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E-Library Use and Employee Competence Effects on Service Quality at Muhammadiyah Makassar Library

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Abstract
Purpose: This study examines the extent to which e-library services and employee competence influence service quality at the Library of the University of Muhammadiyah Makassar.
Methodology/approach: The research was conducted at the University of Muhammadiyah Makassar Library using a descriptive quantitative design. The population comprised 6,576 visitors who accessed the e-library, and a purposive (non-probability) sampling technique was applied to select 99 respondents.
Results/findings: The results show that the e-library variable has a positive and statistically significant effect on service quality ($p < 0.05$). Employee competence also has a positive and statistically significant effect on service quality ($p < 0.05$).
Conclusions: Improving e-library services and strengthening employee competence are both important drivers of higher perceived service quality in the university library context.
Limitations: The study is limited by the use of purposive sampling and data collected from a single university library, which may restrict generalizability to other institutions.
Contribution: This study contributes empirical evidence to library and information science by clarifying how digital library services and staff competence jointly shape service quality. The findings can support library managers and university administrators in prioritizing technology-related service improvements and competency development programs.

Keywords: *E-library, Employee Competence, Service Quality*

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1. Introduction

The general library is a bridge for civilization, a nation, and a place that emits knowledge as a P3IR center (Education, storage, research, information, and recreation). The college library is the heart of a university. Initially, the library was a warehouse where collections of various forms were collected in the form of books, magazines, newspapers, CDs, cassettes, and videos, which were usually stored according to a specific arrangement. The rapid development of information technology has become a new challenge, especially for university libraries that provide information. Therefore, the paradigm of thinking in library management will gradually change. Likewise, libraries have changed their function from initially being just a manual medium to becoming virtual, which is now known as *an e-library* (Hartono, 2017).

Advances in information technology have created a demand for university libraries to utilize this technology to provide services to their patrons. In 2018, the Makassar Muhammadiyah University library began providing electronic services (*e-Library). This system* uses electronic media such as the web, Internet, telephone, and computers to access information and resources owned by the library. Barfi, Imoro, Arkorful, and Armah (2024) said that *e-libraries* are an important element in the teaching and learning process for students in finding the information sources they need. This means that this *e-library* makes it easy for users to access a wide range of information. One example of the convenience that users can experience is a book collection search application, the OPAC system. This must, of course, be supported by competent human resources (employees) who can guide the system's operation.

Competent human resources (employees) play a major role in carrying out their main tasks and functions. Employees are the spearhead for managing other resources owned by the library so that it can provide optimal services. Law No. 43 of 2007 states that a librarian is a person who has competencies obtained through librarian education and training and has duties and responsibilities to carry out library management and services (Nadhifah, 2020). Resource competency comprises three components: scientific ability, skills, and ethics (attitude). To provide quality services, library managers must understand these components (Courtney & Kilcer, 2016).

There are already many visitors to the Unismuh e-library, namely 6,576, while the number of visitors to the repository is 58,085 [insert link]. With such a large number of visitors, responsive and professional work is required. Professional employees can provide services as expected by the users. However, the reality in the field is that library staff have not demonstrated adequate attitudes and competence in providing services to users with disabilities. However, the Makassar Muhammadiyah University library faces separate problems, namely: (1) The staff are not optimal in carrying out their duties. This is because they are not in accordance with their areas of expertise. Therefore, the quality of service provided by employees with a library education background will be different from those with a non-library background, including responses to existing problems and complaints; (2) employees placed in *e-libraries* do not have expertise in the field of technology, which also becomes a problem when users experience problems accessing *the e-library* and at the same time suggestions for the university to place employees according to their field of expertise (*The Right man in the right place*). On the other hand, talking about obstacles, especially those related to technology, is server access, which sometimes has *errors* resulting in delays or even inaccessibility. In the future, special handling of server problems is required. (3) Library visitors are not fully aware of *e-access. library*, the collection of the latest books that suit students' needs remains limited.

Several researchers have previously researched the quality of e-library services and *employee* competency*; however,* most have focused on one variable. The quality of service is generally considered good, but there is still a need to improve the availability of reading materials in the library. A descriptive analysis was conducted. This research assesses service quality only from the website facilities aspect. Furthermore, Suprianti and Sadad (2016) researched the quality of *e-library services* in the Riau Province region. The results of her research explained that the quality of the services was high. It serves users as expected by them. The analytical method used was a qualitative descriptive method. The research results only assessed the facility aspect.

