

Determination of User Satisfaction of FITK UIN SU Medan Laboratory: Analysis of Laboratory Service Infrastructure and Practical Work

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Abstract: Laboratory facilities and services play an important role in supporting practical learning activities and providing users with an effective learning experience. This study aims to analyze the condition of laboratory infrastructure and services, assess user satisfaction, and examine the influence of infrastructure and services on user satisfaction at the Faculty of Tarbiyah and Teacher Training (FITK), UIN North Sumatra Medan. This research employed a quantitative approach using a survey method. The participants consisted of 100 active students and lecturers who used the FITK UIN North Sumatra Medan laboratory for practical activities and were selected through purposive sampling based on the criterion of having used the laboratory for at least one semester. Data were collected through closed-ended questionnaires, direct observation, and documentation. The data were analyzed using descriptive statistics and inferential statistics, including normality and linearity tests, multiple linear regression, partial t-tests, and the coefficient of determination (R^2). The results of the normality test indicated that infrastructure (X_1), service (X_2), and user satisfaction (Y) were normally distributed, with Kolmogorov-Smirnov significance values of 0.200, 0.200, and 0.200, respectively. The linearity tests also indicated no significant deviation from linearity between infrastructure and user satisfaction (Sig. = 0.230) and between service and user satisfaction (Sig. = 0.174). The multiple linear regression analysis produced the equation $Y = 53.459 + 0.203X_1 + 0.207X_2$. Partially, laboratory infrastructure had a positive and significant effect on user satisfaction ($t = 2.029$; $p = 0.045$), while laboratory service also had a positive and significant effect ($t = 2.067$; $p = 0.041$). The coefficient of determination (R^2) was 0.099, indicating that infrastructure and services jointly explained 9.9% of the variation in user satisfaction, while the remaining 90.1% was explained by other factors outside the research model. These findings indicate that improvements in laboratory infrastructure and service quality are associated with increased user satisfaction. Therefore, sustainable improvement of laboratory facilities, maintenance, staff competence, and service quality is important to support comfortable and effective practical learning activities.

Keywords: *laboratory infrastructure, laboratory service, user satisfaction, practical work*

A. Introduction

Laboratory is one of the facility education that has role strategic in support the learning

and research process at universities high . In the environment Faculty Faculty of Education and Teacher Training (FITK) UIN North Sumatra Medan, laboratory used For support activity practical work as well as give experience learning that is possible student develop skills, thinking critical, and apply theories that have been obtained in class . Improvement amount students and activities academic cause need to facilities and services laboratory the more big. Condition the make quality infrastructure and services as part important from experience users laboratory.

As response to dynamics said, Regulation Financial Services Authority (Report) research that becomes base This article shows that Still there is laboratory that has not been fully fulfil ideal condition, good from side completeness equipment, condition space, as well as availability source Power human. Evaluation to infrastructure and services required For identify strengths and weaknesses facility so that repair can directed at needs user. In perspective learning, facilities laboratory is part from input that influences the learning process, whereas environment comfortable learning and competent staff can support motivation as well as experience practical work student.

In a way conceptual, satisfaction users appear from comparison between expectations and performance services received. Users tend feel satisfied when facilities and services according to or exceed expectations. Therefore, satisfaction users laboratory No only related with availability equipment, but also with quality staff, experience practical, comfort space, and suitability service with need user. Management a good laboratory also requires consistent procedures, maintenance equipment in a way periodic, competence staff, as well as evaluation sustainable through continuous improvement approach.

A number of research listed in report support importance quality facilities and services to satisfaction users . Nuzulul and Andrean (2026), for example, put facilities and quality service as related factors with satisfaction users laboratory. Rozalinda and Wisda (2025) also discuss satisfaction student to availability facilities and infrastructure laboratory . Based on context this research is directed For get description empirical about infrastructure and services FITK UIN North Sumatra Medan laboratory and test influence both of them to satisfaction user .

