Strategic Integration: Assessing the Influence of Academic Information Systems on Student Loyalty and Campus Facilities

Rolyana Ferinia Pintauli[1]*, Laverin Imelda Girsang[2]
[1,2]Universitas Advent Indonesia
Email: rolyana.pintauli@unai.edu

Abstract

Due to a lack of commitment during studying, students cannot complete their educational requirements on time. This study examines how an academic information system affects student loyalty to campus facilities as a mediating variable. Data collection for this study was done quantitatively using questionnaires and interviews—a non-probability sample of 73 people filled out the questionnaire. The data analysis method used in this study is PLS-SEM. First, the findings show that academic information systems do not significantly impact student loyalty. Second, campus facilities are significantly impacted by academic information systems. Third, school facilities have a significant impact on how loyal students are. Fourth, campus facilities significantly affect how academic information systems and student loyalty are related. This study's novelty is that to cultivate student loyalty, and it is crucial to adopt a simple, real-time multimedia technology to promote learning.

Keywords*: Academic Information System, Campus Facilities, Student Loyalty*

Abstrak

Karena kurangnya komitmen selama belajar, siswa tidak dapat menyelesaikan persyaratan pendidikannya tepat waktu. Penelitian ini mengkaji bagaimana sistem informasi akademik mempengaruhi loyalitas mahasiswa terhadap fasilitas kampus sebagai variabel mediasi. Pengumpulan data untuk penelitian ini dilakukan secara kuantitatif dengan menggunakan kuesioner dan wawancara—sampel non-probabilitas sebanyak 73 orang yang mengisi kuesioner. Metode analisis data yang digunakan dalam penelitian ini adalah PLS-SEM. Pertama, temuan menunjukkan bahwa sistem informasi akademik tidak berdampak signifikan terhadap loyalitas mahasiswa. Kedua, fasilitas kampus sangat dipengaruhi oleh sistem informasi akademik. Ketiga, fasilitas sekolah mempunyai pengaruh yang signifikan terhadap loyalitas siswa. Keempat, fasilitas kampus berpengaruh signifikan terhadap hubungan sistem informasi akademik dan loyalitas mahasiswa. Kebaruan penelitian ini adalah untuk menumbuhkan loyalitas siswa, dan sangat penting untuk mengadopsi teknologi multimedia real-time yang

sederhana untuk mendorong pembelajaran.

Kata Kunci: *Sistem Informasi Akademik, Fasilitas Kampus, Loyalitas Mahasiswa*

Introduction

Education is currently a major priority for some people, and education at the postsecondary level is likewise a top priority (Hutagalung & Ferinia, 2021). Higher education is one of the educational service-producing organizations that society expects to improve human resource quality (Prasetio et al., 2022) through quality educational systems and outcomes (Zulkarnaini & Fatmasari, 2021). As a result, during the learning process, students must build high levels of loyalty to generate added value for themselves, the university, and society.

Student loyalty in the context of education, particularly in higher institutions, refers to students' positive, committed behaviour towards the educational services they get while in college. Student loyalty is critical to a university's sustainability and existence. Students with high levels of loyalty are valuable assets to higher education because they will make favourable recommendations and urge friends, relatives, and other communities to use the educational services they have received (Sri et al., 2007). Student support services, school environment, and educational quality are all elements that influence student loyalty (Martin et al., 2021).

According to Alifah (2022), as many as 601,333 students will drop out by 2020. According to the lecture majors category, the economics group provided the most students to one of the majors with the highest dropout rate in 2020, with as many as 141,393 students (Alifah, 2022).