Based on the problems stated above, the researcher is interested in researching how *e-libraries* and employee competencies contribute to service quality while also exploring in depth the competency standards possessed by employees at the Muhammadiyah University Library in Makassar. So the researchers raised the title "The Effect of *E-Library* and Employee Competence on Service Quality." The results of this research can later be used as material for consideration to see what needs to be improved to further improve the service quality. In addition, it can be used as an evaluation material for universities in the employee selection process in the library sector. It is also hoped that the results of this research can improve reading culture and literacy, as well as the usefulness of information technology in the era of digitalization.

2. Literature Review

2.1. University Library Services in the Digital Era

University libraries have shifted from being primarily collection-centered institutions to service-oriented platforms that mediate discovery, access, learning support, and research workflows in digitally saturated environments. This transformation is not simply an "addition of technology," but a reconfiguration of what counts as value in library work: speed of access, interoperability across systems, remote availability, and user experience now compete with (and often override) traditional measures such as the size of print collections. In this setting, libraries increasingly function as digital infrastructures that connect users to licensed databases, institutional repositories, learning management systems, and research support services while managing the institutional risks associated with privacy, licensing, and long-term preservation (Courtney & Kilcer, 2016).

A concrete illustration of the digital-era shift is resource sharing and interlibrary loans (ILL). Where ILL once depended heavily on the physical movement of materials and time-consuming manual workflows, digital systems, networked union catalogs, and standardized transaction records have enabled faster coordination and new demand patterns. Using large-scale transaction records from Japanese university libraries, Lloyd, Alpi, Hoogland, Stephenson, and Meyer (2022) showed how the digital era has reshaped ILL activities over time, reflecting changes in user behavior, institutional workflows, and the broader information landscape. These developments matter because they signal the same structural trend seen in e-library services: users increasingly expect seamless access and responsiveness across institutional boundaries, which raises the standards by which service quality is judged.

Within this environment, web-based services are no longer "supporting features" but core delivery channels. Libraries are expected to provide search, discovery, reference assistance, and account management through web-based interfaces and integrated systems in the future. Fawwaz (2024) frames this as an imperative to leverage web-based library user services strategically, emphasizing that quality online delivery is a defining attribute of library's relevance. When university users can obtain information from commercial platforms instantly, the library's competitive advantage increasingly depends on trustworthy content access and the quality of the digital-service experience.

2.2. Definition and Core Functions of an E-Library

An e-library can be understood as a system of digital collections and digitally delivered services that support user access to information resources regardless of time and location. The e-library concept includes not only digitized materials and electronic subscriptions but also the socio-technical environment that makes digital access usable, such as authentication, user interfaces, search and discovery tools, help services, and policies that govern access and use. In practice, this means that e-library functions are inseparable from platform design and service delivery. Okyere-Kwakye and Nor (2022) highlighted that user perceptions and behavioral intentions toward e-library services are shaped by how users experience the system and whether they perceive it as useful, easy to use, and aligned with their information needs.

This positions the e-library as both an information system and a service system: it must deliver content and a credible and efficient experience that users trust enough to adopt routinely. In other words, the "core function" is not merely providing digital content; it is enabling effective information work through integrated digital services. From the user's perspective, the core functional outputs of an e-library typically include discovery and retrieval (searching, browsing, filtering), access management (authentication, permissions, remote access), content delivery (full-text access, downloads, linking services), user support (guides, tutorials, reference help), and personalized services (alerts, saved searches, reading histories, and recommendations).

These functions should be evaluated not only by availability, but also by performance, usability, and consistency under real use conditions. Empirically, the determinants of e-library use include organizational and user-level factors. Umukoro and Tiamiyu (2017) show that e-library service use among university students is driven by factors including awareness, perceived usefulness, and contextual

enablers that make e-library systems practical for academic work. This reinforces the point that e-library adoption is strongly connected to how well services fit user tasks and how effectively libraries enable users to succeed in these tasks.

2.3. Quality dimensions of e-library and e-services

Because e-libraries deliver value through a digital interface, service quality must be conceptualized in ways that capture online interaction and system performance rather than only physical facilities. A major implication is that classic service quality ideas (reliability, responsiveness, assurance, empathy, and tangibles) do not disappear but must be reinterpreted through digital delivery channels. For example, "tangibles" in a digital library context can refer to interface design quality and the professionalism of digital content presentation; "reliability" becomes uptime, accurate linking, and consistent access; "responsiveness" includes the speed of helpdesk resolution and clarity of online guidance.

