The Role of Quality Assurance and Learning Quality in Student Satisfaction with Accessibility as a Mediating Factor for Achieving SDGs 4

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ABSTRACT:
This study addresses the enhancement of higher education service quality in alignment with SDG 4, focused on inclusive and quality education. Accessibility is positioned as a mediating variable, highlighting the role of information technology in supporting learning through e-learning platforms and academic information systems (SIAKAD). The study aims to identify the impact of quality assurance and learning quality on student satisfaction, with accessibility as a mediator. The research gap lies in the limited exploration of the relationships among quality assurance, learning quality, student service satisfaction, and accessibility within office administration education in Java. This study introduces information accessibility as a mediating variable in these relationships. Using a quantitative approach with Partial Least Square Structural Equation Modeling (PLS-SEM), data were collected from 250 students. Findings indicate that Quality Assurance and Learning Quality positively influence Student Satisfaction, with Accessibility strengthening these effects. This study contributes to understanding the factors affecting student satisfaction and offers guidance for higher education institutions to enhance services, thus supporting SDG 4 by fostering more accessible, quality education.

Keywords: Quality Assurance, Learning Quality, Accessibility, Service Satisfaction.

1. Introduction

In the current era of globalization, many universities around the world are trying to obtain accreditation from international bodies (Dangaiso et al., 2022; Pham et al., 2018; Yılmaz & Temizkan, 2022). This effort is carried out in the hope of improving the quality standards of education provided, especially through the integration of information and communication technology in the learning process (Gopal et al., 2021; James & Casidy, 2018; Pham et al., 2018; Wibowo et al, 2024). Through quality assurance based on international standards, universities can establish best practices in the use of

e-learning and other technologies to improve the effectiveness and quality of learning (Dieudonne Justin et al., 2019; Weerasinghe & Fernando, 2018). This not only has an impact on students, but also on the university's global reputation. Quality assurance is a very important issue in the global context, because it affects how universities can integrate technology to achieve internationally recognized education quality standards. In Indonesia, attention to quality assurance in higher education is increasing (Chopra et al., 2019; Hamdan et al., 2021). One of the efforts made is through international accreditation standards, such as AQAS (Agency for Quality Assurance through Accreditation of Study Programs). PTNBH (Legal Entity State Universities) universities are currently massively trying to obtain AQAS accreditation. It is hoped that through the quality assurance process, the quality of learning in higher education can be significantly improved, as well as making it easier for students to access educational services (Chandra et al., 2019; Shehzadi et al., 2021). Ideally, quality assurance and teaching quality in higher education should be aligned and integrated with technology such as e-learning and SIAKAD — with students as the main user of educational services who must be satisfied with the accessibility provided, so that it can improve the learning experience of students. But the reality is that there is still a gap between ideals and reality (Hew et al., 2020; Khan et al., 2022; Maqableh & Alia, 2021). Although many universities have obtained international accreditation, the implementation of quality assurance and technology integration is still not optimal. Many students face obstacles in accessing e-learning and SIAKAD, so that student service satisfaction is also affected. To overcome the problem of declining student service satisfaction, universities need a comprehensive strategy for technology integration, quality assurance, and learning quality (Chopra et al., 2019; Gopal et al., 2021; Yılmaz & Temizkan, 2022). This includes the importance of increased investment and commitment to the development of digital infrastructure, including the procurement of the latest hardware and software, as well as the development of robust networks and security systems. Investment in cloud computing infrastructure and data storage also needs to be considered to improve the accessibility and scalability of the e-learning and SIAKAD systems (Cahyadi et al., 2022; Ferri et al., 2020; Gillis & Krull, 2020). Accessibility in the context of higher education refers to the ease and availability for students to access a variety of educational services, including learning materials, academic information, and assistance from faculty or administrative staff. Good accessibility will allow students to get information and support in the learning process more effectively (Akbari & Pratomo, 2022; Yani et al., 2023) and can affect student service satisfaction, such as easy access to learning materials and academic information improving the student learning experience (Tanjung et al., 2022; Yoon, 2014;Wibowo et al., 2024). By having smooth and fast access, students can make timely decisions, follow study schedules, and complete assignments more efficiently, which can lead to a higher level of satisfaction with the educational services provided. Good accessibility can also strengthen the relationship between students and faculty and administrative staff (Anam, 2023; Putri & Ginardi, 2019; Safkaur, 2023). No less important, the quality of learning has a great influence on student service satisfaction in higher education (Lassoued et al., 2020; Schmitt et al., 2020). The high quality of learning includes various aspects, such as innovative teaching methods, relevant and interesting learning materials, good interaction between teachers and students, and constructive feedback. When students feel that their learning experience meets or exceeds expectations, they tend to feel more satisfied with the educational services provided. In addition, good learning quality can also improve students' understanding and academic achievement (Bianco et al., 2018; Bruno & Dell'Aversana, 2018; Studer et al., 2021). Thus, high learning quality has a significant impact on student service satisfaction in higher education (Bruno & Dell'Aversana, 2018; Saxena et al., 2021). Furthermore, the quality assurance process must be strengthened through periodic evaluations and the collection of feedback from students. Periodic evaluation of existing learning and teaching programs, as well as gathering feedback on students' experiences with education services, can provide valuable insights into areas that need improvement (Chen & Mohamed Mokhtar, 2023; López et al., 2020; Scharager