Based on background behind mentioned, this article focuses on discussion on four Question : (1) How? condition infrastructure FITK UIN SU Medan laboratory ; (2) how service laboratory and practicals ; (3) how satisfaction users to infrastructure and services ; and (4) whether infrastructure and services influential to satisfaction users. Research objectives follow fourth focus namely, describe condition infrastructure and services, knowing satisfaction users, as well as analyze influence second variables free to satisfaction user.

Although previous studies have demonstrated the importance of facilities, infrastructure, and service quality in shaping laboratory user satisfaction, a research gap remains regarding the simultaneous examination of these two aspects in the context of laboratories at the Faculty of Tarbiyah and Teacher Training (FITK), UIN North Sumatra Medan. Nuzulul and Andrean (2026) examined the influence of facilities and service quality on user satisfaction in a computer laboratory, whereas Rozalinda and Wisda (2025) focused on student satisfaction with the availability of laboratory facilities and infrastructure.

However, studies that specifically integrate infrastructure conditions and service quality as predictors of user satisfaction in the laboratories of FITK UIN North Sumatra Medan remain limited. Therefore, this study seeks to address this gap by providing empirical evidence based on laboratory users' perceptions.

The novelty of this study lies in the simultaneous and empirical examination of the influence of laboratory infrastructure and services on user satisfaction in the context of FITK UIN North Sumatra Medan. The study involved 100 laboratory users selected through purposive sampling based on the criterion that they had used the laboratory for at least one semester. Multiple linear regression analysis was employed to determine the influence of each variable and their combined relationship with user satisfaction. The results show that infrastructure and services each have a positive and significant effect on user satisfaction, with significance values of 0.045 and 0.041, respectively. However, the R-square value of 0.099 indicates that these two variables explain only 9.9% of the variation in user satisfaction.

This study provides empirical, practical, and academic contributions. Empirically, the study extends the evidence concerning the relationship between infrastructure quality, service quality, and user satisfaction in the management of higher education laboratories. Practically, the findings can serve as a basis for laboratory managers at FITK UIN North Sumatra Medan to improve facility conditions, equipment maintenance, room comfort, staff competence, practical-work procedures, and service quality. Academically, the relatively low R-square value indicates that laboratory user satisfaction is influenced by various factors beyond infrastructure and services, thereby providing opportunities for future research to examine factors such as user experience, user expectations, procedural convenience, communication quality, environmental comfort, and frequency of laboratory use.

B. LITERATURE REVIEW

Infrastructure and Facilities Laboratory

Supporting the learning and practical process. Laboratory No only functioning as place practice, but also become means for student For develop skills experiment, think critical, and apply theories obtained in class. Adequate facilities in the laboratory will impact directly on effectiveness Study students, as well as increase competence they in field education (Lubis & Budhiawan , 2024).

Input-Process-Output (IPO) Theory in education explain that facility education including laboratory is part from the input to be influence the learning process students (Gunawan, 2017). Effective learning process will produce output in the form of competence more academic Good as well as satisfaction student to experience learn what they natural. In other words, quality laboratory be one of factor key in determine success learning practicum (Ismaniati & Lindra, 2025).

In addition, the Learning Environment theory emphasizes importance environment conducive learning, which includes room comfortable laboratory, complete and modern equipment, as well as staff competent laboratory (Susilo et al, 2025). Environment good

study can push student more active in practical work, improving motivation learn, and maximize experience the lessons learned. This condition will also influence perception student to quality service laboratory.

Laboratory Service Management

Management service laboratory is aspect important in ensure facility laboratory can functioning optimally and supports the learning process. Management service covers management facilities, procedures practical work and quality services received by users , both student and lecturer. Good management will ensure that laboratory Ready easy to use , safe and supportive experience effective practicum (Sulistya & Mahadewi, 2023).

Quality Management in Laboratory (QM) emphasizes a number of aspect main thing that is needed noticed in management laboratory. First, the standard procedure must implemented For every activity practical work to ensure the process runs smoothly consistent and safe. Second, maintenance equipment must done in a way periodically For ensure tool always in condition good and able used in a way maximum. Third, competence staff laboratory must guarded through training and improvement capacity to be able to give professional service and guidance to users (Fahlevi , 2023).