Research on web-based library service quality supports the view that multiple components contribute to perceived quality, including the environment of use, service delivery, and outcomes. Alzahrani, Mahmud, Ramayah, Alfarraj, and Alalwan (2019) proposed a conceptual model for web-based library service quality that explicitly recognizes these layers, suggesting that digital library quality judgments are formed through both process experiences (how users interact with services) and outcome experiences (whether users accomplish their goals). Beyond conceptual models, measurement approaches emphasize dimensions that are particularly salient in e-service contexts: efficiency (ease and speed of use), system availability (technical reliability), fulfillment (whether services deliver what they promise), privacy and security, and the quality of information and support provided through digital channels. A focus group approach was used.

AlBalushi (2021) identified e-service quality criteria relevant to university libraries and showed that users evaluate e-services through concrete interaction experiences, such as navigation, search effectiveness, clarity of information, and perceived trustworthiness of the platform. These criteria are especially important for institutions attempting to strengthen e-library services because they guide what should be improved, including collections and the usability and performance of digital delivery. An empirical assessment of e-service quality in university libraries further indicates that e-service quality is multi-dimensional and can be rated at varying performance levels across dimensions.

Trivedi, Bhatt, Trivedi, and Patel (2021) evaluated e-service quality performance and related infrastructure in a university library context, showing that performance gaps can exist even when services are generally perceived as "good," suggesting that continuous quality improvement is necessary to meet rising user expectations in digital environments. Taken together, the literature implies that an e-library's quality is not reducible to the existence of a platform or collection of e-resources. Quality is experienced through the total digital service system: user interface design, system stability, responsiveness of support, clarity of policies and guidance, and the library's ability to deliver reliable access at the moment of need (AlBalushi, 2021; Trivedi et al., 2021).

2.4. Employee Competence in Library Services

Digital service quality is not only a technical issue. The performance of an e-library depends heavily on employee competence because staff members mediate the user experience through training, support, problem resolution, communication, and designing and maintaining service processes. Competence is best understood as a combination of knowledge, skills, and professional behavior that enables employees to perform effectively in specific contexts. In library work, this includes reference and information services competence, digital literacy, technology management, user education, communication skills, and service orientation.

Competency frameworks emphasize that libraries should align their staffing and professional development with the competencies required for modern service delivery. Benayoune (2024) presents a competency-based view for public library staff that is still relevant for university library settings, especially its emphasis on integrating competencies into recruitment, training, performance management, and continuous development. Although developed for public libraries, the logic

generalizes: when service channels and user expectations evolve, staff competencies must evolve systematically rather than informally.

Within library management literature, competencies are also connected to performance management systems. Shet, Patil, and Chandawarkar (2019) show how competency frameworks can be embedded into performance management processes, implying that organizations can use competency models not only to define expectations but also to improve service outcomes by aligning evaluation, training, and HR processes with the capabilities required for high-quality service delivery. The competence challenge becomes sharper in digital contexts because users often interpret service failures as system failures, even when they originate in human processes, such as slow problem resolution, unclear instructions, inconsistent communication, or lack of proactive guidance. When staff are competent in both digital systems and user support, they can reduce friction in e-library use and improve user trust in these services.

This is consistent with research linking library service outcomes to staff capabilities and the development of digital competence. Noh and Hong (2022) emphasized the relationship between library service and digital competence in the digital transformation era, reinforcing that staff capabilities can shape users' perceived service value and their ability to benefit from such services. Continuing education is a strategic mechanism for sustaining competency. Moen, Mandel, and Karno (2020) identify valued competencies in continuing education for public library staff and discuss preferred delivery formats, offering evidence that structured competence development is needed as service demands evolve. While this study focuses on public libraries, its implications are applicable to academic libraries, where digital services continuously expand, and staff must maintain updated skills to support users effectively.

2.5. Service Quality of Libraries in Traditional and Digital Settings

Library service quality research has long emphasized the role of user perceptions and the gap between expectations and perceived performance. In a university setting, service quality evaluation has been applied to understand how effectively libraries meet user needs and prioritize improvement actions. Traditional service quality dimensions remain relevant because users still evaluate reliability, responsiveness, assurance, and empathy, even when services are digitally mediated. Kekana and Kheswa (2020) in the context of the University of Tehran Central Library, demonstrate that users consider multiple service quality aspects important and that libraries must monitor how well they meet expectations across those dimensions.

Although this study is not limited to digital services, it supports a central point: service quality is ultimately judged by users' perceptions, and perceived gaps signal where performance improvement is required to achieve service quality. Similarly, service quality is frequently associated with user satisfaction (Yulihapsari, Indrawan, Simarmata, & Zainal, 2025). Chen, Ho, and Kuo (2022) used a library case to show that service quality dimensions are associated with satisfaction, reinforcing the practical importance of managing service quality as an outcome-oriented managerial priority. As libraries move more services online, the same relationship is expected to hold, but with new determinants of quality, such as system performance, online guidance, and digital support.

