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The Influence of Digital Leadership in Higher Education in Improving Academic Services

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Abstract:

This study aims to see the influence of digital leadership on improving academic services in higher education. This study is based on the importance of how academic services in higher education are influenced by leadership. The method used is a mixed-method approach with a sequential explanatory pattern. The data analysis technique uses descriptive statistics and SEM AMOS. The number of samples used is 242 students. The study results found that the digital leadership variable is generally in the high category. The study results found that the digital leadership variable is generally in the high category. Meanwhile, the results of the SEM AMOS test found that digital leadership significantly influences improving Academic Services, with a probability value of 0.002. This study concludes that digitalization can significantly improve academic services and accessibility, make them faster and more effective, and provide a better customer experience. The study's results are expected to be a reference for literature and a benchmark for leadership in other institutions.

Keywords: *Digital Leadership, Higher Education, Academic Services*

Abstrak:

Penelitian ini bertujuan untuk melihat pengaruh kepemimpinan digital terhadap peningkatan layanan akademik di perguruan tinggi. Penelitian ini didasarkan para pentingnya tentang bagaimana layanan akademik di perguruan tinggi dipengaruhi oleh kepemimpinan. Metode yang digunakan adalah pendekatan mixed-method dengan pola eksplanatori sekuensial. Teknik analisis data menggunakan statistik deskriptif dan SEM AMOS. Jumlah sampel yang digunakan sebanyak 242 mahasiswa. Hasil penelitian menemukan bahwa variabel kepemimpinan digital secara umum berada pada kategori tinggi. Hasil penelitian menemukan bahwa variabel kepemimpinan digital secara umum berada pada kategori tinggi. Sementara itu, hasil uji SEM AMOS menemukan bahwa kepemimpinan digital memiliki pengaruh yang signifikan terhadap peningkatan Layanan Akademik dengan nilai probabilitas sebesar 0,002. Penelitian ini menyimpulkan bahwa digitalisasi dapat meningkatkan layanan akademik secara signifikan, aksebilitas yang lebih baik, menjadi lebih cepat dan efektif, memberikan pengalaman yang lebih baik kepada pelanggan. Hasil penelitian diharapkan dapat menjadi acuan leteratur maupun tolak ukur kemepimpinan pada institusi lainnya.

Kata Kunci: *Kepemimpinan Digital, Pendidikan Tinggi, Layanan Akademik*

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INTRODUCTION

The Industrial Revolution 4.0 has fundamentally changed the way humans think, live, and relate to one another. This era will disrupt various human activities in multiple fields, not only in the field of technology but also in other fields such as economics, social and political issues, and education (Ivaldi et al., 2022; Moll, 2021; Spöttl & Windelband, 2021). The influence of the Industrial Revolution 4.0 on the world of education is marked by the use of various digital technology tools in the learning process, and the learning system implemented is either digital or online (Alzahrani et al., 2021; Sanjani, 2024; Singh, 2021). There are five significant impacts of the Industrial Revolution 4.0: economy, business, national-global relations, society, and individuals. Adaptive leadership is one of the leadership models that must be had in the era of revolution 4.0, or globalization (Moraes et al., 2023; Yunus & Hua, 2021). An adaptive leader is a leader who is able and intelligent enough to face various situations and events. Adaptive leaders do not remain silent or think too long but move quickly with various actions to solve challenges with changes that suit their needs.

Higher education, as one of the educational institutions that produces knowledgeable human resources, must, of course, be able to adapt to the changes that arise due to the Industrial Revolution 4.0. The form of change that universities must make can be educational (Hermawan & Arifin, 2021; Nurfitria et al., 2021). By changing the conventional learning model to digital, learning spaces are no longer tied to space and time but can be carried out whenever and wherever the educational process can occur with an internet connection (Chavez et al., 2023; Saari et al., 2021). One very responsible element lies in the leadership of higher education institutions. The Chancellor leads the highest leadership in higher education. The Chancellor has an essential function and role in advancing the university he leads.