Goldenberg, 2018). Internationally accredited quality assurance, such as AQAS, has a significant impact on student service satisfaction in higher education. With high quality standards set by AQAS, courses that successfully obtain accreditation give students confidence that they will receive a high-quality education that meets international standards (Alzafari & Ursin, 2019; Cidral et al., 2018; Joo et al., 2018; Tezcan-Unal et al., 2018; Rahmawati et al., 2026). The AQAS accreditation process also encourages universities to continuously improve the quality of their educational services, ensuring that quality standards are maintained or even improved over time, and provides an internationally recognized reputation that can increase student confidence and satisfaction. Thus, AQAS internationally accredited quality assurance contributes greatly to increasing student service satisfaction in higher education (Lucander & Christersson, 2020; My Nguyen et al., 2021). Based on the description above, recent research shows that quality assurance in education can increase learning effectiveness and student satisfaction. However, further research is still needed to identify the factors that affect student service satisfaction specifically in the context of accessibility through e-learning and SIAKAD. Although there have been many studies on the influence of quality assurance and teaching quality on student satisfaction, there are still few studies that focus on the role of accessibility as a mediator, which shows a research gap that needs to be filled to deepen the understanding of the relationship between these variables. Therefore, the novelty of this research is to identify the role of accessibility mediation in the relationship between quality assurance, learning quality, and student service satisfaction. This research is expected to provide new insights and significant contributions to the literature on the quality of education. This research has urgency, because student service satisfaction is important in facing global competition in the world of higher education. By improving accessibility, improving the quality of learning, and having internationally accredited quality assurance, universities can improve their competitiveness and reputation at the international level. The variables of quality assurance, teaching quality, and accessibility have a crucial role in improving the quality of education and are urgent for international accreditation, so a deeper understanding of these variables also contributes significantly to the development of knowledge in the field of office administration education in general. The implications of this research are for universities to continue to innovate in improving the accessibility and quality of educational services and quality assurance, which will not only improve student satisfaction, but also the reputation and competitiveness of the college as a whole.

Quality assurance involves various activities such as curriculum development, staff training, academic evaluation, and the provision of adequate facilities. Theresiawati et al. (2020) show that a comprehensive quality assurance system improves the quality of learning and administration, which has a positive impact on student satisfaction. Student service satisfaction is measured through students' perception of service quality, which includes reliability, responsiveness, assurance, empathy, and physical evidence, in accordance with the SERVQUAL model (Dieudonne Justin et al., 2019). Research by Chandra et al. (2019) supports that positive perceptions of academic and non-academic quality increase student satisfaction. Thus, the hypothesis of this study is that improvement in quality assurance will be directly proportional to the increase in student service satisfaction, supported by the findings of Famiyeh et al. (2018), which show that improving the quality of education has a positive impact on student satisfaction and institutional reputation.

The quality of learning includes aspects such as the effectiveness of teaching methods, the relevance of the curriculum, the competence of lecturers, and the availability of adequate educational resources. A study by Dangaiso et al. (2022) shows that good teaching practices, including active interaction between lecturers and students and constructive feedback, contribute significantly to improving the quality of learning. Research by Theresiawati et al. (2020) found that students who felt a high quality of learning tended to be more satisfied with the educational services they received. Thus, the hypothesis in this study is that improvement of learning quality will be directly proportional to the increase in student service satisfaction, supported

by findings from Pham et al. (2019), which show that a positive overall educational experience has a significant impact on student satisfaction and institutional reputation.