In digital library services, measurement approaches often adapt e-service quality models. Dalbehera (2020) applies the E-S-QUAL model to digital library services, illustrating how digital service quality can be operationalized through dimensions such as efficiency, fulfillment, system availability, and privacy in evaluating library websites and digital services. This strengthens the methodological basis for assessing digital library service quality and suggests a pathway for linking digital service performance to user perceptions.

2.6. Conceptual Framework

The research roadmap begins with evidence from Dewantari and Sujana (2021), who suggest that library service quality is generally perceived as good but still requires improvement, especially in terms of the availability of reading materials provided through e-library services. This finding implies that

even when service performance is rated positively, limitations in digital collections and access to up-to-date resources can constrain users' overall evaluation of service quality.

The roadmap then integrates findings from Nadhifah (2020), emphasizing that librarian (staff) competence influences service quality and that the influence is positive. Together, these studies imply that service quality in a modern academic library is produced by two complementary drivers: the readiness and availability of e-library resources and employees' capability to deliver and support services effectively. Based on this synthesis, the roadmap culminates in the current study direction (2022), which focuses explicitly on examining the combined role of e-library availability and employee competence in explaining variations in perceived library service quality. Figure 1 illustrates the study's conceptual framework.

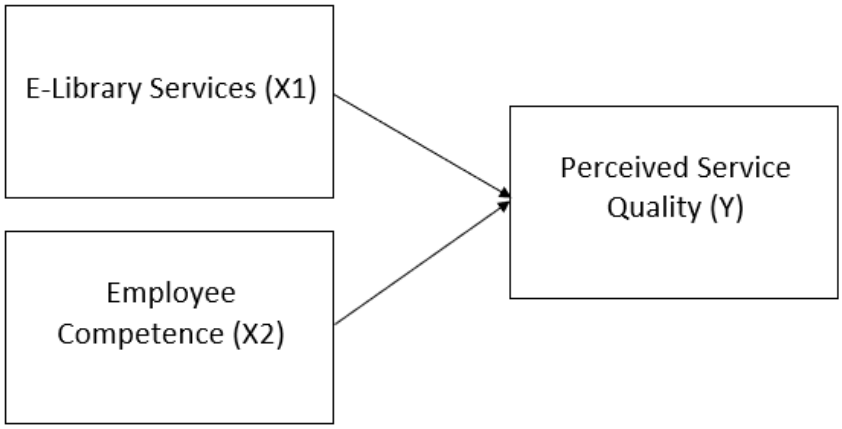

Figure 1. Conceptual Framework

2.6.1. E-Library Influences the Quality of Service at the Makassar Muhammadiyah University Library
E- Library are the use of information technology by educational institutions, including the Muhammadiyah University of Makassar. The use of technology in learning is very important, especially in Indonesia, especially in the 5.0 era. An *E- library* has also been implemented to facilitate access to the library. Electronic libraries can be considered an important element for students to support the teaching and learning process, especially in finding sources of information needed in lecture activities (Tsekea & Chigwada, 2021). The quality of service was quite good and served users as expected by the community. On the other hand, Dewantari and Sujana (2021) found that the e-library at the Ganesha Education University Library UPT generally has a good assessment of the services provided; however, there are still several aspects that need to be improved regarding the availability of reading materials in the library or on the Electronic Library service. and inadequate infrastructure. Based on the description and support from empirical research results, the following hypothesis is proposed:
H1: E- library positive and significant effect on quality services at the Makassar Muhammadiyah University Library

2.6.2. Employee competency influences the quality of service at the Makassar Muhammadiyah University Library
Ardiansyah (2021) states that the quality of service that is truly felt by the community lies in ten dimensions, one of which is *competence*, namely the demand for good knowledge and skills by the apparatus in providing services. Competent people will be able to solve problems quickly (responsively) and be more sensitive to existing conditions, proving that people with good competence will tend to resolve problems with appropriate solutions according to their areas of expertise. Therefore, in terms of service to users at Muhammadiyah University of Makassar, one of the indicators of efforts to maximize service is employee competence.