Digital leadership or e-leadership is a process of social influence mediated by digital technology to produce changes in attitudes, feelings, ways of thinking, behavior, and performance at the individual, team, and organizational levels (Alkhayyal & Bajaba, 2023; Chee & Salamzadeh, 2021; Gao & Gao, 2024). Leaders in the era of digital technology have a significant burden and responsibility to be able to adapt to the global revolution that is taking place. Leaders in the era of digital technology must understand that the existence of technology not only functions as something that has mere use value but also serves as a revolutionary force itself (Long et al., 2022; Volberda et al., 2021; Zhong et al., 2023). Leaders who do not consider capabilities in a digital context or need help understanding how to leverage them will be disadvantaged and essentially left behind (Chen & Weng, 2023; Obi et al., 2021). The most important skills a digital leader must have are a transformative vision, being forward-oriented, and having a good knowledge of technology.

Digital transformation begins with a digital vision that is transformed for all stakeholders to obtain support (Widodo et al., 2023). In his study, Eom & Lee (2022) state that a leader with a future orientation acts more like a community manager than an authoritarian person. A balanced combination of universal characteristics and digital leadership traits has the potential to guide a leader

through gradual transformation year after year with optimism and idealism (Marnita et al., 2023). Digitalization in Pizzolitto et al. (2023) provides various benefits in supporting the smooth running of organizational processes in higher education, one is the smooth process of providing academic services to students. Using digital, student interaction with lecturers and education staff will be more flexible, fast, easy, and effective (Pagda et al., 2021; Salem et al., 2022). Academic services are activities that occur at an institution or educational institution.

One of the keys to the success of higher education is that the quality of academic services can be felt directly by students. Therefore, the entire academic community, from the rector to the higher education staff, is responsible for providing students with sound and excellent academic services. Quality academic services will create a positive paradigm among students. If they receive good service during college, students will respond well to college. Furthermore, universities will receive external recognition for the academic services they provide. Maintaining the quality of academic services can be done by implementing excellent service. The success of an excellent service program depends on the alignment of abilities, attitudes, appearance, attention, actions, and responsibilities in its implementation. There are five service quality indicators: reliability, responsiveness, assurance, empathy, and tangible. These indicators must constantly be improved as drivers of competitive advantage. The location of this research is State Islamic University. This college has used digital services for students, but not all services are provided online. This is why this research examines the influence of digital technology on improving student academic services. The novelty of this research is the influence of leaders' use of digitalization in improving customer service.

RESEARCH METHOD

The approach in this research is to use an associative approach (Li et al., 2021) to determine if there is a relationship or influence between the two variables (independent and dependent variables). Population From this research, there were all students at Imam Bonjol Padang State Islamic University, totaling 15,054, and the sample in this research was 242 people. The selection of the research location was due to several things, including the rector's transformative leadership vision in providing fast service to customers, and one of his efforts was to use digitalization in his work.

The data collection technique used was a questionnaire distributed using Google Forms. Data analysis techniques use AMOS SEM to combine aspects of factor analysis and multiple regression, which allows researchers to simultaneously test a series of interrelated dependency relationships between measured variables and latent constructs and several latent constructs (Woodward et al., 2022). The stages in modeling and structural analysis in SEM AMOS carried out by researchers are Development of theoretical models, development of flowcharts, Selection of the proposed estimated model, Assessment of structural model identification, Assessment of goodness of fit criteria, and model interpretation and modification.

RESULT AND DISCUSSION

Result

Overview of Academic Services

Academic services are a process of providing services or services from a higher education institution to consumers in the form of students. In this research, the academic service variable consists of nine indicators: reliability, responsiveness, assurance, empathy, physical evidence, content, attitude, competence, and academic resources. Each indicator is measured using average categorization. From these measurements, the average of each indicator can be determined, which can provide a general picture of academic services at Imam Bonjol State Islamic University, Padang.