2020

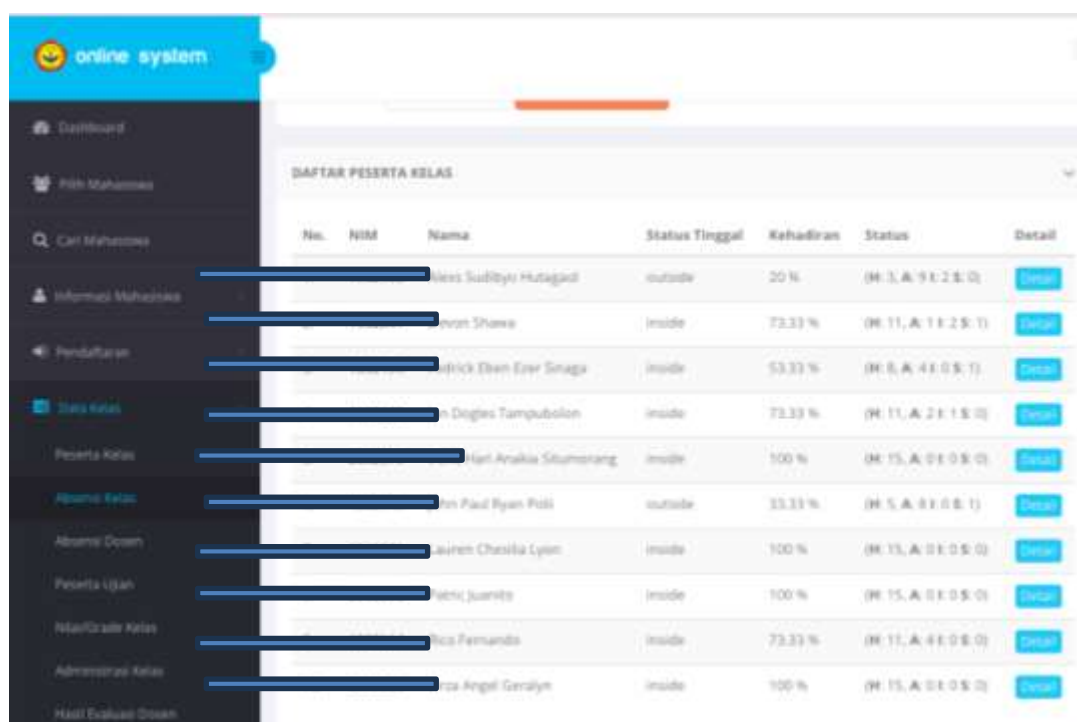|				
160.000				
140.000				
120.000				
100.000				
80.000	141.393	136.272	120.655	115.533
60.000				
40.000				
20.000				26.097
0				
	Ekonomi	Teknik	Pendidikan	Sosial	Pertanian

(Goodstats. id,2022)

Students with high loyalty and positive opinions will be satisfied with the outcomes. As a result, expectations and reality will affect good student loyalty. Meanwhile, students need more loyalty to be satisfied with the results and may even fail (Wahyuningsih, 2018). An example in point is student inactivity in class. In order to achieve good scores, students must also be active. Attendance is also critical for adding value. Attendance at lectures is normally valued at 10% to 15%. Failure to take an examination is a very dangerous cause. Exam scores are

used as a form of assessment in college classes. This exam will determine the principal value after the semester, along with attendance scores, assignments, and midterm exams. Student absences could indicate disengagement or apathy, implying a lack of loyalty if not due to health issues, schedule challenges, or family obligations (Kearney et al., 2022).

The conditions described above exist at the Adventist University of Indonesia (UNAI). According to the observed phenomena, numerous UNAI students are unfaithful in the courses they attend (figure 1). They still need to complete the course. Because of this failure, they will not be able to graduate on time, and their tuition costs will be increased.

Source: Indonesian Adventist University lecturer module
Gambar 1 Example of Student Absence

An academic information system (AIS) is needed to process new students' admission and teaching activities, complete student academic data, academic data of lecturers and education staff, and make management policies (Beatrix Lapalelo et al., 2013). One of the factors that may minimize student absence from class is a well-organized AIS and suitable facilities (Sianipar et al., 2022).

A quality information system's primary responsibility is to turn data into information by entering, processing, and providing users with appropriate information. The system needs networks, data, technology, software, and people to accomplish this. Furthermore, developing an information system aims to satisfy or assist users' needs. An excellent AIS for students can aid in the smooth running of their studies at higher institutions. Students can benefit from adequate academic services in comfort and convenience (Henim & Sari, 2020).