Marguna (2020) explains that digital competence (e-skills) is an important factor that every librarian must have in providing library services in the Industrial Era 5.0, which is characterized by speed and ease of obtaining information, and technology is an important driver of quality and efficiency in library

operations. Its implementation resulted in a significant transformation of the archaic conceptualization of the library and information science profession to the concept of a digital library. Nadhifah (2020) and Syahruramadhan (2024) in their research found that librarian competence influences service quality. Based on the description and support from empirical research results, the following hypothesis is proposed:

H2: Employee competency has a positive and significant effect on service quality at the Makassar Muhammadiyah University Library

3. Research Methodology

3.1. Research Design

This study employed a quantitative research design. Quantitative research relies on a defined population or sample, typically selected through random procedures, and collects data using structured instruments. The data were then analyzed statistically to generate the findings. In this study, the quantitative data consisted of numerical information related to the library, such as the number of employees, education levels, membership figures and visitor counts. In terms of data sources, this study used primary data collected directly from library users through a questionnaire. Secondary data were also included to support the analysis and writing, which were drawn from published sources and library records. These secondary data were obtained from the Makassar Muhammadiyah University Library, including records of staffing levels, the number of users, and membership statistics.

Data were collected using two main procedures. First, questionnaires were distributed to users of the Muhammadiyah University Library in Makassar to gather primary data. Second, documentation techniques were used to compile written materials from the relevant literature and institutional records related to the study object. The required documents included e-library visitor statistics, user complaint records, the number of laboratory assistants, and employee data for staff assigned to the e-library's Information and Technology unit. The population of this study comprised 6,576 visitors who accessed the Makassar Muhammadiyah University Library's e-library services. The sample consisted of library visitors, and because the population was large, the study applied a non-probability sampling approach using a purposive sampling method. A total of 99 respondents were selected, and the sample size was determined using the following formula:

$$n = \frac{N}{1+N.e^2}$$

$$n = \frac{6{,}576}{1+(6{,}576).(0.10)^2}$$

$$n = 99 \text{ respondents}$$

Information:
n: Sample Size
N: Population Size
e: Error rate using 10% precision

3.2. Instrument

A validity test was used to determine whether the questionnaire items were valid (Suparman, 2024). An item is considered valid if the calculated correlation coefficient (r count) is greater than the critical value (r-table). Conversely, if r count was less than r table, the questionnaire statement was considered invalid. A reliability test was used to assess the consistency of the questionnaire as a measurement instrument for each variable or construct (Badriyah & Sulistyo, 2025). In this study, reliability was evaluated by comparing Cronbach's alpha values with a threshold of 0.60. Cronbach's alpha values greater than 0.60 indicate that the instrument is reliable, whereas values below 0.60 indicate that the instrument is not reliable. Multiple linear regression analysis was applied to examine the magnitude of the influence of the independent variables on the dependent variable. This study analyzed the effect of an e-library (X1) and employee competency (X2) on service quality (Y) at the Muhammadiyah University Library in Makassar. The regression model is expressed as: $Y = a + b_1X_1 + b_2X_2 + e$, where Yrepresents service

quality, $a$is the constant, $b_1$and $b_2$are regression coefficients, $X_1$is the e-library variable, $X_2$is the employee competency variable, and $e$is the error term.

4. Result and Discussion

4.1. Data and Characteristics Respondent

Table 1 shows that 99 questionnaires were distributed and all 99 were returned, resulting in a 100.00% response rate. No questionnaires were damaged or not returned (0%), indicating complete participation and no data loss during the collection stage. Consequently, all 99 questionnaires (100.00%) were processed for analysis, indicating that the dataset was fully usable and representative of the entire set of distributed instruments.

Table 1. Distribution of Research Data

No	Questionnaire	Amount	Percentage
1	Questionnaires distributed	99	100.00 %
2	Returned questionnaire	99	100.00 %
3	Questionnaires that are damaged /not returned	0	0 %
	Amount Processed questionnaire	99	100.00 %

Source: Processed primary data, 2023

The data and characteristics of these respondents statistically explain the identity of the respondent and provide simple information about the condition of the respondent who is the object of research. In this study, the identity of the respondents is described based on their gender, age, and occupation, as shown in Table 1.

Table 2. Description Characteristics Respondent

No.	Gender	Frequency (person)	Percentage (%)
1	Man	24	24.24
2	Woman	75	75.76
	Amount	99	100

Source: Processed primary data, 2023

Table 2 shows the percentage of respondents' characteristics according to gender and age. Based on gender characteristics , of the 99 respondents dominated by women, namely 75 people or 75.75% and 24 people were men or 24.24%

4.2. Data Quality Test

4.2.1. Validity Test

The validity of the instrument was tested using a statistical software. The validity value can be seen in the *Corrected Item-Total Correlation column.* If the correlation number obtained is greater than the critical number (*r-count > r-table)*, where the r-table is 0.065, then the instrument is said to be valid. This is shown in Table 3, where the *r-count > r-table* for a sample of 99 respondents are as follows:

