The effect of usability, information quality, and accessibility on the intensity of the madrasa website use at Madrasah Aliyah level

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Abstract: The majority of academic communities in madrasa access the madrasa website infrequently. It is related to the user's perception of the madrasa website's quality. This study seeks to determine how usability, information quality, and accessibility effect the frequency with which madrasa websites are visited. This study proposes a correlational quantitative research methodology. The research cohort consisted of 2401 MAN Surakarta students, and the sample size was 96. The method of sampling is proportional random sampling. Data collection techniques using a questionnaire. Techniques of data analysis utilizing correlation analysis and single regression to test the hypotheses of single correlation, correlation, and multiple regression. The results of the study indicate that: 1) Usability has a positive effect on the intensity of website use; 2) Information quality has a positive effect on the intensity of website use; 3) Accessibility has a positive effect on the intensity of website use; and 4) Usability, information quality, and accessibility all have a positive effect on the intensity of website use. Usability, information quality, and accessibility collectively contribute 51.1% to the website's intensity, while the remaining 48.9% is influenced by unmeasured variables.

Keywords: usability, information quality, accessibility, intensity; madrasa website.

A. Introduction

The era of the industrial revolution 4.0 requires many institutions to change, especially in terms of integration with the digital world and various kinds of rapidly developing technologies (Krupitzer et al., 2020). The magnitude of the impact of change in this era could not even be avoided by anyone, including madrasa (Tangahu at el., 2021). Information systems are increasingly needed by madrasa, especially in improving the smooth flow of information, quality control, and creating collaboration with other parties and can increase the value of these educational institutions.

The application of Educational Information System Management (Manajemen Sistem Informasi Pendidikan/MSIP) is expected to be able to increase the productivity of educational institutions to support daily school operational activities such as preparing documents efficiently and effectively in providing information services to school customers (Mcleod & Schell, 2004). The development of MSIP has enabled schools to reach many users by publishing school/madrasa outputs via the website. The school website is able to reach as many users as possible and allows the dissemination of educational information to the public and all education stakeholders (Wako, 2003).

Madrasa academic communities have low intensity in using the website. Data from the survey conducted showed that only 35.21% of madrasas had an internet network and only 13.84% of madrasas had homepage facilities (madrasa pages). The MAN 1 Surakarta website is the most visited, with 1,792 visitors every month with 19% domain influence. The second position is occupied by MAN 2 Surakarta with an average monthly visitor of 1,207 visitors with 19% domain influence. The third position is MA Al Islam Jamsaren with an average monthly visitor of 221 visitors with 10% domain influence. The lowest position of MA Al Muayad with an average visitor per month is 0 visitors, which means almost no one opens this website.

The low intensity of using the website shows that students are less interested in the website, so they don't spend too long accessing the school's website. The intensity of using the website is an illustration of how long and how often respondents use the website for various purposes or motivations. The intensity of this use is based on the frequency of use and duration of access both to communicate and to seek information. According to the concept of instant acolytes, the user's enthusiasm for using the internet will shape the future of the internet (Horrigan, 2002). The indicators used to measure the intensity of using the website in this study refer to the concept of user enthusiasm (instant acolytes) which can be assessed from the frequency (how often you use the website) and duration (how long you use the website) (Horrigan, 2002; Livari, 2005; Andarwati & Sankarto, 2005; Krisdiantoro, et.al, 2018).

The intensity of website use in terms of the user can be associated with the cybertext theory put forward by Aarseth (1997) which emphasizes the user's power to experiment, navigate, select, and interpret the information needed. Nielsen states that website

usability shows how easy it is for users to easily use the contents of a site to find various information related to products, services, and other communication facilities. Websites that have high usability will have the opportunity to be visited more frequently (Nielsen, 2000). The direction of user behaviour when receiving technology is determined by the perception of usability and its usability. This behaviour influences the user's intensity to use the technology (Smith, 2004). The usability indicators used in this study refer to the opinion of Nielsen (2000) which consists of learnability, efficiency, memorability, errors, and satisfaction.