University learning activities necessitate providing facilities that optimize learning (Sianipar et al., 2022). Physical infrastructure, innovative academic and training infrastructure to establish credibility, innovative intellectual property facilities, psychological infrastructure, and network infrastructure are the six crucial facilities that universities must develop to promote growth (Aithal & Aithal, 2019). Likewise, academic activities can be efficiently increased in a conducive environment with suitable infrastructure facilities (Hasan & Hosen, 2020)

Given the importance of student loyalty to graduation timeliness, a well-organized AIS and suitable facilities are two aspects that can promote student loyalty. As a result, the research hypothesis are: 1). The AIS and the campus facilities have a significant effect; 2). Campus facilities have a significant effect on student loyalty; 3). Student information systems have a significant on student loyalty; 4). The AIS have a significant effect on student loyalty through campus facilities.

Academic Information System

An AIS is a system specifically developed to provide convenience to academic services in the university to enhance human resource performance and quality (Amarusu, 2013). According to the Minister of Education and Culture of the Republic of Indonesia's regulation No. 49 of 2014 addressing National Higher Education Standards, the AIS Standards are 1). Friendly to Users. The menu display on the AIS page is intended to be simple to use while conveying crucial information. 2). In compliance with Higher Education requirements. This system is intended to meet the needs of institutions for operations such as course registration, grade transcript forms, maintaining student and lecturer data, and managing study programs. 3). Lowering Operating Expenses. Implementing a system to reduce operational expenses is a step that is regarded as effective for managing academic data, work effectiveness, and costs for purchasing office stationery (ATK). 4). Internet/Network-Based. This AIS improves work cooperation and effectiveness by utilizing a local network (LAN) or the Internet. 5). Consistently created. This system is constantly and systematically modified to increase its capabilities and adapt to the most recent version of the EPSBED reporting system to DIKTI (Departemen Pendidikan dan Kebudayaan Republik Indonesia, 2014).

Academic Facilities

The quality of facilities is essential for universities to satisfy their customers, particularly university students. Quality prospective students, competent instructors, suitable information systems and academic facilities, quality academic services, and effective and efficient teaching and learning methods are all required. These methods implement quality by sustaining something from input to output (Bahrani, 2022). Educational facilities include all movable and immovable facilities (equipment, accessories, materials, and furnishings) that are

directly used in the teaching and learning process to ensure that educational goals are met smoothly, regularly, effectively, and efficiently, such as buildings, classrooms, tables, chairs, as well as teaching media tools, libraries, and parking lots (Indrawan, 2018).

Student Loyalty

Higher education strives to provide good and high-quality educational services as an educational institution. Student loyalty will be generated through providing excellent service. Student loyalty denotes students' dedication to their place of study, satisfaction with their academic experience, and efforts to connect with their university (Education, 2023). Loyalty includes expressing positive things about the company, recommending the company to someone else seeking advice, encouraging friends and relatives to do business with the company, making the company the first choice when purchasing services, and doing more business with the company in the coming years (Ismail, 2015).

Relations Between AIS and Student Loyalty

Several studies have investigated the effect of AIS on student loyalty. According to research conducted at a university with 200 respondents by Permana et al. (2020), boosting the quality of information systems will directly improve student happiness and loyalty. The same findings were discovered in research undertaken by (Kurniawan, 2021). According to a study of 104 students actively engaged in campus AIS, the quality of information systems directly affects user loyalty. Kurniawan's study is supported by Muzakki & Tarigan (2020). The investigation results, which used a smaller sample of 40 respondents, suggest that the academic service system influences student loyalty. According to the research's explanation, this study also seeks to determine whether the research conducted on UNAI students will enhance the theory, namely that there is a strong connection between AIS and student loyalty. The hypothesis is then:
H1: Student information systems have a significant on student loyalty.
H4: Student information systems significantly influence student loyalty through campus facilities.