Table 3. Validity Test Variable

Variable	Indicator	Mark	Mark	Information
		r_{count}	r_{table}	
E-Library (X1)	X1.1	,573	0.065	Valid
	X1.2	,562	0.065	Valid
	X1.3	,468	0.065	Valid
	X1.4	,524	0.065	Valid
	X1.5	,561	0.065	Valid
	X1.6	,616	0.065	Valid
Competence Employee (X2)	X2.1	,557	0.065	Valid
	X2.2	,732	0.065	Valid
	X2.3	,687	0.065	Valid
	X2.4	,706	0.065	Valid
	X2.5	,615	0.065	Valid
	X2.6	,677	0.065	Valid
Quality Service (Y)	Y.1	,515	0.065	Valid
	Y.2	,571	0.065	Valid
	Y.3	,717	0.065	Valid
	Y.4	,747	0.065	Valid
	Y.5	,805	0.065	Valid
	Y.6	,746	0.065	Valid
	Y.7	,776	0.065	Valid
	Y.8	,766	0.065	Valid
	Y.9	,768	0.065	Valid
	Y.10	,675	0.065	Valid
	Y.11	,756	0.065	Valid

Source: SPSS 24.0 *for Windows output* based on results research, 2023

Based on the validity test in Table 3, all the statement items used to measure each variable in the study were valid. This can be seen as the *r-count value* being greater than *the r table value*.

4.2.2. Reliability Test

Reliability testing was performed to determine the consistency of the measuring instruments. In this case, a reliability test was conducted to show the extent to which the measuring instrument could be trusted to produce consistent results. In general, an instrument is said to be good if it has a *Cronbach's alpha coefficient* > 0.6, and the research questionnaire is declared reliable. The reliability test calculation results with a sample of 99 respondents are shown in the following table:

Table 4. Reliability Test Results

Variable	*Cronbach's alpha*	Information
E-Library (X1)	0.796	Reliable
Competence Employees (X2)	0.866	Reliable
Quality Service (Y)	0.930	Reliable

Source: SPSS 24.0 *for Windows* output based on research results, 2023

Table 4 shows that *the Cronbach's alpha* of the variable *e-library* is 0.796, the variable competence employee equal to 0, 866, and the variable service quality is 0.930. This means that the item statement in the questionnaire all variable This reliable Because have mark *cronbach's alpha* more big of 0.6.

4.2.3. Test Assumptions Classic

4.2.3.1. Data Normality Test

A data normality test was performed to determine whether the data were normally distributed or not. Data normality tests were performed using standardized residual histograms and *PP plots*. The

normality test aims to test the independent variables and independent variables, namely *E-Library* (X1), Employee Competency (X2), and Service Quality (Y), all of which have a normal distribution. The following is a graph of the data normality test on pp-plot:

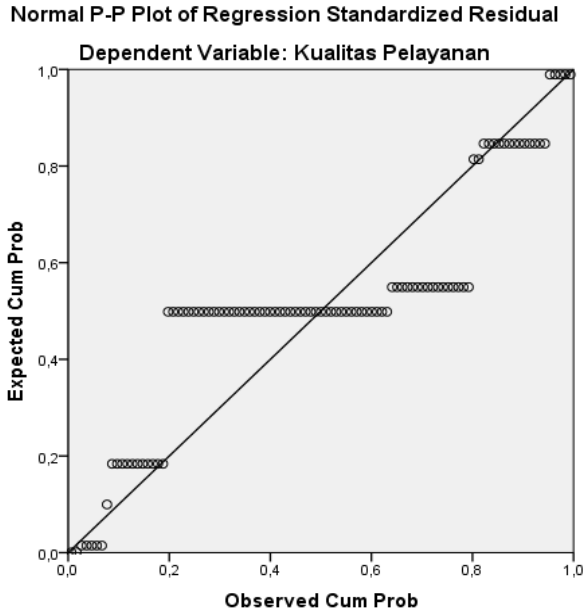

Figure 2. Data Normality Test Results a
Source: SPSS 24.0 *for Windows* output based on research results, 2023

In a normal graph plot, the dots are spread around the diagonal line, and the distribution follows the diagonal line. Based on this, the data were normally distributed.