Accessibility includes the ease with which students can access a variety of academic and non-academic services, such as administrative services, library resources, technological facilities, and academic support. According to research by Yılmaz & Temizkan (2022), ease of access to educational resources contributes significantly to a positive learning experience, which in turn increases student satisfaction. A study by Pham et al. (2019) shows that good accessibility to campus services, including response time and quality of interaction with staff, has a significant impact on overall student satisfaction. Thus, the hypothesis of this study states that increased service accessibility will be directly proportional to increased student service satisfaction. Institutions that provide easy and fast access to a wide range of services are expected to see an increase in student satisfaction levels (Brinkerhoff et al., 2018; Dieudonne Justin et al., 2019).

The quality of learning includes various aspects such as teaching methods, relevant curriculum, and lecturer competence. According to a study by De Vincenzi et al. (2018), high quality of learning significantly increases student satisfaction. However, accessibility plays a role as an important mediating variable in this relationship. Research by Tezcan-Unal et al. (2018) shows that good accessibility increases students' perception of learning quality, which in turn increases their satisfaction with educational services.

The following hypotheses are proposed to address the objectives of this study.

H1: Quality Assurance (X1) affects Student Service Satisfaction (Y)

H2: Quality Assurance (X1) affects Accessibility (Z)

H3: Learning Quality (X2) affects Student Service Satisfaction (Y)

H4: Learning Quality (X2) affects Accessibility (Z)

H5: Accessibility (Z) affects Student Service Satisfaction (Y)

H6: Quality Assurance (X1) affects Student Service Satisfaction (Y) through Accessibility (Z)

H7: Learning Quality (X2) affects Student Service Satisfaction (Y) through Accessibility (Z)

2. Methodology

2.1 Research Design

This study uses a quantitative approach, with the type of descriptive and explanatory research that seeks to explain the relationship between the variables. The following is the research design of this study.

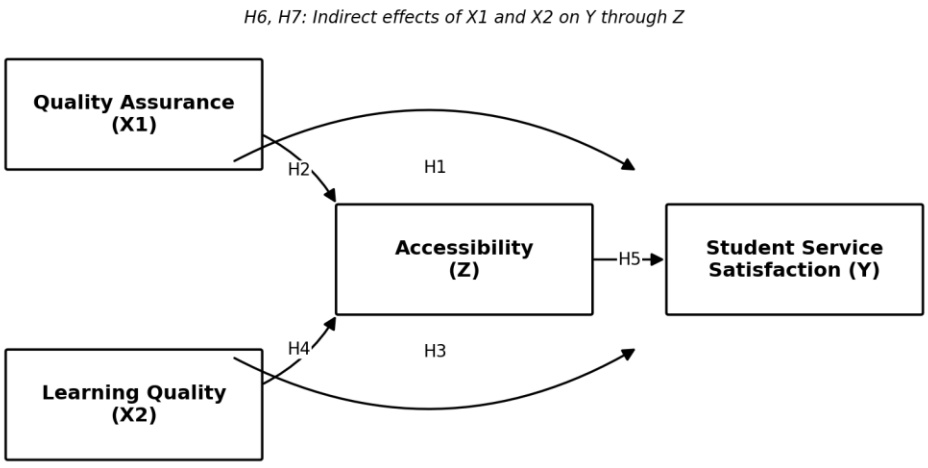

Fig. 1. Research Framework

Source: by Researcher, 2024

2.2 Population and Sample

The population of this study is S1 students of Ex-IKIP office administration education programs in Java. The details of the population data of this study are presented in Table 1.

Table 1. Population of Number of Students

No	College Name	Program Study	Number of Students
1	Universitas Negeri Surabaya	S1 Office Administration Education	761
2	Universitas Pendidikan Indonesia	S1 Office Management Education	410
3	Sebelas Maret University	S1 Office Administration Education	438
	Total		1,609

Source: by Researcher, 2024

In this study, purposive sampling was used with certain criteria, including: (1) students who have completed at least four semesters of coursework, and (2) students who have taken the Micro Teaching course. Based on these criteria, the number of samples determined for this study amounted to 250 respondents.

