answer "none" or "not providing." Then, as the dependent variable (Y), respondents were asked their information-seeking behaviours:

Does the university library website become the main source/reference for seeking scientific information?

How satisfied are you with the library website in finding scientific information?

How often do you share the information you get from the website with fellow students?

Respondents were given a 5-point scale from 1 (completely disagree) to 5 (completely agree). For the answer "never," respondents were given point 0.

The collected data were analysed using descriptive statistics to determine how university library websites implemented dialogic communication dimensions. If the mean

score for each dimension had been closer to the maximum of 5, the websites would have performed better in implementing dialogic communication. The authors applied the Product-Moment to prove whether variable X is positively correlated with variable Y. This formula was used since the type of data in this study was an interval (Kriyantono, 2021; Wimmer and Dominick, 2011).

The Product Moment was applied to test the validity, and the Alpha Cronbach was chosen to determine the reliability of the instrument. All questions in the questionnaire showed correlation coefficient values between 0.556 - 0.907 so that the r count was above than r table (r table for N = 30 with a significance level of 5% was 0.361). Therefore, all statement items were declared valid. Furthermore, both variables had reliability coefficient values between 0.808-0.918, so they were declared reliable. An instrument is considered reliable if it has a minimum value of 0.60 (Kriyantono, 2021; Wimmer and Dominick, 2011).

## **Result and Discussion**

### **About the respondents**

Of the 171 students participating in the study, most students were not currently composing their thesis (40.93%). Neither Chinese students nor Indonesian students were working on a doctoral dissertation in this study, although the questionnaires were also distributed to doctoral students in these countries. The number of female respondents (60.23%) was higher than that of the male counterparts in all the countries investigated (39.77%). However, the figure did not reflect the ratio of female and male students in the four countries examined.

### **Dialogic communication on library websites**

In general, the four countries' university library websites have adopted dialogic communication principles. All mean score dimensions of dialogic communication were above 3.00, from a maximum of 5.00. The two East Asian allies, China and Taiwan, had higher mean scores than the other two Southeast Asian allies, Malaysia and Indonesia. On the websites of university libraries in China and Taiwan, not a single question in all dimensions scored below 3.00. In contrast, students in Malaysia revealed a mean score below 3.00 for questions on the quality of interlibrary loans (2.885) and the quality of the library's collection of scientific information sources (2.885) (between 2.885-2.961). Mean-scores below 3.00 were also obtained from students in Indonesia for the quality of inter-library loans (2.976), inviting to use

the e-library (2.976), and the quality of the online catalogue & CD-ROM database (2.964) (Table 1).

Table 1. Dialogic communication on websites

Dimensions & Questions	China N= 9	Indonesia N= 85	Malaysia N= 26	Taiwan N= 52	Total N= 171
General information	4.167	3.571	3.461	4.154	3.839
Maps and directions	3.667	3.428	3.115	4	3.552
Vision-mission statements	4	3.773	3.731	3.923	3.857
Working hours information	4.333	3.619	3.692	4.346	3.997
Library rules, users education, memberships, & instruction helps	4.333	3.464	3.577	4.154	3.882
List of journals	4.333	3.416	3	3.886	3.659
List of e-books	3.833	3.309	2.961	3.577	3.420
List of theses	3.5	3.559	2.885	3.865	3.452
List of e-newspapers, annual reports, & e-magazines	3.667	3.452	3.038	3.636	3.448
List of proceedings	4	3.404	2.923	3.461	3.447
List of government/other institutions' publications	3.667	3.273	2.923	3.5	3.340
Usefulness	3.954	3.479	3.209	3.866	3.627
Feedback forms & e-mail	3.5	3.547	3.692	3.654	3.598
Contact information	4.167	3.714	3.615	4.096	3.898
Sense interaction	4	3.357	3.692	3.788	3.709
Suggestion link/box	3.5	3.345	3.423	3.596	3.446
Dialogic loop	3.797	3.491	3.605	3.786	3.669
Links to external search gateways	4	3.416	3.269	3.788	3.618
Links to social media	3.667	3.571	3.657	3.25	3.536
Quick to load	3.834	3.416	3.385	4.038	3.668
Easy navigation	3.667	3.512	3.384	3.788	3.587
Ease of accessing	3.5	3.690	3.538	4	3.624
Graphic displays	3.833	3.16	3.307	3.673	3.493
Ease of interface	3.75	3.462	3.423	3.756	3.597
Inviting to use the e-library	3.5	2.976	3.384	3.538	3.349
Online catalogue & CD-ROM Database	3.5	2.964	3.038	3.519	3.255
News updating about universities/Connected to the university website	4.333	3.393	3.615	3.904	3.811
Return visits	3.778	3.111	3.346	3.653	3.472
Images/pictures	4.667	3.643	3.615	4.077	4.001
Discussion forum	4	3.071	3.269	3.461	3.450
Library information sharing on social media	3.333	3.107	3.231	3.365	3.259
Inter-library loan	3.333	2.976	2.885	3.211	3.101
Conservation of visitors	3.833	3.199	3.25	3.529	3.452
<b>DIALOGIC COMMUNICATION</b>	<b>3.826</b>	<b>3.348</b>	<b>3.367</b>	<b>3.718</b>	<b>3.564</b>