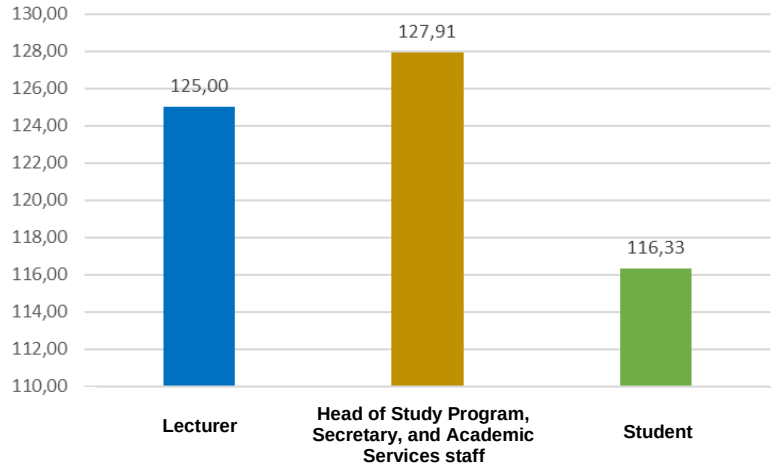

Figure 1. The Average Value of Academic Service Variables Based on Respondents

Based on Figure 1, it is known that the average score for the academic service variable based on all respondents from lecturers, heads of study programs, secretaries, and study program staff, as well as students, is in the high category. The highest average of respondents in the academic information system variable, namely the head of the study program, secretary, and study program staff, was 127.91. Meanwhile, the lowest average respondent was for students at 116.33. A specific description of data analysis related to academic services will be explained below.

Table 1. Average Value of The Academic Service Variable

No	Indicator	Average	Sd	Category
1	Reliability	15,34	3,54	High
2	Responsiveness	11,89	2,42	High
3	Assurance	16,35	2,85	High
4	Empathy	12,03	2,40	High
5	Tangibles	15,64	3,42	High
6	Content	12,30	2,12	High
7	Attitude	12,21	2,19	High
8	Competency	12,32	2,14	High
9	Resource	8,24	1,53	High

Table 1 shows that the average of each indicator in the academic service variable is in the high category. Furthermore, the highest average score of all indicators is in the guarantee indicator, 16.35, while the lowest average score is in the academic resources indicator, 8.24.

Digital Leadership Overview

Digital leadership is a pattern or model of a leader who, in the process of carrying out his function, uses technology to smooth the process of achieving goals to make it more effective and efficient. In this research, researchers have determined ten indicators of digital leadership by adopting experts: digital vision, digital behavior, digital skills, digital mindset, technological skills, communication skills, social skills, team building skills, change management, and trustworthiness. Find the average for each indicator using Ms. Excel to categorize the processing into three parts: high, medium, and low.

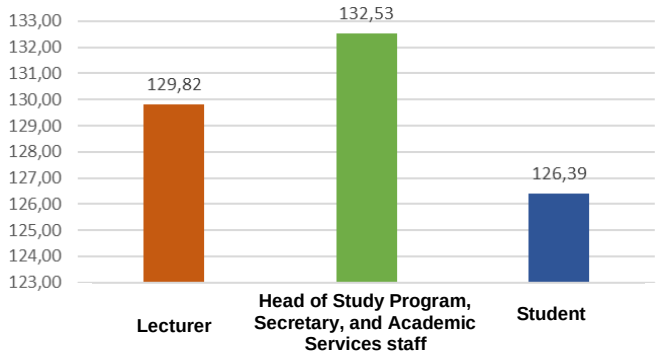

Figure 2. The Average Value of Digital Leadership variables based on Respondents

Based on Figure 2, it is known that the average score for the digital leadership variable based on all respondents from lecturers, heads of study programs, secretaries, and study program staff, as well as students, is in the high category. The highest average of respondents in the digital leadership variable was the head of study program, secretary, and study program staff at 132.53. Meanwhile, the lowest average respondent was for students at 126.39. A specific description of the analysis of average data scores related to digital leadership will be explained in Table 2.