4.2.3.2. Heteroscedasticity Test

The heteroscedasticity test aims to determine whether the regression model has unequal *variance* in the residuals of other observations. Heteroscedasticity shows that the variation in a variable is not the same for all observations. In heteroscedasticity, the errors that occur are not random but show a systematic relationship according to the magnitude of one or more variables. Based on the data processing results, the *scatterplot results* are shown in the following image:

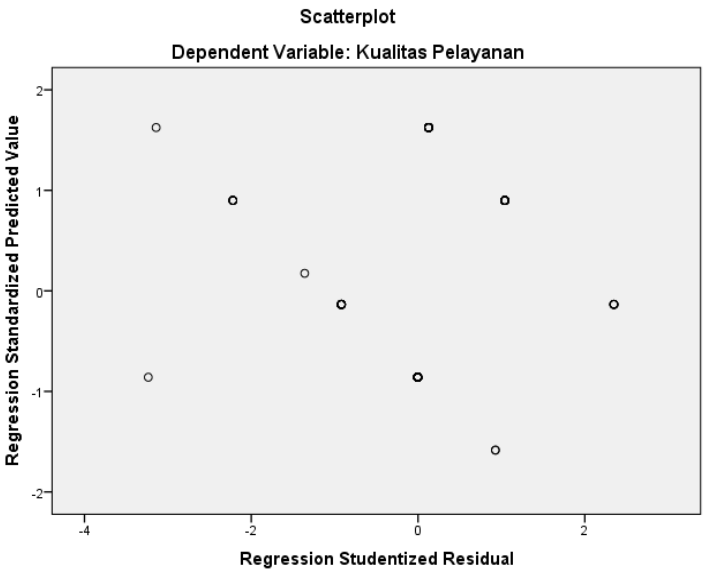

Figure 3. Heteroscedasticity Test Results
Source: SPSS 24.0 *for Windows* output based on research results, 2023

The *scatterplot* in the image above shows that the dot, dot, dot spread in a random way, as well spread well above or under number zero on the Y-axis. This indicates that there was no heteroscedasticity in the regression model.

4.3. Multiple Linear Regression Analysis

After testing the validity and reliability of the data, we concluded that the model could be used to test multiple regression analysis. This test is intended to test variations in a regression model used to explain the independent variables (X1 and X2) on the dependent variable (Y), namely, the significance of the regression coefficient. The results of the research data processing using SPSS 24 *for Windows* are shown in the multiple linear regression analysis test table below:

Table 5. Analysis Results Multiple Linear Regression

Model	Unstandardized Coefficients	t	Sig
	B		
Constant	0.161	,458	,648
E-Library (X1)	0.280	4,555	,000
Competence Employees (X2)	0.680	10,198	,000

Source: SPSS 24.0 *for Windows output* based on results research, 2023

Based on Table 5, the service quality variable is influenced by the e-library *variable* and employee competency, so that the form of a multiple linear equation can be obtained as follows:

Y = a + b1X1 + b2X2

Information:
X1 = *E- Library*
X2 =Employee Competency
Y = Service Quality
b1 = coefficient *e- library*
b2 = employee competency coefficient
a = Costanta
Y = 0.161 + 0.280X1 + 0.680X2

Based on the results of the regression equation above, it can be seen that the values
(a) = 0.161, this means that without the influence of *the e-library variables* and employee competence, the level of service quality is 0.161 or has a positive value. The coefficient value of *the e-library variable* (X1) was 0.280, and that of employee competency (X2) was 0.680. This implies that all independent variables in this study were positive. Therefore, it can be explained that the more complete the *e-library collection,* the manager's ability to direct it, and the ease in accessing the collection, the higher the quality of service. Likewise, the higher the employee competence, the better the service quality.

4.3.1. Hypothesis test

Table 6. Partial test results (t test)

Model	Unstandardized Coefficients	Q	Sig
	B		
Constant	0.161	0.458	0.648
E-Library (X 1)	0.280	4,555	0,000
Competence Employee (X 2)	0.680	10,198	0,000

Source: SPSS 24.0 *for Windows* output based on research results, 20 2 3

The t-test was used to determine whether each independent (explanatory) variable, on its own, significantly explained the variation in the dependent variable. An independent variable is considered

to have a significant partial effect if the t-value is greater than the critical t-table value in the positive direction or smaller than the critical value in the negative direction. In this study, the significance level was set at $p < 0.05$. Based on the SPSS output in Table 6, the E-Library variable (X1) has a t-value of 4.555 and a significance value of 0.000, which is less than 0.05. This indicates that H1 is accepted, meaning that e-library services have a positive and statistically significant effect on service quality, supported by the fact that 4.555 exceeds the t-table value of 1.660. Likewise, employee competency also shows a significance value of 0.000 (below 0.05) and a t-value of 10.198, which is greater than 1.660. This confirms that H2 is accepted and that employee competency has a positive and significant effect on service quality.