Sumber: Kuesioner

### Scientific information-seeking behaviours

Even though it received a favourable score, the mean score for students' information-seeking behaviour was still lower than the mean score for the quality of university library websites (Table 2). By and large, students rarely shared information received via the university

library’s website. Apart from Chinese respondents, the mean scores for the component of information sharing remained below 3.00. Chinese and Taiwanese respondents reported a higher mean score for user satisfaction and information sharing than respondents from Indonesia and Malaysia.

Table 2. Information-seeking

Dimensions	China	Indonesia	Malaysia	Taiwan	Total
	N= 9	N= 84	N= 26	N= 52	N= 171
Library website as the main source of information	3.333	3.369	3.846	3.596	3.536
Users’ satisfaction	4	3.357	3.346	4.173	3.719
Sharing information	3.5	2.345	2.461	2.808	2.778
<b>INFORMATION-SEEKING</b>	<b>3.611</b>	<b>3.023</b>	<b>3.218</b>	<b>3.525</b>	<b>3.344</b>

Source: Questionnaire

### **Dialogic communication, scientific information-seeking, and gender**

Data shows that male students felt that their university library websites were dialogic (3.598 to 3.45). Only in Malaysia, the mean score of female students was greater than that of male counterparts (3.476 to 3.213). This condition is related to the mean-score on the dimension that allows users to return visits and conservation of visitors. In both dimensions, the mean score of female students in Malaysia was higher than that of male students (3.466 to 2.954). It means that the high mean-score for dialogic communication among female students in Malaysia is followed by the high mean-score for return visits and conservation of visitors. From the three dimensions of the scientific information-seeking behaviour variable, male students had a greater mean-score (3.421) compared to female students (3.27). The satisfaction scores of males (3.81) and female students (3.631) were the highest in this information-seeking behaviour variable. Despite very few differences, male students tended to use the university library website as a source of information to support their studies (3.54 to 3.51). However, since the behaviour of sharing information was the lowest mean-score (2.79), both male and female students did not often share scientific information with other fellow students, although their level of satisfaction was in the highest position compared to other dimensions.

### **Correlation between dialogic communication and scientific information-seeking**

This section presents the calculation of the correlation between the dialogic communication variable and information-seeking behaviour. Except for respondents from China, the calculation results in the other three countries depict significant correlations between

the two variables. For respondents in Indonesia, the value of the Pearson correlation between dialogic communication (variable X) and information-seeking (variable Y) is 0.537, greater than the r count table, 0.278. This result indicates a quite strong positive relationship between dialogue communication and scientific information-seeking. This relationship is also significant because Sig. (2-tailed) is  $0.000 < 0.01$  (at 1% significance level). Similarly, a positive and quite strong connection appears in the questionnaire results of respondents in Malaysia because the Pearson correlation value is 0.608, greater than the r count table, 0.496. This relationship is significant because Sig. (2-tailed) is  $0.001 < 0.01$ . For respondents in Taiwan, the Pearson correlation value between dialogic communication and scientific information-seeking is 0.602. This value is greater than the r count table, 0.345, meaning a quite strong and definite positive correlation. The nature of this correlation is significant because the significance level (2-tailed) is  $0.000 < 0.01$ . A positive correlation means that if the dialogic communication variable increases, the scientific information-seeking variable increases correspondingly.