2.3 Data Analysis

The data collected were analyzed using Structural Equation Modeling – Partial Least Squares (SEM-PLS) with SmartPLS 3.0, which is widely adopted for SEM-PLS analysis. SEM-PLS was selected because the relationship pattern between the variables studied is causal, running from one or more independent variables (Quality Assurance and Learning Quality) to one dependent variable (Student Service Satisfaction), with Accessibility as the mediating variable. This method was also used to test the research hypotheses.

3. Results

3.1 Evaluation of the Outer Model

The analysis steps follow Chin (1999) and Hair et al. (2013, 2020): (1) evaluation of the measurement model (outer model); (2) evaluation of the structural model (inner model); (3) goodness of fit; and (4) hypothesis testing. The measurement model aims to assess the validity and reliability of the model, involving Convergent Validity, Discriminant Validity, and Composite Reliability. Table 2 presents the measurement model results for the Quality Assurance variable (X1).

Table 2. Measurement Model Results for Quality Assurance (X1)

Code	Indicator	Loading Factor	Cronbach's Alpha	CR	AVE
QA1	Adequacy of campus physical facilities (lecture halls, laboratories)	0.777	0.929	0.942	0.669
QA2	Adequacy of information technology facilities	0.760			
QA3	Curriculum designed based on the latest developments	0.822			

QA4	Curriculum includes relevant and adequate courses	0.826
QA5	Evaluation system provides useful feedback	0.860
QA6	Evaluation system provides motivation to learn	0.884
QA7	Lecturer support in research projects	0.862
QA8	Lecturer support in community service projects	0.739

Source: by Researcher, 2024

Based on Table 2, all indicator items for the Quality Assurance variable (X1) have loading factors ranging from 0.739 to 0.884, above the threshold of 0.70. Table 3 shows the measurement model results for the Learning Quality variable (X2).

Table 3. Measurement Model Results for Learning Quality (X2)

Code	Indicator	Loading Factor	Cronbach's Alpha	CR	AVE
LQ1	Examples/illustrations help understand material	0.900	0.956	0.963	0.721
LQ2	Materials delivered in a logical, structured order	0.856			
LQ3	Technology use in learning aids understanding	0.878			
LQ4	Technology use increases learning engagement	0.916			
LQ5	Quality of support facilities/infrastructure	0.874			
LQ6	Physical classroom facilities allow comfortable study	0.859			
LQ7	Actively seeks feedback from lecturers/peers	0.853			
LQ8	Attends relevant extracurricular activities/seminars	0.718			
LQ9	Lecture material enables active participation	0.892			
LQ10	Lecture material enables application of concepts	0.722			

Source: by Researcher, 2024

Based on the convergent validity test using SmartPLS 3.0, the 10 indicators of Learning Quality (X2) have loading factors ranging from 0.718 to 0.916, all above 0.70. Table 4 shows the measurement model results for the Accessibility variable (Z).

Table 4. Measurement Model Results for Accessibility (Z)

Code	Indicator	Loading Factor	Cronbach's Alpha	CR	AVE
AC1	Lecture schedules/announcements easily accessible	0.803	0.933	0.945	0.681
AC2	Lecturers, staff, and libraries easy to contact	0.810			
AC3	Reference materials use accessible language	0.782			
AC4	Information needed is clear and complete	0.835			
AC5	Information easily found on the university website/portal	0.876			
AC6	Academic information system interface is easy to understand	0.823			
AC7	Academic staff respond quickly to questions/needs	0.779			
AC8	Communication system provides an efficient response	0.888			

Source: by Researcher, 2024

Based on the convergent validity test, the 8 indicators of Accessibility (Z) have loading factors ranging from 0.779 to 0.888, above 0.70. Table 5 shows the measurement model results for the Student Service Satisfaction variable(Y).

Table 5. Measurement Model Results for Student Service Satisfaction (Y)

Code	Indicator	Loading Factor	Cronbach's Alpha	CR	AVE
SS1	Academic staff are responsive and ready to help	0.727	0.936	0.946	0.663
SS2	Staff response improves comfort and satisfaction	0.827			
SS3	Satisfied with the service's ability to respond to needs	0.780			
SS4	Services consider student preferences and desires	0.865			
SS5	Administrative process provides convenience	0.878			
SS6	Well supported in administrative procedures	0.882			
SS7	Satisfied with material delivered by lecturers	0.796			
SS8	Lecturers use varied teaching methods	0.775			

SS9	Lecturers facilitate interaction and discussion	0.785

Source: by Researcher, 2024

Based on the convergent validity test, the 9 indicators of Student Service Satisfaction (Y) have loading factors ranging from 0.727 to 0.878, above 0.70. Table 6 shows the results of the Fornell-Larcker discriminant validity test.