Relations between Academic Information Systems and Facilities

There needs to be more research tying AIS to facilities. (Sianipar et al., (2022) is one of them.

He stated that the availability of facilities directly impacts the AIS. This argument is supported by Hidayat Rizandi et al. (2023) emphasize the importance of educational facilities in boosting learning success by using suitable learning tools that enhance student effectiveness in absorbing the information provided.

So, tasks for teaching and learning will be more effective, efficient, fun, and important. This is the reason why facilities, infrastructure, and the level of

learning are so important. Since much research has not been done on the link between AIS and facilities, this study demonstrates that an effective academic information system affects the availability of the right facilities. The hypothesis is as follows:

H2: The AIS and the campus facilities have a significant effect

Relations between Facilities and Student Loyalty

Many studies correlate campus facilities to student satisfaction, but no research specifically addresses the effect of facilities on student loyalty. One study found a correlation between facilities and student loyalty through student satisfaction. Ambartiasari et al. (2017) linked service quality, trust, and campus facilities to satisfaction and their effect on student loyalty, indicating that campus facilities influence student loyalty through student satisfaction. Based on past research, this study attempts to determine the direct effect of appropriate campus facilities on student loyalty. The hypothesis is then as follows:

H3: Campus facilities have a significant effect on student loyalty

Research Method

This study utilizes a quantitative method with a correlational design (Sudarmanto et al., 2021). The correlational design examines the measurements of two or more variables to verify or identify the correlations or links existing between them in a given context (Silalahi, 2015). Questionnaires and interviews are used to collect data. The population of this study were 161 students from the Faculty of Economics at the Adventist University of Indonesia, levels 3 and 4. The survey received responses from 73 individuals. Non-probability sampling with accidental procedures is used (Silalahi, 2015). The data gathering method employs a Likert scale questionnaire, with one indicating "never" and five indicating "always."

This study's operational definition includes AIS, facilities, and student loyalty. The AIS has five indicators: user-friendliness, meeting the needs of higher education institutions, lowering operating expenses, web/network-based, and continually improving. One of the statements is, "The UNAI module is designed to be easy to understand". The facility variable consists of two indicators: facilities and infrastructure. One of his statements was, "The classroom is comfortable for carrying out the lecture process." Five things show that a student is loyal to a company: saying good things about the company, recommending it to someone looking for advice, telling friends and family to do business with the company, thinking of the company as the best place to buy goods or services, and completing more work with the organization over the next few years. One of the statements is, "I tell positive things about UNAI,"

SEM-PLS 3.2.9 was used to analyze the data by testing the outer and inner models. The Outer model tests reliability and validity (Cronbah's Alpha, composite reliability, and cross-loading). The inner model is utilized to answer

the hypothesis by measuring the model quality criteria using the path coefficient and R2 value ((Sarwono, 2016).

Results and Discussion
Validity test

A validity test is performed to establish the reliability of the survey data. The test is necessary to show the reliability of the data collected. The validity test makes use of cross-loading and AVE measurements. If the outer loading value is above 0.6 and the AVE is greater than 0.05, the instrument is deemed valid (Budhiasa, 2016a) among the three variables tested for reliability and validity. The AVE variable for facilities is 0.628, the variable for student loyalty is 0.753, and the variable for AIS is 0.664 (table 1).

Table 1 Construct Reliability and Validity

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Facility	0,901	0,909	0,922	0,628
Student Loyalty	0,890	0,918	0,924	0,753
Academic Information System	0,872	0,873	0,908	0,664

Source: SEM-PLS 3.2.9

Cross-loading is considered valid if greater than 0.7 (Sarwono, 2016). The cross-loading of each indicator in this study is greater than 0.7 based on the processed data (table 2).