The website can be said to be good if the user is easy and not confused when using it. There are two important aspects in the usability aspect of a website, namely whether the appearance of the website is easy to understand, and whether the existing features work well (Andiputra & Tanamal, 2020). Nielsen stated that there are five conditions that must be met for a website to achieve an ideal level of usability, namely learnability, efficiency, memorability, errors, and satisfaction (Nielsen, 2000). Poor website usability makes it difficult for users to find the information they want, and links don't work properly, thus causing inconvenience to users who have to scroll a lot to find information (Aynayya et al., 2018).

According to the WebQual 4.0 theory which analyzes website quality based on user perceptions, apart from usability there are two other aspects related to the intensity of website use, namely information quality and service interaction quality (Barnes & Vidgen, 2001). Generally, users want to get information quickly and accurately, if a website fails to provide clear information, then the user immediately leaves the website and switches to another website (Andiputra & Tanamal, 2020). The information quality indicators used in this study refer to the Webqual theory from Barnes & Vidgen (2001) dan Cheng (2011) who have compiled a standardized questionnaire consisting of 7 questions with indicators: accurate, reliable, up to date, relevant, reliable, detailed, and presentation format.

A good website must also pay attention to accessibility aspects, namely the website must be usable by everyone, both children, adolescents, the elderly, including people with disabilities. Physical barriers become one of the obstacles for users. Infrastructure barriers are where internet access is slow, computer specifications, and browser use

(Setiawan & Tanumihardja, 2017). Accessibility is people with disabilities being able to see, understand, access, navigate, and interact with websites. The disability is a lack of internet access, not having adequate devices, and so on (Chiew & Salim, 2003).

Accessibility is the ease of finding information quickly and cheaply which encourages the growth of internet users (Novianti & Widirahayu, 2015). Accessibility improves usability globally and makes users easy to use. Accessibility will also affect how quickly a website can be accessed by users with disabilities (Henry, 2002). The accessibility indicators used in this study refer to Petrie & Bevan (2009) and Mora (2013) who use guidelines from W3C's Web Content Accessibility Guidelines consists of: (1) easy-to-understand (perceivable), (2) easy-to-operate (operable), (3) easy-to-understand (understandable), and (4) strong resistance (robust).

The hypothesis proposed is H1: There is an effect of usability on the intensity of using the website; H2: There is an influence on the quality of information on the intensity of using the website; H3: There is an influence of accessibility on the intensity of using the website; H4: There is an influence of usability, information quality, and accessibility together on the intensity of using the madrasa website.

Judging from the several studies above, studies have not yet been found that discuss the relationship between the intensity of website use and usability, information quality, and website accessibility. Information usability and quality are described according to the Webqual 4.0 theory, accessibility using the Web Content Accessibility Guidelines (WCAG) theory, and the intensity of website use in the concept of internet user enthusiasm (instant acolytes). Assessment of usability, information quality, accessibility, and intensity of using the website in this study is reviewed from the user's point of view, namely students of the State Madrasah Aliyah in Surakarta.

B. Method

This type of research is quantitative research, in which the research data is in the form of numbers and the analysis uses statistics (Creswell, 2012). The approach used is a correlational approach, it aims to see how far variations in one variable relate to variations in other variables based on correlation coefficients, as well as obtain information about the degree of relationship that occurs. This correlational study was used to analyze the

effect of usability, information quality, and accessibility on the intensity of using the madrasa website.

This research took place at the State Madrasah Aliyah in Surakarta. The research population was all students of the State Madrasah Aliyah (MAN) in Surakarta who already had websites, namely MAN 1 and MAN 2 Surakarta. The sample in this study is partly from MAN students in Surakarta. The sample size was calculated using the Slovin formula at an error level of 10%. So, the sample that will be taken to represent the population is 96 MAN students in Surakarta. The sampling technique uses proportional random sampling, namely random sampling where each member of the population has the opportunity to be sampled.

The data collection method uses a questionnaire. It uses a Likert scale with 5 (five) choices. Some points are positive, some are negative. Options include very good, good, fair, not good, and very bad. The questionnaire was tested first to assess the validity and reliability of the questions in the questionnaire.