Table 6. Fornell-Larcker Discriminant Validity Test Results

Variable	Accessibility (Z)	Student Service Satisfaction (Y)	Learning Quality (X2)	Quality Assurance (X1)
Accessibility (Z)	0.825			
Student Service Satisfaction (Y)	0.646	0.814		
Learning Quality (X2)	0.766	0.709	0.849	
Quality Assurance (X1)	0.808	0.638	0.749	0.818

Source: by Researcher, 2024

3.2 Evaluation of the Inner Model

Table 7 presents the Variance Inflation Factor (VIF) coefficients for Quality Assurance (X1), Learning Quality (X2), Accessibility (Z), and Student Service Satisfaction (Y). All coefficients are below 5.00, indicating no collinearity issues (Hair et al., 2013), and therefore all indicators for the constructs tested are valid.

Table 7. Variance Inflation Factor (VIF) Coefficients

Variable	Accessibility (Z)	Student Service Satisfaction (Y)	Learning Quality (X2)	Quality Assurance (X1)
Accessibility (Z)		3.466		
Learning Quality (X2)	2.277	2.746		
Quality Assurance (X1)	2.277	3.259		

Source: by Researcher, 2024

The path coefficient test was processed using 500 bootstrapped samples. Table 8 shows the path coefficient (β) values for the seven hypothesized relationships between variables.

Table 8. Path Coefficient Test Results

Variable Relationship	Path Coefficient (β)
Accessibility (Z) → Student Service Satisfaction (Y)	0.158
Learning Quality (X2) → Accessibility (Z)	0.368
Learning Quality (X2) → Student Service Satisfaction (Y)	0.467
Quality Assurance (X1) → Accessibility (Z)	0.532

Quality Assurance (X1) → Student Service Satisfaction (Y)	0.160
Learning Quality (X2) → Accessibility (Z) → Student Service Satisfaction (Y)	0.058
Quality Assurance (X1) → Accessibility (Z) → Student Service Satisfaction (Y)	0.084

Source: by Researcher, 2024

Table 9 shows the R-Square (R^2) test results for the Accessibility (Z) and Student Service Satisfaction (Y) variables.

Table 9. R-Square (R^2) Test Results

Variable	R Square
Accessibility (Z)	0.711
Student Service Satisfaction (Y)	0.536

Source: by Researcher, 2024

Table 10 shows the effect size (f^2) test results of each latent predictor variable on the structural model.

Table 10. F-Square (f^2) Effect Size Test Results

Variable	Accessibility (Z)	Student Service Satisfaction (Y)	Learning Quality (X2)	Quality Assurance (X1)
Accessibility (Z)		0.016		
Learning Quality (X2)	0.206	0.171		
Quality Assurance (X1)	0.431	0.017		

Source: by Researcher, 2024

The predictive relevance (Q^2) formula used in this study is as follows:

$$Q^2 = 1 - (1 - R^21)(1 - R^22)$$

$$Q^2 = 1 - (1 - 0.711)(1 - 0.536) = 0.865 > 0$$

Based on the test results, the Q^2 value for the model is greater than 0, indicating that the model has predictive relevance. This study proposes seven hypotheses, summarized in Table 11.

Table 11. Hypothesis Testing Results

Relationship	T-Statistics	Sobel Test	P-Values
Direct Effects			
Accessibility (Z) → Student Service Satisfaction (Y)	2.202	–	0.028
Learning Quality (X2) → Accessibility (Z)	5.392	–	0.000
Learning Quality (X2) → Student Service Satisfaction (Y)	9.272	–	0.000
Quality Assurance (X1) → Accessibility (Z)	8.550	–	0.000
Quality Assurance (X1) → Student Service Satisfaction (Y)	2.519	–	0.012
Indirect Effects			

Learning Quality (X2) → Accessibility (Z) → Student Service Satisfaction (Y)	–	1.995	0.047
Quality Assurance (X1) → Accessibility (Z) → Student Service Satisfaction (Y)	–	2.174	0.030

Source: Raw data processed by researchers, 2024

Figure 2 presents the research findings model, which meets a good level of goodness of fit.