In addition, the Continuous Improvement or PDCA (Plan-Do-Check-Act) approach can implemented For evaluation sustainable (Wulandari & Setiawan, 2024). The PDCA cycle helps laboratory do planning (Plan) for activities and facilities, implementation activities (Do), inspection results and quality (Check), as well as repair sustainable (Act). By implementing PDCA, the laboratory can always adapt service with need users and development technology, so that quality service laboratory Keep going increased (Ningrum & Markama , 2025).

Satisfaction Customer

Satisfaction users is draft main in this research. In general general, satisfaction appear from comparison between hope users and perceptions performance services received (Kotler & Keller, 2009). Users considered satisfied If performance appropriate service or exceed hope and disappointment If performance services below hope.

According to Lovelock & Wirtz (2011), satisfaction is attitude or response users based on experience gained . Sumartini & Tias (2019), added that satisfaction consumer happen when needs and wants they fulfilled with good. Satisfaction is feeling like or No the joy that appears from comparison between impression to performance product or service with hope users (Adhari , 2021).

Indicator satisfaction users laboratory in This research includes :

1. Satisfaction to facility laboratory.
2. Satisfaction to staff laboratory.
3. Satisfaction to experience practicum.
4. Level of suitability service laboratory with hope user

METHODS

This research uses approach quantitative with method survey. Approach the chosen

Because study focus on measurement perception and satisfaction users as well as testing connection between variables infrastructure service laboratory and satisfaction users. Research location is FITK UIN North Sumatra Medan laboratory used For activity practicum. In report, time study planned taking place from April to August 2026.

The population of this study consisted of active students and lecturers at the Faculty of Tarbiyah and Teacher Training (FITK), UIN North Sumatra Medan, who used the faculty's laboratory facilities for practical activities. The population was selected because students and lecturers are the primary users who directly experience the condition of laboratory infrastructure, the services provided by laboratory staff, and the practical learning environment.

The sample consisted of 100 laboratory users. The respondents were selected using purposive sampling based on predetermined criteria relevant to the objectives of the study. Specifically, respondents were required to be active students or lecturers who had used the FITK UIN North Sumatra Medan laboratory for practical activities for at least one semester. This criterion was applied to ensure that respondents had sufficient experience with the laboratory facilities and services to provide informed assessments of infrastructure, service quality, and user satisfaction.

The characteristics of the respondents were therefore defined based on their status as active students or lecturers and their experience in using the laboratory. However, the available research data do not provide further detailed information regarding the distribution of respondents by gender, age, study program, academic level, or the proportion of students and lecturers. Therefore, these characteristics are not reported in this study to avoid presenting unsupported information.

The use of purposive sampling was justified because the study required respondents with direct and relevant experience in using the laboratory. Not every member of the broader academic community had sufficient experience to evaluate the laboratory's infrastructure and services. By applying the criterion of at least one semester of laboratory use, the sampling process ensured that the selected respondents had firsthand experience with the facilities, equipment, laboratory environment, practical-work procedures, and services provided. This approach was therefore consistent with the research objective of examining the relationship between laboratory infrastructure, services, and user satisfaction.

Data were collected primarily through closed-ended questionnaires measuring respondents' perceptions of laboratory infrastructure, services, and user satisfaction. Observation and documentation were also used as supporting data to assess the physical condition of the laboratory, equipment availability, cleanliness, room comfort, facilities, and practical-work procedures.