Data analysis techniques include prerequisite testing and hypothesis testing. The prerequisite test used is the sample randomness test, multicollinearity, heteroscedasticity, and data normality. Testing the hypothesis using a single correlation-regression test and multiple correlation-regression..

C. Result and Discussion

Data from the research results were obtained from 96 students of State Madrasah Aliyah in Surakarta for the 2021/2022 academic year who became respondents. The questionnaire provided includes four variables, namely usability (X_1), information quality (X_2), accessibility (X_3), and the intensity of using the madrasa website (Y). The results of the hypothesis testing carried out obtained results as in Table 1.

Table 1. Summary of Hypothesis Test

Hypothesis	r (sig)	r^2	Equation	Test kit (sig)	Decision
H_1 = there is relation between X_1 and Y	0.477 (0.000)	0.228	$Y = 1,055 + 0,165X_1$	t = 5.263 (0.000)	H_1 accepted
H_2 = there is relation between X_2 and Y	0.441 (0.000)	0.195	$Y = 2,885 + 0,174X_2$	t = 4.770 (0.000)	H_2 accepted
H_3 = there is relation between X_3 and Y	0.445 (0.000)	0.198	$Y = 4,781 + 0,075X_3$	t = 4.820 (0.000)	H_3 accepted

H_4 = there is relation between X_1, X_2, dan X_3 and Y	0.715	0.511	Y = -4,107 + 0,109X_1 + 0,151X_2 + 0,072X_3	F = 32.081 (0.000)	H_4 accepted

1. The effect of usability on the intensity of website use in MAN students in Surakarta

The results of the calculation of the usability correlation test with religious behaviour obtained r_{x1y} results of 0.477 with a significance value of 0.000 <0.05, meaning that usability has a positive and significant effect on the intensity of website use. The usability contribution to the intensity of using the website is 22.8%. The existence of a significant influence between usability and the intensity of website use indicates that the better the usability of a website, the higher the intensity of using the website. Conversely, the lower the usability, the more reluctant users are to visit the website, so the intensity of using the website is lower.

Based on the explanation above, it can be seen that the hypothesis test states that there is a significant relationship between usability and the intensity of using the website. The better the usability of a website, the higher the intensity of using the website. The higher the usability of a website, the easier it is for users to interact and explore the website. Good usability makes it easier for users to visit the website. Conversely, the lower the reusability, the less reluctant users are to visit the website, so the intensity of using the website is lower. The usability indicators include 1) learnability, 2) efficiency, 3) memorability, 4) errors, and 5) satisfaction.

Learnability is the user's ease in learning the website, efficiency is the user's speed in completing tasks after learning the website; memorability is how easy it is for users to remember how a system works on this website after some time of use; errors is how many errors the user makes and how easily the user fixes the error; and satisfaction describes the level of user satisfaction after using the website (Nielsen, 2000). Meanwhile, the intensity of website use can be seen from the frequency of use and length of access to the website. Good usability makes it easier for users to visit the website. Conversely, the lower the usability, the more reluctant users are to visit the website. The easier-to-use website encourages users to return to the website.

Madrasa websites that have good usability have a very big chance of being frequently visited by internet users. In line with Smith's theory (2004) that user behaviour when accepting a technology is determined by perceptions of usability and usability and this behaviour influences the user's intensity to use the technology. Nielsen (1994) states that good usability of a website will provide a good experience for users. Good usability certainly provides convenience and comfort for its users, minimizes operating failures, and provides benefits and satisfaction for its users. Nielsen (2000), added that websites that have high usability will have the opportunity to be visited more frequently by users.

2. The affect of information quality on website use intensity for MAN Students in Surakarta

The results of the calculation of the correlation test of information quality and religious behaviour obtained r_{x1y} results of 0.441 with a significance value of 0.000 <0.05, meaning that the quality of information has a positive and significant effect on the intensity of website use. The contribution of the effect of information quality on the intensity of website use is 19.5%. Information quality is the user's perception after using the website whether it is in line with expectations or not. If it is following expectations, the user will be satisfied and will use it again on a different occasion. This means that the higher the quality of information provided by a website, the higher the intensity of using the website. On the other hand, the low quality of information causes users to be reluctant to return to the website.