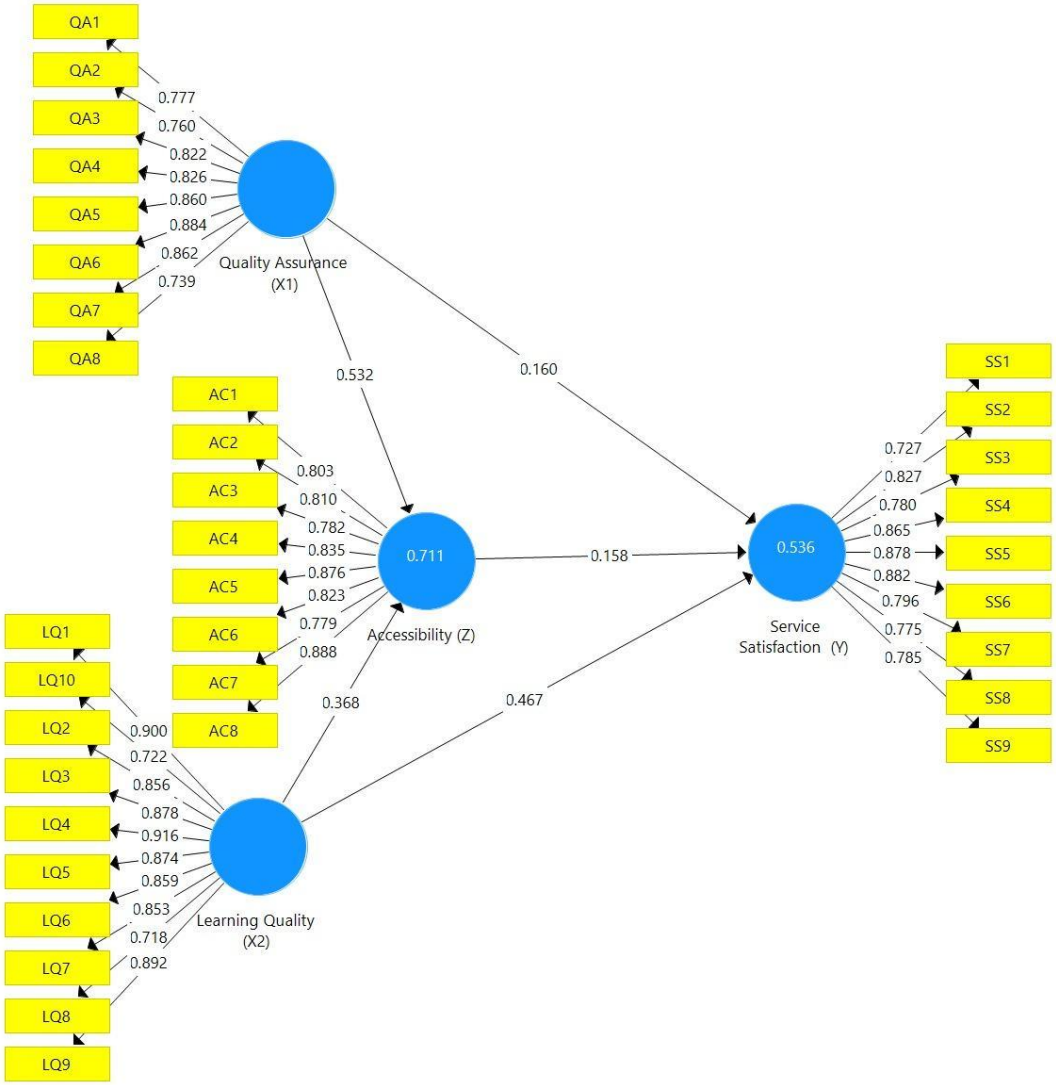

Fig. 2. Model Outer Loading

4. Discussion

The discussion is based on the empirical findings, theories, and a number of relevant previous studies that support this research.