Tabel 2 Cross Loading

	Facility	Student Loyalty	Academic Information System
Fas1	0,774		
Fas2	0,844		
Fas3	0,820		
Fas4	0,821		
Fas5	0,844		
Fas6	0,722		
Fas8	0,712		
Loy1		0,742	
Loy2		0,889	

Loy3	0,910	
Loy4	0,917	
SIA2		0,881
SIA3		0,843
SIA4		0,780
SIA5		0,773
SIA6		0,791

Source: SEM-PLS 3.2.9

Reliability Test

In this study, the reliability test was measured using two reliability tests: Cronbach's Alpha and Composite Reliability. The reliability test score was determined using Cronbach's Alpha test. The Composite Reliability test is used to determine the real value of the variable. The data is regarded as acceptable if the result of this dependability test is more than 0.7 (Budhiasa, 2016b). Table 1 demonstrates that this study's composite reliability and Cronbach's Alpha are greater than 0.7, indicating that all data is considered reliable.

Inner Model: Hypothesis Testing Direct Effect

The SEM model's significance test using PLS determines the effect of exogenous variables on endogenous variables. The SmartPLS computer application performs the bootstrap procedure when testing hypotheses using the PLS-SEM approach. This study compared the t-table values to the t-statistics obtained from the PLS bootstrapping findings. If the t-statistic value is greater than the t-table value (1,993) with a significance threshold of 5% (p-value 0.05), the hypothesis is accepted (Ghozali, 2013).
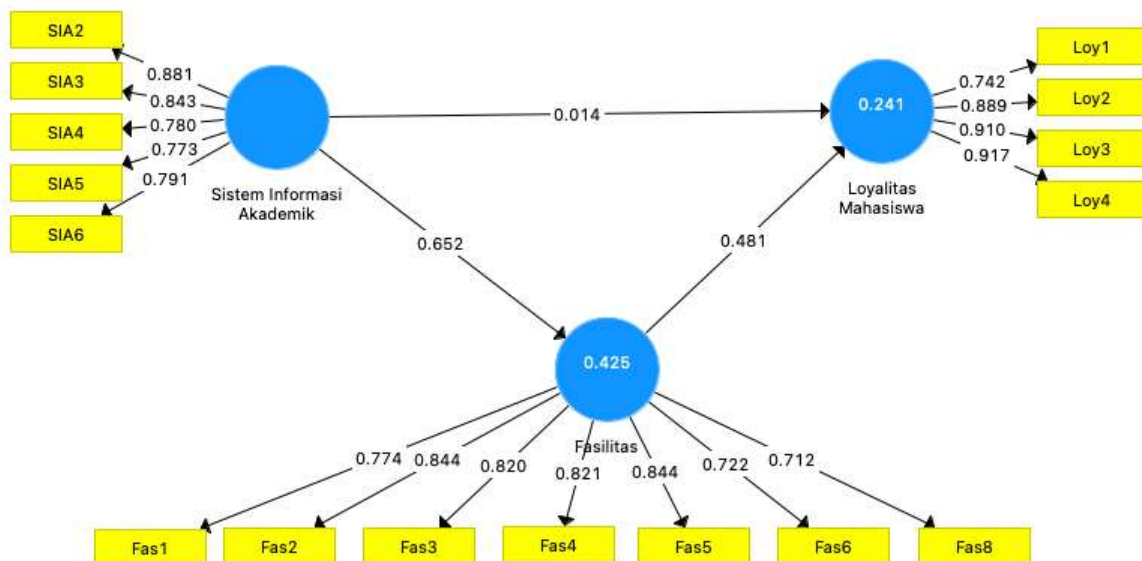

Figure 2 Path Analysis Results

Through the results in Tabel 3, an explanation is obtained regarding the relationship between the variables discussed, so the explanation is explained as follows:

1. The beta score for the influence of AIS on student loyalty with a beta score of $p = 0.014$, with a p-value of 0.913 ($p > 0.05$) and a t- statistic of 0.109 ($p < 1.96$) (table 3). As a result, H1 is rejected. The AIS does not affect student loyalty. It means that UNAI's AIS does not affect student loyalty.AIS have no significant effect on student loyalty at UNAI due to several factors, including institutional image, student satisfaction (Mulyana & Ayuni, 2014), and learning quality (Wardhati, 2014). According to (Anggraini et al. (2020), the AIS is just one-factor affecting student loyalty. Although the information system can facilitate learning administration, it is not a factor in determining student loyalty.