Slightly different results are obtained from the measurement of the respondents in China. The Pearson correlation value is 0.437, lower than the r count table, 0.798, which reveals no correlation between the dialogic communication variable and scientific information-seeking. The significance level (2-tailed)  $0.239 > 0.01$  indicates no significant correlation between the dialogic communication variable and scientific information-seeking.

### **Correlation between dialogic communication and source of information**

For respondents in Indonesia, the value of the Pearson correlation between dialogic communication and source of information is 0.385, greater than the r count table, 0.278, which means the higher the value of dialogic communication on the website, the higher the possibility that the library website will be used as a source of information by students. Although the correlation level is low, it is significant because the significance level (2-tailed) is  $0.001 < 0.01$ . A positive correlation also results from the calculation for respondents in Taiwan, which is 0.448, greater than the r count table 0.345, and is noteworthy because the significance level (2-tailed) is  $0.001 < 0.01$ . The calculation for the respondents in Taiwan yields a stronger correlation than for those in Indonesia. Different calculation results are obtained for respondents in China and Malaysia. The value of the Pearson correlation is 0.030, lower than the r count table, 0.496 with Sig. (2-tailed)  $0.883 > 0.01$  for Malaysia and 0.637, lower than r count table, 0.798 with Sig. (2-tailed)  $0.065 > 0.01$  for China. It means that there is no



correlation between dialogic communication variable and source of information in these two countries.

### **Correlation between dialogic communication and information satisfaction**

For Indonesia, the value of the Pearson correlation between dialogic communication and information satisfaction is 0.665, greater than the r count table, 0.278, which means a strong positive correlation. Because Sig. (2-tailed) is  $0.000 < 0.01$ , then there is a significant positive correlation; if the dialogic communication variable increases, the satisfaction variable also increases. Taiwan has a stronger correlation value, 0.744, greater than the r count table, 0.345, and as significant as Sig. (2-tailed)  $0.000 < 0.01$ . The strongest correlation value between dialogic communication and information satisfaction occurred for Malaysia, namely 0.857 greater than the r count table, 0.496, and significant as Sig. (2-tailed)  $0.000 < 0.01$ . Thus, respondents in Indonesia, Malaysia, and Taiwan felt that the higher the quality of dialogue communication, the higher the level of satisfaction they obtained. In contrast, the correlation between dialogic communication and information satisfaction is not found in China because the calculation result is 0.530, smaller than the r count table, 0.798 with the significance level (2-tailed)  $0.142 > 0.01$ .

### **Correlation between dialogic communication and information sharing**

The results of the calculation of the questionnaire entries indicate show positive and significant correlations in Indonesia, Malaysia, and Taiwan but no correlation in the responses of respondents in China. In Indonesia, the correlation value is 0.282, greater than the r count table, 0.278, with Sig. (2-tailed)  $0.009 < 0.01$ , meaning that there is a weak and significant correlation. In Taiwan, the correlation value is 0.288, greater than the r count table, 0.266. A stronger correlation is shown in Malaysia, the correlation value is 0.427, greater than the r count table, 0.388. However, the correlations are significant in Malaysia and Taiwan on Sig. (2-tailed) less than 0.05; Sig. (2-tailed)  $0.030 < 0.05$  for Malaysia and Sig. (2-tailed)  $0.038 < 0.05$  for Taiwan. The opposite result is obtained from respondents in China because there is no correlation between dialogic communication and information sharing. The value is -0.189, lower than the r count table, 0.917 with Sig. (2-tailed)  $0.625 > 0.01$ .

### **Correlation for the dimensions of scientific information-seeking behaviour variable**

The authors also tested the inter-dimensional correlation in the scientific information-seeking variable. Of the 171 respondents, there is a significant positive correlation between the dimensions of information source, information satisfaction, and information sharing. The value of the Pearson correlation between source of information and information sharing is 0.252, greater than the r count table, 0.194, with Sig. (2-tailed)  $0.001 < 0.01$ , so there is a correlation between the source of information variable and information sharing.