4.1 The Effect of Quality Assurance (X1) on Student Service Satisfaction (Y)

This study revealed that quality assurance has a significant influence on the service satisfaction of S1 students in the Ex-IKIP Office Administration Education program in Java. The better the quality assurance implemented, the higher the level of student satisfaction with the services received. These results are consistent with the findings of Yılmaz & Temizkan (2022), which show that the implementation of a comprehensive quality assurance system can improve service quality and user satisfaction with education services. Effective quality assurance, characterized by adequate physical facilities such

as lecture halls, laboratories, and information technology facilities, supports an effective learning process and improves student comfort (Chandra et al., 2019; Dieudonne Justin et al., 2019; Weerasinghe & Fernando, 2018). The curriculum designed with attention to the latest developments in Office Administration Education also plays an important role in increasing student service satisfaction. A study by Famiyeh et al. (2018) demonstrates that a relevant, up-to-date curriculum helps students develop personal and professional abilities, which ultimately increases satisfaction with the course of study. In addition, support from lecturers in research and community service activities greatly affects student service satisfaction. Lecturers who play an active role as supervisors, provide direction and motivation, and assist in the preparation and implementation of research contribute positively to the student learning experience, consistent with Pham et al. (2019), who state that positive interaction between students and lecturers increases student satisfaction with academic services. Thus, good quality assurance, a relevant curriculum, an effective evaluation system, and adequate lecturer support collectively increase student service satisfaction in the Ex-IKIP Office Administration Education program in Java.

4.2 The Effect of Quality Assurance (X1) on Accessibility (Z)

Quality assurance plays a critical role in improving accessibility within higher education environments. Ensuring the quality of services guarantees that students can easily and effectively access various learning resources and academic services, ultimately supporting an optimal learning experience. According to Jesry et al. (2022), effective quality assurance directly contributes to the development of accessibility to academic facilities, including e-learning and academic management systems that are essential for facilitating student engagement. This is also in line with the goal of SDG 4, which focuses on providing inclusive and quality education for all, where quality assurance becomes a fundamental component to ensure that access to education is not limited to physical aspects but also encompasses systemic and technological support that allows effective learning to take place. Moreover, quality assurance helps institutions provide consistent accessibility to educational resources and services. A study by My Nguyen et al. (2021) shows that institutions with strong quality assurance mechanisms tend to have better accessibility systems, enabling more equitable education and reaching a broader range of students. Thus, quality assurance can be seen as a proactive effort to ensure that all students, without exception, can access quality education that meets the global demand for educational equality.

4.3 The Effect of Learning Quality (X2) on Student Service Satisfaction (Y)

This study found that the quality of learning had a significant effect on the service satisfaction of S1 students of former IKIP Office Administration Education in Java. These findings are consistent with research by Othman et al. (2021) and Özkan et al. (2020), which shows that good learning quality increases student satisfaction. Good delivery of learning materials, with relevant examples or illustrations as well as a logical and structured sequence, facilitates students' understanding and increases their satisfaction. The relevance of the material to students' daily lives or fields of study also motivates them to study the material more deeply (Azizah et al., 2020; Dieudonne Justin et al., 2019; Sudirman et al., 2023). A good learning environment, including the quality of supporting facilities and infrastructure such as libraries, laboratories, and classroom facilities, also affects student satisfaction. Adequate facilities create a conducive environment for learning and increase the comfort and motivation of students to actively participate. Research by Chandra et al. (2019) shows that good facilities and a positive learning environment can increase student engagement and satisfaction. Thus, a good learning environment, quality of learning, and effective application of technology are important factors that contribute to increasing student service satisfaction in higher education.

4.4 The Effect of Learning Quality (X2) on Accessibility (Z)

The quality of learning directly influences the level of accessibility students have to materials and learning resources. In higher education, quality learning is marked by adaptive teaching methods, the use of relevant information technology, and the availability of resources that meet students' needs. Research by Schmitt et al. (2020) shows that high-quality learning creates a more open and accessible learning environment for students. As a result, institutions that focus on enhancing the quality of learning also directly support student accessibility in terms of access to digital materials, online learning platforms, and integrated academic information systems. This aligns with the goals of SDG 4, which aims to ensure quality education through innovative and inclusive approaches. Furthermore, high-quality learning drives more equitable and inclusive accessibility to education. According to Saxena et al. (2021), when the quality of learning is improved through the use of technology and responsive teaching strategies, accessibility to education also increases because students can more easily access learning materials anytime and anywhere. With enhanced accessibility, students have greater opportunities to gain comprehensive and meaningful learning experiences, making quality learning a catalyst for achieving inclusive and quality education in line with the vision of SDG 4.