Study using two groups variables free, namely facilities and infrastructure (X1)

Table 1. Data Collection Techniques

Technique	Instrument	Objective
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Survey	Questionnaire	Measure satisfaction users laboratory and perception to infrastructure service
Observation	Observation form	Evaluate condition physique laboratory, availability equipment, cleanliness, and comfort room
Documentation	Photos, notes , documents	Supports primary data and provides information addition about facility laboratory

C. Results and Discussion

Results

Normality Test Results

Table 2. Normality Test

Tests of Normality						
	Kolmogorov-Smirnov(a)			Shapiro-Wilk		
	Statistics	df	Sig.	Statistics	df	Sig.
X1	0.066	100	0.200	0.985	100	0.315
X2	0.066	100	0.200	0.985	100	0.315
Y	0.070	100	0.200	0.983	100	0.229
* This is a lower bound of the true significance.						
a Lilliefors Significance Correction						

Source : Results of processing IBM SPSS Statistics 25

Based on table the results of the normality test are known that variables facilities and infrastructure (X1) obtained Kolmogorov-Smirnov value of 0.066 with mark significance of 0.200. Because the value significance $0.200 > 0.05$, then the data variable X1 is stated normally distributed.

Variables service (X2) obtained Kolmogorov-Smirnov value of 0.066 with mark significance of 0.200. This value more big from 0.05 ($0.200 > 0.05$), so that the data for variable X2 is also stated normally distributed.

Next, the variables satisfaction user (Y) obtains Kolmogorov-Smirnov value of 0.070 with mark significance of 0.200. Because the value significance more big from 0.05, namely $0.200 > 0.05$, then the data for variable Y is stated normally distributed .

The results reinforced by the Shapiro-Wilk test, which shows mark significance of 0.315 for X1, 0.315 for X2, and 0.229 for Y. All mark the more big from 0.05, so that The results of the Shapiro-Wilk test also showed that third variables own normal distribution.

Can concluded that, based on the results of the Kolmogorov-Smirnov and Shapiro-Wilk tests can concluded that the variable data facilities and infrastructure (X1), service (X2), and satisfaction users (Y) are normally distributed. Therefore, the assumption normality has fulfilled, so that the research data fulfill one of the condition For continued on to the analysis multiple linear regression.

Linearity Test Results

Linearity Test (Facilities and Infrastructure-Satisfaction) Customer)			Sum of Squares	df	Mean Square	F	Sig.
Y * X1	Between Groups	(Combined)	574,945	20	28,747	1,527	0.095
		Linearity	121,865	1	121,865	6,473	0.013
		Deviation from Linearity	453,081	19	23,846	1,267	0.230
	Within Groups		1487.215	79	18,826		
	Total		2062.160	100			

Source : Results of processing IBM SPSS Statistics 25

Based on table linearity test results, obtained Deviation from Linearity value of 0.230 with F value of 1.267. Significance value the more big from level significance of 0.05 (0.230 > 0.05). Thus, it can be concluded that No there is significant deviation from linear relationship between facilities and infrastructure (X1) with satisfaction user (Y).

Table 4. Linearity Test (Service-Satisfaction) Customer)			Sum of Squares	df	Mean Square	F	Sig.
Y * X2	Between Groups	(Combined)	754,237	20	37,712	2,278	0.005
		Linearity	124,848	1	124,848	7,541	0.007
		Deviation from Linearity	629,389	19	33,126	2,001	0.174
	Within Groups		1307,923	79	16,556		
	Total		2062.160	99			

Source : Results of processing IBM SPSS Statistics 25

Based on Table 2, it can be obtained equality multiple linear regression Based on the table above, obtained Deviation from Linearity value of 0.174 with F value of 2.001. Significance value the more big of 0.05 (0.174 > 0.05). This is show that No there is significant deviation from linear relationship between variables service (X2) with satisfaction user (Y).

Analysis Results Multiple

Table 5. Analysis Test Regression Multiple				
Model Summary				
Model	R	R Square	Adjusted R Square	Standard Error of the Estimate
1	0.314	0.099	0.080	4,377
a	Predictors: (Constant), X2, X1			

Source : Results of processing IBM SPSS Statistics 25

Based on Model Summary table, obtained The R value is 0.314. This value show that there is connection positive between facilities and infrastructure (X1) and services (X2) in general together with satisfaction user (Y). The R value of 0.314 indicates level relative relationship low.

Next, it is obtained The R Square value is 0.099. This value show that variables facilities and infrastructure (X1) and services (X2) in general together capable explain variations in variables satisfaction users (Y) of $0.099 \times 100\% = 9.9\%$.