2. The beta score for the influence of AIS on-campus facilities is a positive beta score, $p = 0.652$, with a p-value of 0.000 ($p < 0.05$) and a t statistic of 8,373 ($p > 1.96$) (table 3). As a result, H2 is accepted. The AIS has a significant effect on on-campus facilities. This means that the AIS at UNAI affects the adequacy of campus facilities. AIS play a role in optimizing institutional resources by providing data, concluding systems, and scheduling preferences, among other vital assets (Suharti & Sulistyo, 2018). It indicates that information systems play a supporting function in organization management (Etin Indrayani, 2011).

3. The beta score for the influence of campus facilities on student loyalty got a positive beta score, $p = 0.110$, with a p-value of 0.000 ($p < 0.05$) and a t statistic of 4.385 ($p > 1.96$) (table 3). As a result, H3 is accepted. Campus facilities have a significant effect on student loyalty. It means that the facilities at UNAI affect student loyalty. Several factors contribute to this relationship. According to Muhammad et al. (2014), comfort, health and safety, accessibility and the calibre of infrastructure, provision and adequacy of space, participation and inclusiveness, and a place to interact are the most important factors.

Table 3 Hypothesis Test Results

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Facility -> Student Loyalty	0,481	0,500	0,110	4,385	0,000
Academic Information System -> Facility	0,652	0,665	0,078	8,373	0,000
Academic Information System -> Student Loyalty	0,014	0,015	0,128	0,109	0,913

Source: SEM-PLS 3.2.9

Inner Model: Hypothesis Testing Mediating Effect

The beta score for the influence of student information systems on student loyalty through campus facilities received a positive beta score, p = 0.314, with a p-value of 0.000 (p 0.05) and a t statistic of 3.566 (p > 1.96) (table 4). As a result, H4 is accepted. AIS have a significant effect on student loyalty through campus facilities. It indicates that the UNAI AIS significantly affects student loyalty through campus facilities.

This relationship is expressed by the Real-Time Multimedia Peer-to-Peer Communication system, a combination of information systems and facilities that students require. AIS can also serve as a learning process platform (Nayyef et al., 2018)

Service integration is now a necessity in the digital age. AIS can incorporate campus facility services and facilitate user activity (Tuzahra et al., 2021). A positive user experience will increase customer loyalty.

Table 4 Hypothesis Testing Result with Mediating Effect

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Academic Information System -> Facility -> Student Loyalty	0,314	0,333	0,088	3,566	**0,000**

Source: SEM-PLS 3.2.9

Conclusion

The findings from this study may result in four conclusions. First starters, the AIS is not an essential factor in student loyalty. Other determinants are influenced by various circumstances, including the institution's image, student happiness, and learning quality. Second, the AIS impacts campus facilities since it is a tool for optimizing resources by supplying data. Third, student loyalty is influenced by campus facilities in terms of comfort while studying, health and safety measures, simple access to resources, and a space to communicate. Fourth, AIS have a considerable impact on student loyalty through campus facilities. With real-time multimedia communication and services combined into an easy-to-learn system, the relationship is real.

References

Aithal, P. S., & Aithal, S. (2019). *A New Attitude-Behaviour (Ab) Theory for Acceptable Leaders in Winning*. 67–78.

Alifah. (2022). *Program studi denga Mahasiswa Drop Out Terbanyak di Indonesia*. Goodstats.   https://goodstats.id/article/jurusan-kuliah-dengan-mahasiswa-

do-terbanyak-2021-2Z8VD

Amarusu. (2013). *Sistem Informasi Akademik Sekolah. Medan: Andi.* Andi.