4.5 The Effect of Accessibility (Z) on Student Service Satisfaction (Y)

Based on the results of the hypothesis test, quality assurance had a significant influence on the service satisfaction of S1 students of Ex-IKIP Office Administration Education in Java, with accessibility playing a role as a partial mediator. Good quality assurance is proven to increase student service satisfaction through increased accessibility. This is in line with the findings of Dangaiso et al. (2022), which show that the effective implementation of quality assurance improves the quality of education and services, which in turn increases student satisfaction. Accessibility plays an important role in strengthening the relationship between quality assurance and student service satisfaction. Good accessibility, such as the availability of clear academic information and an easy-to-navigate academic portal website, helps to improve students' perception of quality assurance. A study by Pham et al. (2018, 2019) supports this, showing that improving the accessibility of campus services and facilities can reduce barriers for students, thereby increasing experience and satisfaction. In conclusion, good accessibility increases the effectiveness of quality assurance in creating student service satisfaction.

4.6 Indirect Effect of Quality Assurance (X1) and Learning Quality (X2) on Student Service Satisfaction (Y) through Accessibility (Z)

The results of the hypothesis testing show that there is a significant influence of quality assurance on service satisfaction for S1 students of Ex-IKIP Office Administration Education in Java, mediated by accessibility. This means that good quality assurance can create student service satisfaction mediated by accessibility, with accessibility having an effective role as a partial mediator between quality assurance and student service satisfaction (Dieudonne Justin et al., 2019; Khan et al., 2022; Pham et al., 2019). The availability of clearly readable academic information, an easy-to-navigate university academic portal website, and an easy-to-understand interface encourage the improvement of quality assurance, particularly in the aspects of facilities and infrastructure, thereby increasing student service satisfaction. Similarly, the results show a significant influence of learning quality on service satisfaction, mediated by accessibility, with accessibility acting as a partial mediator between learning quality and student service satisfaction (Hew et al., 2020; Shehzadi et al., 2021; Toropova et al., 2021). The responsiveness and speed of academic staff and lecturers in addressing student questions and needs, together with a fast and efficient communication and information system, create a comfortable learning environment that increases the achievement of student learning outcomes and, ultimately, student satisfaction.

5. Conclusion

Based on the research findings, it can be concluded that Quality Assurance (X1), Learning Quality (X2), and Accessibility (Z) have a positive and significant impact on Student Service Satisfaction (Y). The higher the Quality Assurance and Learning Quality, the greater the level of student satisfaction, both directly and through the mediation of Accessibility. This highlights the importance of integrating teaching quality and accessibility systems to enhance students' learning experiences, which supports the achievement of SDG 4 on inclusive and quality education. The contribution of this research suggests that higher education institutions, especially in the S1 Office Administration Education program at former IKIP universities in Java, should strengthen their Quality Assurance systems with a focus on accessibility. Developing easily accessible information systems and user-friendly academic portals can improve service quality and ensure more inclusive education. Collaboration between IT departments, academic administration, and student services is key to creating a responsive education system that increases student satisfaction, in alignment with the goals of SDG 4.

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7. Author Declaration

7.1 Ethical Considerations

The ethics committee has given the ethical permission for this research under the protocol number 345/ UN38/HK/2004. The Declaration of Helsinki and received approval from the Research Ethics Committee of Universitas Negeri Surabaya, Indonesia. Written informed consent was obtained from all participants. Participation was voluntary, participants could withdraw at any time without penalty, and all data were collected anonymously and used solely for research purposes.

7.2 Use of Artificial Intelligence (AI)

The authors declare that ChatGPT (OpenAI) was used solely for language refinement, grammar checking, and readability improvement during manuscript preparation. The use of AI did not influence the study design, data collection, data analysis, interpretation of findings, or scientific conclusions. All scientific content and final manuscript decisions remain the full responsibility of the authors.

7.3 Conflict of Interest

The authors declare no conflicts of interest.

7.4 Funding

This research received financial funding from Universitas Negeri Surabaya.

7.5 Originality

The authors confirm that this manuscript is original, has not been published elsewhere, and is not under review by another journal.

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