Thus, the facilities and infrastructure and services in a way simultaneous give contribution by 9.9% against variation satisfaction users. While that, amounting to 90.1% variation satisfaction users influenced or explained by other factors that are not entered in the research model This.

t-Test Results

Table 6. t-test

Coefficients(a)					
Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
1	B	Std. Error	Beta	B	Std. Error
(Constant)	53,459	9,904		5,398	0.000
X1	0.203	0.100	0.200	2,029	0.045
X2	0.207	0.100	0.204	2,067	0.041
a. Dependent Variable: Y					

Source : Results of processing IBM SPSS Statistics 25

Based on the table above , obtained equality multiple linear regression as following :
 $Y = 53.459 + 0.203X_1 + 0.207X_2$

Equality the can explained that mark constant of 53,459 shows that if variables facilities and infrastructure (X1) and services (X2) are considered worth zero, then mark satisfaction estimated users (Y) amounting to 53,459.

Simultaneous Test Results (F Statistical Test)

Table 7. F Test

Variables	B	Beta	t	Sig.	Conclusion
X1 Infrastructure	0.203	0.200	2,029	0.045	Positive and significant
X2 Service	0.207	0.204	2,067	0.041	Positive and significant

Source : Results of processing IBM SPSS Statistics 25

Thus, in general partial facilities and infrastructure and service proven influential positive and significant to satisfaction users Laboratory Faculty Education and Teaching Sciences, UIN North Sumatra Medan. After done testing influence variables free in a way partial through the t-test, then F test was conducted for know whether variables facilities and infrastructure (X1) and services (X2) in general together or simultaneous influential to satisfaction user (Y). F test was performed with compare mark significance with level significance of 0.05. If mark significance more small from 0.05, then variables free in a way simultaneous influential significant to variables bound. The results of the F test in study This presented in the table following.

D. DISCUSSION

Research result show that infrastructure laboratory own connection positive and significant with satisfaction users. Findings This show importance availability and quality facility in form experience users laboratory. Laboratory No only room For carry out practicum, but also the environment learning that allows student apply knowledge in a way directly. When equipment, space, cleanliness, comfort, and facilities supporters available with ok, user own better conditions support For operate activity practicum. Findings the in line with Input-Process-Output framework used in report research. Facilities education viewed as input that influences the learning process. In activity practical work, the quality of input is in the form of facility laboratory be one of prerequisites for the learning process can ongoing in a way effective. Thus, the evaluation infrastructure need done No only with see There is or whether or not facilities, but also conditions, suitability, availability, and convenience its use.

Service the laboratory also showed influence positive and significant to satisfaction users . The t value is 2.067 with significance of 0.041 indicates that quality service related with satisfaction users after entered together variables infrastructure to in the model. Service covers management facilities, procedures practical work, readiness laboratory, as well as role staff in give service and guidance. Competent staff and clear procedures can help users get experience more practical work directed.

This result can be understood through draft management quality laboratory that emphasizes procedure work, maintenance equipment and competence staff. Consistent service need standard procedures, maintenance facility in a way periodically, and improvement capacity manager. The PDCA approach can also used as mechanism repair sustainable through stages planning, implementation, inspection, and action repair.

This study has several limitations that should be considered when interpreting the findings. First, the study involved 100 respondents who were selected using purposive sampling from laboratory users at the Faculty of Tarbiyah and Teacher Training (FITK), UIN North Sumatra Medan. Therefore, the findings may not be fully generalizable to all students and lecturers or to laboratory users in other faculties and universities with different institutional characteristics. Second, the data were primarily collected through self-reported questionnaires, which may be influenced by respondents' subjective perceptions and experiences. Although observation and documentation were also used as supporting data, the study did not include a more comprehensive assessment of the objective condition and performance of laboratory facilities.