Ambartiasari, G., Rahman Lubis, A., & Chan, S. (2017). Pengaruh Kualitas Pelayanan, Kepercayaan Dan Fasilitas Kampus Terhadap Kepuasan Dan Dampaknya Kepada Loyalitas Mahasiswa Politeknik Indonesia Venezuela. *Jurnal Manajemen Dan Inovasi*, *8*(3), 12–23.

Anggraini, W., Rza, N., Candra, R. M., & Sari, W. U. (2020). Analisis Pada Sistem Informasi Akademik Mahasiswa Menggunakan Metode System Usability Scale. *Jurnal Penelitian Saintek*, *25*, 184–194.

Bahrani. (2022). *Kualitas Layanan Perguruan Tinggi: Komponen dan Metode*. Syiah Kuala Univrersity Press.

Budhiasa, S. (2016a). *Analisis Statistik Multivariate dengan Aplikasi SEM PLS*. Udayana University Press.

Budhiasa, S. (2016b). *Analisis Statistik Multivariate Dengan Aplikasi SEM PLS SMARTPLS 3.2.6*.

Departemen Pendidikan dan Kebudayaan Republik Indonesia. (2014). *Peraturan Menteri Pendidikan dan Kebudayaan Republik Indonesia Nomor 49 Tahun 2014*.

Education, A. (2023). *Dafa. 5*(1), 1–16.

Etin Indrayani. (2011). Pengelolaan Sistem Informasi Akademik Peruruan Tinggi Berbasis Teknologi dan Komunkasi (TIK). *Jurnal Penelitian Pendidikan*, *12*(1), 45–60.

Ghozali, I. (2013). *Model Persamaan Struktural Konsep dan Aplikasi dengan Program Amos 21*. Abadi Progress.

Hasan, M., & Hosen, Md. Z. (2020). University Service Quality. *International Journal of Asian Education*, *1*(3), 135–146. https://doi.org/10.46966/ijae.v1i3.46

Henim, S. R., & Sari, R. P. (2020). User Experience Evaluation of Student Academic Information System of Higher Education Using User Experience Questionnaire. *Jurnal Komputer Terapan*, *6*(Vol. 6 No. 1 (2020)), 69–78. https://doi.org/10.35143/jkt.v6i1.3582

Hidayat Rizandi, Muhammad Arrazi, Asmendri, & Milya Sari. (2023). Pentingnya Manajeman Sarana dan Prasarana Dalam Meningkatkan Mutu Pendidikan. *Akademika: Jurnal Manajemen Pendidikan Islam*, *5*(1), 47–59. https://doi.org/10.51339/akademika.v5i1.745

Hutagalung, S., & Ferinia, R. (2021). Pengaruh dekadensi moral terhadap pendidikan karakter dan bimbingan konseling pada siswa Kristen. *Kurios*, *7*(1), 178. https://doi.org/10.30995/kur.v7i1.217

Indrawan, I. (2018). *Pengantar Manajemen Sarana dan Prasarana Sekolah*. Deepublish.

Ismail, N. (2015). Is giving scholarship worth the effort?Loyalty among scholarship recipients. *Educational Research and Reviews*, *10*(10), 1390–1395. https://doi.org/10.5897/err2015.2225

Kearney, C. A., Benoit, L., Gonzálvez, C., & Keppens, G. (2022). School attendance and school absenteeism: A primer for the past, present, and theory of change for the future. *Frontiers in Education*, *7*(November), 1–17. https://doi.org/10.3389/feduc.2022.1044608

Kurniawan, I. (2021). The Effect Of The Information System Quality, Service Quality, And User Satisfaction On Academic Information System User Loyalty. *Lume*, *10*(05), 5. www.ijstr.org

Martin, Mulyono, S., Pebri, P., Ribka, & Nasib. (2021). *Monograf Membangun Loyalitas Mahasiswa sebagai Upaya Meningkatkan Jumlah Mahasiswa Baru* (Issue April). https://www.researchgate.net/publication/359229868_Monograf_Membang un_Loyalitas_Mahasiswa_Sebagai_Upaya_Meningkatkan_Jumlah_Mahasi swa_Baru

Muhammad, S., Sapri, M., & Sipan, I. (2014). Academic Buildings and Their Influence on Students' Wellbeing in Higher Education Institutions. *Social Indicators Research*, *115*(3), 1159–1178. https://doi.org/10.1007/s11205-013-0262-6

Mulyana, A., & Ayuni, D. (2014). Pengaruh Faktor-Faktor Pembentuk Loyalitas Mahasiswa Universitas Terbuka. *Derivatif, 8*(2), 1–19.