The correlation between the dimensions of source of information and user satisfaction is a positive correlation because the calculated value is 0.348, greater than the r count table, 0.194, with Sig. (2-tailed)  $0.000 < 0.01$ . Meanwhile, the Pearson correlation value between information sharing and satisfaction is 0.369, greater than the r count table, 0.194, with Sig. (2-tailed)  $0.000 < 0.01$ , so there is a positive correlation between information sharing variables and satisfaction. Therefore, if the value of the source of information dimension increases, the information sharing will increase. Additionally, if the value of the source of information dimension increases, the satisfaction will also increase, and the high value of the information sharing dimension will be followed by the high value of the satisfaction dimension.

### **Discussions**

This study aims to evaluate the quality of dialogic communication on university library websites and its correlation with student scientific information-seeking behaviours during the Covid-19 outbreak. The results proclaim that the two hypotheses formulated in the study are accepted. The descriptive analysis confirms the first hypothesis that university library websites have implemented dialogic communication principles during the outbreak. The results portray that the university library websites are an adequate channel to stimulate student engagement in seeking scientific information for their scholarly works. Student engagement can be established through dialogic communication (Kent and Taylor 1998), making media communication contain interactive qualities of face-to-face communication (Ingenhoff and Koelling, 2010; Taylor, Kent, and White, 2001). Dialogic communication allows for two-way symmetrical communication in which the needs of the public are also considered by the organization (Kriyantono et al. 2022). As a consequence, this study confirms the work of Kent and Taylor (1998) as well as offers the results of that work, in terms that dialogic communication should be applied optimally and continuously on university library websites.

The results of this study affirm that the university library websites that have adopted the principles of dialogic communication have a quite strong and positive correlation with scientific information-seeking behaviour among students. Students' positive perceptions of the quality of dialogic communication have encouraged them to take university library websites a source of scientific information. The results also reveal that the information from the university library website has been shared with other students. This finding informs us that there is a high level of satisfaction obtained by students by pursuing information through library websites. The authors argue that the results of the correlation test have answered previous research from Sharifabadi (2006) that, on the one hand, library websites offer unprecedented resources for supporting e-learning, however, website managers are still not aware of the best way to integrate these resources into in e-learning environments, such as providing and using scientific information for research and teaching. Because it has been proven to have a positive correlation with the behaviour of seeking scientific information, the dialogic communication model is recommended to be adopted in managing library websites.

The high mean score for the quality of discussion forums in the four countries scrutinized proved the high quality of dialogic communication, in turns this is what caused the mean score for the conservation of visitors relatively good, 3.45, although it is still the lowest mean score compared to other dialogic communication dimensions. The discussion forum enables interactive dialogue between students and website managers to generate collaborative learning, user satisfaction, and still maintain the quality of interaction (Jan, 2020; Pérez-López et al. 2020), especially in the pandemic where everything is fully online. This research reinforces the importance of studies that explore the perceptions of library users (Fasola and Olabode, 2014). Apart from being the core of library studies, this user study can work as a valuable recommendation for developing the quality of library services through the website to suit the needs of users (Yeon Hong, Yang, and Rim, 2010), especially in this current outbreak where face-to-face communication is reduced. With a focus on users' perceptions, this study proves that the university library websites can apply the principles of dialogic communication, which is contrary to the work of (Agyemang, Boateng, and Dzandu, 2015) that library websites in universities in Ghana have not applied the principles. In addition to the context of communication technology development, which can be a differentiating factor, research by (Agyemang, Boateng, and Dzandu, 2015) was carried out before the pandemic where websites still share the roles with face-to-face communication. The content analysis method used by Agyemang, Boateng, and Dzandu (2015) allows it to differentiate the research results because

the interpretation of data is to be strongly determined by the researchers even when the scholars employed the dialogic communication model.