Another important limitation is reflected in the relatively low coefficient of determination (R^2) of 0.099. This result indicates that the variables included in the research model explain only 9.9% of the variation in user satisfaction, while the remaining 90.1% may be explained by other factors that were not included in the model. These factors may include laboratory staff responsiveness, reliability of services, accessibility of facilities, safety, learning environment, equipment availability, administrative procedures, users' expectations, and other dimensions of service quality. Therefore, the findings should be interpreted as

evidence of the contribution of the variables examined in this study rather than as a comprehensive explanation of user satisfaction.

Future research is recommended to include additional variables that may contribute to laboratory user satisfaction. Researchers may consider incorporating dimensions of service quality, such as reliability, responsiveness, assurance, and empathy, as well as variables related to laboratory safety, accessibility, equipment availability, learning environment, and user expectations. Future studies could also employ a larger and more diverse sample involving respondents from several faculties or universities to improve the generalizability of the findings. In addition, combining quantitative questionnaires with qualitative interviews or focus group discussions may provide deeper insights into the reasons behind users' satisfaction or dissatisfaction. A mixed-method approach could therefore provide a more comprehensive understanding of the factors influencing laboratory user satisfaction and potentially improve the explanatory power of the research model.

research results also strengthen importance evaluation laboratory in a way systematic evaluation No only used For find shortcomings, but can become base planning procurement, maintenance, improvement competence staff, and improvements procedure practicum. In context of FITK UIN SU Medan, evaluation periodically to perception users can help manager identify aspect the most needed services attention based on experience users in a way direct.

Laboratory infrastructure and facilities influence user satisfaction because laboratory users directly interact with physical facilities, practical equipment, room conditions, cleanliness, and comfort during practical activities. Adequate and well-maintained facilities can support the smooth implementation of practical activities and create a more positive user experience. These findings can then be compared with previous studies to determine whether they are consistent with or differ from earlier research findings. Theoretically, this finding strengthens the understanding of the relationship between facility quality and user satisfaction, particularly in the context of educational laboratory services. Practically, the finding provides a basis for laboratory management to conduct regular facility maintenance, improve the availability and condition of practical equipment, maintain cleanliness and comfort, and enhance the quality of services provided to laboratory users.

E. Conclusions

Based on results research that has been done, can concluded that infrastructure and services laboratory own influence positive and significant to satisfaction users Laboratory Faculty Tarbiyah and Teacher Training Sciences, UIN North Sumatra Medan. Test results show that infrastructure influential positive and significant to satisfaction users with mark significance of 0.045. Meanwhile, service also has an effect positive and significant to satisfaction users with mark significance of 0.041. This shows that the more Good condition infrastructure and the more optimal the services provided, the more satisfaction users laboratory tend the more increase.

Analysis results multiple linear regression show The R value is 0.314 and the R Square value is 0.099. This means that the infrastructure and services in a way together able explain amounting to 9.9% variation satisfaction users laboratory , whereas 90.1 % is influenced by other factors that are not including in this research model . Thus, the increase satisfaction users No only depending on availability and conditions facility laboratory, but also necessary supported by good service,

readiness staff, comfort environment, as well as management effective laboratory. Therefore, the manager laboratory need do maintenance and improvement quality facility in a way sustainable as well as increase quality services so that activities practical work can ongoing in a way comfortable, effective, and appropriate need user.