There is a significant positive relationship between the quality of information and the intensity of using the website for students because the quality of information is the user's perception after using the website whether it is in line with expectations or not. If it is following expectations, the user will be satisfied and will use it again on a different occasion. This means that the higher the quality of information provided by a website, the higher the intensity of using the website. On the other hand, the low quality of information causes users to be reluctant to return to the website. The indicators used to measure the quality of information include: 1) accurate, 2) reliable, 3) up to date, 4) relevant, 5) reliable, 6) detailed, and 6) presentation format.

The information provided on the website must always be timely, up to date, and meet user expectations. Presentation of information must be considered in the right format and

as needed so that information can be received by users easily. Good quality information causes users to be satisfied with the website and the more often users visit the website. It can be stated that a better user perception of the quality of information from a website will encourage the emergence of positive feelings so that users visit the website more intensively. The quality of website information is an important factor affecting the intensity of website use. Information quality refers to how useful, accurate, and reliable the information provided by a website is.

Reinforcing the theory put forward by DeLone & McLean (1992) that the higher the quality of information generated from information systems, the higher the intensity of the use of information systems. DeLone & McLean (2003) added that the quality of information affects the intensity of website use. The better the quality of information from a website, the higher the intensity of users using the website's services. Wahyuni (2011) explains that the quality of information as measured by completeness, accuracy, consistency, currentness, and form of output is proven to affect the intensity of use.

3. The effect of accessibility on the intensity of website use on MAN Students in Surakarta

The results of the calculation of the correlation test of accessibility with religious behaviour obtained r_{x1y} results of 0.445 with a significance value of 0.000 <0.05, meaning that accessibility has a positive and significant effect on the intensity of website use. The contribution of the effect of accessibility on the intensity of using the website is 19.8%. The existence of a significant positive relationship between accessibility and the intensity of using the website for students indicates that an easy-to-access website will make it easier for users to quickly obtain the information and data needed, so users feel satisfied and visit the website frequently. An easily accessible website will make it easy for users, making users feel comfortable when opening website pages. Conversely, a website that is difficult to access will make dissatisfied users switch to another website. Accessibility indicators include 1) Perceivable, 2) Operable, 3) Understandable, dan 4) Robust.

Good accessibility of a website is easy to understand, easy to operate, and easy to understand because it uses clear terms, and simple instructions, and can be opened in various types of web browsers (Petrie & Bevan, 2009). This compatible website will make it easier for users to explore the content and information on the website so that the

intensity of using the website increases. It can be stated that a website that is easy to access will make it easier for users to obtain the information and data needed quickly so that users feel satisfied and visit the website frequently. Website accessibility is an important factor that affects the intensity of using the website. Accessibility refers to how easily a website can be accessed by its users, including users with special needs such as users with disabilities.

An easily accessible website will make it easy for users, making users feel comfortable when opening website pages. Conversely, a website that is difficult to access will make dissatisfied users switch to another website. In line with the theory put forward by Henry (2002) that website accessibility affects the intensity of website use. Accessibility can increase usability globally and make it easy for users to use it. Accessibility will also affect how quickly a website can be accessed by users. By the findings of Yuliana and Wardini (2013) limitations caused by infrastructure barriers where slow internet access, computer specifications, inappropriate use of browsers, and others that hinder access must be anticipated by a website. Websites must consider accessibility, be flexible, and be easily accessible to people who have these barriers.

4. The effect of usability, information quality, and accessibility on the intensity of website use for MAN students in Surakarta

Intermediate influence on the intensity of website use on MAN students throughout Surakarta. The results of the calculation of the multiple correlation test obtained an r result of 0.715 with a significance value of 0.000 <0.05. The r^2 value resulting from the usability (X_1), information quality (X_2), and accessibility (X_3) variables on the intensity of website use (Y) is r^2 = 51.1%. This shows that the usability, information quality, and accessibility variables together contribute to the intensity of using the website by 51.1%, while the remaining 48.9% is influenced by other factors outside this study.