Muzakki, M. A., & Tarigan, Z. J. H. (2020). The Analysis of the Effect of Academic Service Quality on Student Loyalty Through Student Satisfaction and Organizational Performance. *Petra International Journal of Business Studies*, *3*(1), 47–53. https://doi.org/10.9744/ijbs.3.1.47-53

Nayyef, Z. T., Faris Amer, S., & Hussain, Z. (2018). Peer to Peer Multimedia Real-Time Communication System based on WebRTC Technology. *Researchgate.Net*, *7*(February), 125–130.

Permana, A., Aima, M. H., Ariyanto, E., & Nurmahdi, A. (2020). The Effect Of Academic Service Quality On Satisfaction And Loyalty Of Students University. *Jurnal Ecodemica: Jurnal Ekonomi, Manajemen, Dan Bisnis*, *4*(2), 230–241. https://doi.org/10.31294/jeco.v4i2.7979

Prasetio, A. P., Sary, F. P., & Ferinia, R. (2022). *Manajemen Sumber Daya Manusia Strategis*. Diandra Kreatif.

Sarwono, J. (2016). *MENGENAL PLS-SEM*.

Sianipar, M. R., Pakpahan, E., & Manalu, P. (2022). The Role of Quality of

Academic Information Systems and Facilities on Student Loyalty. *Jurnal Manajemen Bisnis*, *13*(2), 185–199. https://doi.org/10.18196/mb.v13i2.13641

Silalahi, U. (2015). *Metode Penelitian Sosial Kuantitatif*. Refika Aditama.

Sri Endah Wahyuningsih. (2007). *Tingkat Loyalitas Mahasiswa Atas Jasa Pendidikan Di Perguruan Tingii*. 131–137.

Sudarmanto, E., Kurniullah, A. Z., Revida, E., Ferinia, R., Butarbutar, M., Abdilah, L. A., Sudarso, A., Purba, B., Purba, S., Yuniwati, I., Hidayatulloh, A. N., HM, I., & Suyuthi, N. F. (2021). *Desain Penelitian Bisnis: Pendekatan Kuantitatif*. Medan:Yayasan Kita Menulis.

Suharti, L., & Sulistyo, P. R. (2018). The implementation of human resources information system and it's benefit for organizations. *Diponegoro International Journal of Business*, *1*(1), 1. https://doi.org/10.14710/dijb.1.1.2018.1-7

Tuzahra, F., Sofendi, S., & Vianty, M. (2021). Technology Integration of the In-Service EFL Teachers: A Study at a Teacher Profession Education Program. *Indonesian Journal of EFL and Linguistics*, *6*(1), 317. https://doi.org/10.21462/ijefl.v6i1.396

Wahyuningsih, S. E. (2018). Tingkat Loyalitas Mahasiswa Atas Jasa Pendidikan Di Perguruan Tinggi. *Lembaran Ilmu Kependidikan*, *36*(2), 131–137.

Wardhati, E. (2014). Faktor-faktor yang Mempengaruhi Loyalitas Mahasiswa. *Jurnal Ilmu Manajemen Dan Akuntansi Terapan (JIMAT)*, *5*(2), 22–28.

Zulkarnaini, Z., & Fatmasari, R. (2021). Pengaruh Layanan Akademik dan Citra Institusi terhadap Loyalitas Mahasiswa Universitas Terbuka. *Aksara: Jurnal Ilmu Pendidikan Nonformal*, *7*(3), 1285. https://doi.org/10.37905/aksara.7.3.1285-1294.2021