The authors also confirm the second hypothesis proposed that dialogic communication on library websites positively correlates with students' scientific information-seeking behaviour. However, a correlation test of the respondents' answers from China resulted in no correlation. The authors argue that it is due to the very small number of respondents from China compared to the other three countries. However, based on the mean scores of the answers, Chinese students' perceptions of the quality of the website were very good. The positive correlation shows that a higher quality of dialogic communication on the university library websites could increase students' intensity in using the library website as a source of scientific information, increase students' satisfaction, and increase the frequency of sharing the information with other students. The correlation supports Kwanya and Nyariki's (2019) study that the search for scientific information is largely determined by the availability, credibility, and trust of information sources; two-way and interactive communication channels. The dialogic communication model includes these factors, which are contained in the dimensions of usefulness, dialogic loop, ease of interface, return visits, and conservation of visitors (Kent and Taylor, 1998; Safitri et al., 2022). The questionnaire data describes that the mean scores for all dimensions are good (3.564 out of 5.00).

The results of this research further confirm that a dialogical website, adopting McCroskey, Valencia, and Richmond (2004), is part of an instructional environment whose role is to encourage a positive academic climate, by generating satisfaction through interactive facilities in searching for scientific information. It was affirmed by Afrilyasanti and Basthomi (2022) while conducting research in the era of the Covid-19 pandemic, that teachers and students were more satisfied with the interactive learning system. In the current research, when all interactions can only be done online, a dialogical website can generate satisfaction because it is able to posit humans as a generative-mechanism (humans are not fully machines because they still have the ability to produce or reproduce reality) in the learning process. The positive correlation between dialogic communication and scientific information-seeking is also important. The mean score on the dimension of "university library website as the main source of information in the pandemic" is already at a good level, 3.536 (Table 2). In fact, the mean score for this dimension for Malaysia is the highest mean score of all the dimensions, 3.846. The university library websites must compete with other online channels, including social networking sites, blogs, and other websites, as places to provide information for students (Sujana et al. 2018). This situation is not an easy job for library website managers. Social

networking sites have long been equipped with features that allow users to rapidly access and share information, create and post their own information, and build networks interactively with other users (Pérez-López et al. 2020). As a result, the use of social networking sites in the educational process for students has proven effective (Smith, 2013) because these interactive features are able to provide face-to-face communication in online learning (Ingenhoff and Koelling, 2010).

In addition, the university library websites are recognised by the students as having provided links to social media links as well (mean score of 3.536) and links to external search gateways with a mean score of 3.618 (Table 1). Thus, it increasingly raises interactive characters and provides a broad alternative reference. Connections with social media make university library websites adopt the potential of social media in supporting their multi-way communication at relatively lower costs and higher levels of efficiency than traditional communication channels (Gallaughar and Ransbotham, 2010). In face-to-face communication with international students, for example, the skills to speak in English must be mastered by library staff, while communication via the website is mostly written. Written communication provides a relatively large amount of time to think and respond to student questions, so communication via the website makes it easier for staff in the four countries being studied, which, in general, are not English-speaking countries. Lack of speaking skills in English has been researched by Nurbibi, Nirwana, and Shivali (2019) and demonstrated that only one director at the library of National Sun Yat-Sen University, Taiwan, has the proficiency in speaking English, even though this university has a large number of international students.

The authors believe that the connection between the library website and social media is important because it is related to the characteristics of students as users of library services (Mohammed, Ibrahim, & Yunus, 2021, p. 230). Websites are required to be dialogic as well so that they can balance social media as a scientific source because social media has the ability to present interactive communication (Hinson, 2018; Nugraha & Kriyantono, 2023). If it is more dialogic, the authors argue that the website has advantages as a source of scientific information because social media is considered to have deficiencies in the aspect of trust. The biggest problem experienced by social media is that it becomes a place for disinformation to spread (Buchanan, 2020). Finally, the results of the correlation test in the current research can provide solutions to problems found by Selvanathan, Hussin, and Azazi (2020) in Malaysia, namely the obstacles in searching for scientific information due to lack of supervisions and helping libraries to assist students in accessing learning materials. Through exploring the opinions of students, this research offers important studies for the world of education so that the quality of

the website is in accordance with the frame of references and the field of experiences of library website users. Although some research still found that face-to-face quality cannot be completely replaced by online communication in the learning process in the classroom (Jan, 2020; Kemp and Grieve, 2014), the best choice in this current outbreak is online education. From a previous survey in Indonesia, it was also found that online communication was indeed not a substitute for direct face-to-face communication so that the learning method is more practical in the form of a blended mode during the Covid-19 outbreak, i.e. the combination between online and off-line learning (Afrilyasanti and Basthomi, 2022).