4.3.2. Determination Coefficient Test R 2 (Determination Coefficient)

The determination test aims to determine how large the independent variable can explain the dependent variable; it is necessary to know the value of the coefficient of determination (Adjusted *R-Square*). The results obtained using the SPSS program are presented in Table 7.

Table 7. Determination Test R^2 (Coefficient of Determination)

Model	R	*R Square*	*Adjusted R Square*
1	,781 [a]	,610	,602

Source: SPSS 24.0 *for Windows* output based on research results, 2023

The determinant test results show that the R *Square coefficient value* (R2) for Model 1 is 0.610 or 61%. An *R-squared (R2) value of 1* indicates that the relationship between the independent variables influences the dependent variable, namely, *e-library* (X1) and employee competency (X2), which jointly contribute 61% to the dependent variable, service quality (Y). The remaining 39% were influenced by other variables not examined in this study.

4.4. Discussion

Discussing the results in research that tests the determination of service quality as described above, there are several things that can be explained in this research, namely as follows:

4.4.1. E- Library (X1) is Influential Positive and Significant to Quality Service

Research result show that there is influence positive and significant in a way partial e-library against quality service This seen based on mark significant 0,000 less from 0.05. This matter because e-library (digital library) provides convenience visitors access or browse required collection. One of the ceilings used in Digital Library (e-library) is Inhlis Lite (Integrated Library System). Systems This makes things very easy for visitors because it is integrated with digital collection services, an online public access catalog (OPAC), visitor statistics, and circulation. Apart from the Inhlis Lite application, there is also the Digilib application, which was created by the Muhammadiyah University of Makassar library. This application makes it easy for visitors to search repository collections containing theses, dissertations, and lecturers' works.

This research is in line with research conducted by Dewantari and Sujana (2021) and Suprianti and Sadad (2016), who examined Electronic Library Service Quality in Ganesha Bali and Riau Province regional libraries. The findings of this research indicate that the quality of service is generally considered quite good, but there is still a need to improve the availability of reading materials in the library. The difference between previous research and the research that the author conducted is that the previous researcher only studied one variable, X, namely, the e-library. Meanwhile, the author conducted research on two X variables, namely, e-libraries and employee competency. Previous studies have examined the quality of the system used. Meanwhile, the research conducted by the author looked at the influence of system usefulness in e-libraries (digital libraries).

4.4.2. Employee Competency has a Positive and Significant Effect on Service Quality

The results of the study show that there is a partial positive and significant influence between employee competence and service quality**,** with a significance value of 0.000, which is less than 0.05. This implies that the better the employees' competence, the higher the service quality. This can also be explained by

the fact that employees are capable, skilled, patient, and willing to provide services. This can be proven from the answers to the questionnaire statements, where the average answer was positive. Competence reflects an employee's self-quality, with the understanding that good self-quality will provide good service. The employee has completed the theory and will try to apply it to improve the performance of the organization in which he works. This study is in line with the research conducted by Nadhifah (2020) and Syahruramadhan (2024), who found that variables explaining librarian competence influence service quality.

5. Conclusions

5.1. Conclusion

Based on the results of the research and data analysis described in the discussion chapter, the following conclusions can be drawn: *e-libraries* have a positive and significant influence on the quality of service at the Makassar Muhammadiyah University Library, as evidenced by a significance level of <0.05. Employee competency has a positive and significant effect on service quality at the Makassar Muhammadiyah University Library, as indicated by a significance level of <0.05. The determinant test results show that the R *Square coefficient value* (R2) is 0.610 or 61%, so the R Square value (R2) can be explained that *the e-library* and employee competence together influence the quality of service at the Muhammadiyah University Library in Makassar by 61%. The remaining 39% were influenced by other variables not examined in this study.

5.2. Suggestions

Based on the findings of this study, several practical recommendations can be made to improve the quality of e-library services at Muhammadiyah University of Makassar. First, the university should continue to invest in the development of both e-library infrastructure and employee competence, ensuring that all staff members receive regular training in the latest digital technology. This is critical for maintaining a high level of service quality in a rapidly changing digital environment. Additionally, the university could explore the integration of more interactive features in the e-library system, such as user feedback mechanisms and personalized recommendations to enhance the overall user experience.

For future research, it is recommended to expand the study to include multiple university libraries across different regions to assess the generalizability of these findings. Further studies could also investigate the role of digital literacy among library users and how it interacts with e-library effectiveness. Exploring other factors, such as the availability of updated resources and user satisfaction with specific e-library features, would provide a deeper understanding of the elements that contribute to service quality in academic libraries.

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