The intensity of using the website students illustrates how long and often students use the madrasas website. The intensity of students' use of the madrasa website depends on students' assessment of usability, information quality, and accessibility. The madrasa website, which according to students' assessments provides convenience, has quality information, and is easy to access, makes students feel happy interacting on the website, and comfortable surfing to find the data and information needed on the website.

Conversely, if according to students the madrasa website does not provide convenience, does not have quality information, and is not easy to access, students will immediately leave the website and switch to other websites.

The intensity of website use in terms of student assessment as users are following the theory of technology acceptance by Smith (2004) that user behaviour in accepting a technology is determined by perceptions of the usefulness and ease of use of technology and this behaviour affects the intensity of use to use the technology. Meanwhile, terms of WebQual 4.0 theory put forward by Barnes & Vidgen (2003) state that the intensity of website use is driven by user perceptions of website quality. There is another aspect that is considered by users, namely the quality of information. Good quality information is shown by the existence of output benefits that can affect the level of use of the system concerned and student satisfaction as users.

The intensity of website use is also driven by the user's assessment of the accessibility of a website. Following the theory of web content accessibility guidelines (WCAG), a guideline for assessing the accessibility of a website developed by the web accessibility initiative (Petrie & Bevan, 2009). According to this theory, if a website can pass all checkpoints, it is easy to understand, easy to operate, easy to understand, and has durability, then it means that the website's accessibility is satisfactory. User satisfaction with this accessibility will provide greater opportunities for users to access the website the next time.

It can be stated that students as users in this study have given positive ratings on the dimensions of usability, information quality, and accessibility of the madrasa website. Students as users feel that the madrasa website is easy to use and believe that the information on the website can provide the best information for users. The website is also easily accessed by students when they are in areas with limited signal. Some of these positive assessments give satisfaction to students so that the intensity to use the website is increasing.

Based on the data above, it can be stated that the intensity of using the madrasa website in Surakarta is influenced by certain factors. Usability, information quality, and accessibility are three important factors that affect the intensity of website use. All three are interrelated and affect the user experience when using the website. Usability refers to

how easily a website can be used by its users. If a website has a high level of usability, users will feel comfortable and helpful when using it, so they will tend to continue using it.

Information quality refers to how useful, accurate, and reliable the information provided by a website is. Websites that provide quality information will be visited and used more by users than websites that provide information that is less useful or inaccurate. Accessibility refers to how easily a website can be accessed by its users, including users with special needs such as users with disabilities. Websites that have a high level of accessibility will be visited and used more by users than websites that are less accessible. The better the level of usability, information quality, and accessibility of a website, the higher the intensity of its use. Therefore, it is important to pay attention to these three when building or improving a website to increase the intensity of its use.

D. Conclusion

Based on the results of data analysis and discussion, the following conclusions can be drawn. There is a positive influence between usability and the intensity of using the website. There is a positive influence between the quality of information and the intensity of using the website. There is a positive influence between accessibility and the intensity of using the website. There is a positive influence between usability, information quality, and accessibility together with the intensity of using the website with a contribution of 51.1%, while the remaining 48.9% is influenced by other variables not examined. The results of this study imply that the intensity of using the website for madrasa students can be done by increasing the usability, quality of information, and accessibility of the madrasa website. Students who have the perception that the madrasa website has good usability, information quality, and accessibility will be more intensive to visit the madrasa website. This supports the function of the madrasa website as a learning resource and source of information.

The suggestion given is that the madrasa head is expected to provide support for the development of the madrasa website so that it can present a website that is easy to use, has quality information, and is easily accessible. Teachers are expected to contribute to improving the quality of the madrasa website by participating in filling in website spaces with educational content, giving assignments for students with links to information

sources from the madrasa website, and various other activities that support the existence of the madrasa website. Students are expected to increase the intensity of visiting the madrasa website and exploring the information on the website. This is important to support the learning process and increase technological literacy which is beneficial for students in the future.

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