The authors argue that online communication can open up opportunities for innovation in student-centre learning (SCL) learning method. Online communication can reduce students' dependence on lecturers as the main source of information during a distance learning. SCL has several types, such as case-based learning, problem-based learning, guided-design or guided-discovery learning (Bruner, 1961). Indonesia, for example, has become a country where the learning processes at all universities have been fully online since June 16, 2020 (Loasana, 2020). Hence, the pandemic has become a stimulus for developing online learning systems, including library websites, to support learning. Therefore, they can become the main source of scientific information for students.

## **Conclusion**

This work contributes to the advancement of educational communication research by demonstrating that the concepts of dialogic communication can be used to create dialogic and interactive library websites. This research introduces a model derived from the communication science approach, dialogic communication, to the science of education. Basically, the educational process is a communication process, namely the process of conveying ideas or ideas in the form of science, technology, and character development. As a communication process, teaching methods should be interactive or dialogical, either done face-to-face or online. The results of the correlation test in this research prove that the need for dialogue in the communication process is also found in the education or learning process. It means that the dialogic communication model is very relevant to be applied to online teaching channels, which in the context of this research is the website as a means of providing scientific reference sources as online learning materials. Due to the website's dialogic and interactive nature, it adheres to the principles of face-to-face communication that are typically found in library service activities. Therefore, dialogic communication will increase student happiness and promote information-sharing behaviour.

According to the findings of this study, lecturers can leverage the website's quality as an asynchronous learning tool by assigning organized assignments to do case analyses. Numerous sources of scientific material available on the library website and links to social media and journal websites can help establish a learning environment that encourages students to explore deeper into theoretical concepts acquired during synchronous learning. One could argue that the presence of a discussion forum on the university library's website facilitates collaborative learning activities among students, encouraging each student to participate actively. As a result, instructors are expected to facilitate case-based learning sessions in which students construct, compare, and exchange knowledge using the library's website.

Additionally, this study recommends the enhancement of library services available via the university library's website. In this Covid-19 epidemic, university website administrators can use dialogic communication on their university websites because this pandemic mandated that all activities should be conducted remotely and without physical contact. The senior management of universities can ensure students' rights to education in the aftermath of the Covid-19 outbreak. In the burden of Covid-19, university librarians will provide excellent service. Lastly, students believe that their e-learning experiences positively affect their happiness and commitment to university websites.

The study has limitations on the disproportionate number of respondents among the countries studied. The respondents were recruited for this study using convenient and easy access techniques, which meant that representative samples from each country could not be obtained entirely. Another limitation is that this study does not focus on exploring the respondents' motives for using the website. The authors placed a greater emphasis on analysing the quality of dialogic communication and scientific information seeking than they did on the motivations for respondents' responses to these two factors. Based on several theories, such as the uses & gratifications theory and expectancy values theory, it is possible that different motives can produce satisfaction and an assessment of the quality of dialogic communication.

Therefore, the authors offer some recommendations for future research. First, further research using the probability sample selection technique on students from other colleges may result in the development of broader generalizations. Second, additional research can be conducted using a qualitative approach that delves deeply and holistically into personal motives. Thirdly, the authors believe that the library website can be used as a communication tool to disseminate university management-led strategies for overcoming the Covid-19 pandemic. Information about Covid-19's development on campus is critical for students who want to stay informed about what is happening on their campus while studying at home. Since

library websites are perceived to contain dialogic communication principles, it is assumed that this dissemination strategy can run smoothly and be more easily accepted. Therefore, further research can be carried out to evaluate the role of library websites in coping strategies for pandemics as a part of public relations activities, both by surveying the audience and analysing the content of the information on the library website.

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