References

- Adhari, IZ (2021). *Satisfaction Customers & Achieving Brand Trust* (Vol. 1). CV. Qiara Media Publisher
- Andarias, SH, Fitriani, B., Onde, MLO, & Pertiwi, S. (2025). Training Use Equipment Laboratory For Increase Understanding and Skills of Elementary School Teacher Education Students . *Room of Civil Society Development* , 4 (2), 257-267.
- Anjani, AN, & Pudyaningsih , AR (2025). The Influence Quality Services and Facilities to Satisfaction Customers at the Al Ma'unah Clinic in Pasuruan City . *JIMU: Journal Multidisciplinary Science* , 3 (02).
- Ansori, A., Jamel, AZ, Susiani , A., & Aryanti , I. (2025). Evaluation Model Effectiveness Management of Educational Facilities and Infrastructure in Madrasas. *Al-Basyir: Journal of Islamic Education and Thought* , 1 (1), 29-38.
- Erwin, E., Permana , I., & Hayat, MS (2018). Practicum Program Evaluation Strategy Fundamental Physics . *Journal Study Learning Physics* , 9 (1), 12-20.
- Fahlevi, AAT (2023). Implementation of Total Quality Management (TQM) at SD Laboratorium UM. *Journal of Practice Learning and Educational Development* , 3 (2), 231-242.
- Gunawan, G. (2017). *Quality Management of Education in Private Islamic Higher Education Institutions (Case Study) Islamic Religious College in Improving Input and Output of UM Metro, IAIM NU and STIT Agus Salim Metro* (Doctoral dissertation, UIN Raden Intan Lampung).
- Ismaniati, C., & Lindra, AT (2025). *System Modern Learning : Technology Integration , Innovative Models , and Global Competence* . Deepublish .
- Kotler, P. and Kevin Lane Keller . 2009. *Management Marketing* .
- Lovelock, Christopher and Jochen Wirtz. 2011. *Service marketing*. Pearson: New jersey USA
- Lubis, RF, & Budhiawan , A. (2024). Relevance Internal Law Laboratory Increase Competence Students . *Al- Mashlahah Journal of Islamic Law and Social Institutions* , 12 (02).
- Maknun , D. (2016). Evaluation skills laboratory student use assessment activity laboratory based competence in implementation practice experience field . *Journal Education* , 22 (1).
- Marzali, I. (2024). Transformation Management Educational Laboratory Towards Collaborative Research Center Digital Based . *Al-Zayn: Journal Knowledge Social & Law* , 2 (2), 141-150.
- Ningrum, RR, & Markarma , A. (2025). Application of PDCA Cycle in Improving the Quality of Learning (Quality Management Literature Review). *Proceedings of Islamic Studies and Science Integration in the Era of Society (KIIIES) 5.0* , 4 (1), 537-540.
- Nuzulul, N., & Andrean, R. (2026). The Influence Facilities and Quality of Service to Satisfaction Users Laboratory Computer Faculty of Economics and Business, State Islamic University of KH Abdurrahman Wahid, Pekalongan . *Journal Management Educational Laboratory* , 8 (1), 55-62.
- Peniarsih, P., Sumitra, T., Ramadhnay , A., & Setiadi, D. (2025). Implementation E- Laboratory Technology Integrated in Increase Efficiency Management Laboratory Universities : Implementation of Integrated Labs . *JSI (Journal of System Information) Suryadarma University* , 12 (2), 52-57.
- Rambe, RA (2025). *The Influence quality service and convenience transact to satisfaction customers BSI Mobile users* (Doctoral dissertation, UIN Syekh Ali Hasan Ahmad Addary Padangsidimpuan).
- Rozalinda, K., & Wisda, RS (2025). Analysis Student Satisfaction With Availability of Laboratory Facilities and Infrastructure. *Jambura Journal of Educational Management* , 60-78.
- Rusman, N., Azis, AR, Rasidi, H., Amiroh , D., Aji, ATTR, Rengkuan , AN, ... & Sirait , EJ (2024). *Management Management Educational Laboratory* . Kamiya Jaya Aquatic.

- Sugiyono. 2010. Research Methods Business . 15th Edition . Publisher Alfabeta : Bandung
- Sumartini, LC, & Tias, DFA (2019). Analysis satisfaction consumer For increase sales volume coffee shop at dusk . *E-bis Journal*, 3 (2), 111-118.
- Susilo, A., Satinem , Y., Sari, RW, & Salsabilla , KT (2025). Learning environment analysis in increasing the learning spirit of PGRI Silampari University students. *Journal of Insan Mulia Education*, 3 (1), 8-15.
- Suslistya, V., & Mahadewi, G. (2023). Management laboratory as step improvement quality implementation practical work knowledge knowledge nature. *SEARCH: Science Education Research Journal*, 1 (2), 1-13.
- Wulandari, F., & Setiawan, M. (2024). Principles process management approach quality integrated in education. *Journal of Education Research*, 5 (3), 4145-4151.