Table 2. The Average Value of Digital Leadership Variables

No	Indicator	Average	Sd	Category
1	Digital Vision	12,78	2,10	High
2	Digital Mindset	12,76	2,05	High
3	Digital Skillset	12,77	2,03	High
4	Digital Implementation	12,82	2,01	High
5	Technological skill	12,52	2,18	High
6	Communication Skill	12,49	2,12	High
7	Social Skill	12,52	2,18	High
8	Team Building	12,53	2,15	High
9	Change Management	12,52	2,16	High
10	Trustworthiness	12,68	2,12	High

Based on Table 2, the average value of all indicators in the digital leadership variable is in the high category. Furthermore, the indicator with the highest average value was a digital mindset, with a total value of 12.82. In this indicator, researchers measure it with several sub-indicators, such as the head of study program has this mindset of accepting technology as a tool to facilitate the provision of services to students, the head of study program continues to learn to improve skills in using digital technology and also has a high spirit of learning motivation. Meanwhile, the indicator with a low average value is communication skills, with a total value of 12.49. In this indicator, researchers measure several sub-indicators related to the ability of the head of the study program to communicate virtually with members and students. From this description, the digital leadership variable from student respondent data is in the high category. From the average findings related to digital leadership variables, they are generally in the high category. This means that digital leadership is a leadership model that is very important to use at this time.

The Impact of Digital Leadership on Academic Services

To determine the influence of digital leadership on academic services, researchers used the Structural Equation Model (SEM) through Moment of Structural Analysis (AMOS). Structural equation modeling (SEM) is a multivariate method that combines aspects of factor analysis and multiple regression, which allows researchers to simultaneously test a series of interrelated dependency relationships between measured variables and latent constructs, as well as between several latent constructs. The stages in modeling and structural analysis in SEM AMOS carried out by researchers are Development of theoretical models, development of flowcharts, Selection of the proposed estimated model, Assessment of structural model identification, Assessment of goodness of fit criteria, and model interpretation and modification. Before explaining the stages of SEM analysis, the researcher first outlines the research hypothesis; in this research there are hypotheses:

H1: There is an influence between the digital leadership variable on academic services

Table 3. Research Hypothesis

Variable	Hipotesis	Respondent	P-Count	P-Value	Decision
Digital leadership for academic services	H0: There is no influence between the digital leadership variable on academic services. H1: There is an influence between the digital leadership variable on academic services.	head of the study program	0.106	> 0,05	H0 Accepted
		Lecturer	0.002	< 0,05	H0 Rejected
		Student	0.134	> 0,05	H0 Accepted

In the first step, the researcher created a theoretical model. According to the instruments for the respondents, Head of Study Program, Secretary and staff, Lecturers, and Students, a model framework for digital leadership and academic information systems for academic services was formed.

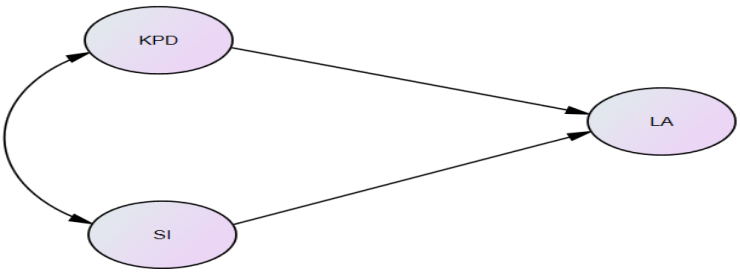

Figure 3. Theoretical Framework Model of Digital Leadership Towards Academic Services

From Figure 3, the exogenous variables are digital leadership (X1) and academic information systems (X2). The endogenous variable in this research is academic services (Y). This research was carried out as a second-order model, which has certain dimensions of exogenous and endogenous variables along with 80 indicators for each dimension of these variables. After creating a theoretical model framework and developing it according to dimensions and indicators, a model design plan was created in Figure 4.

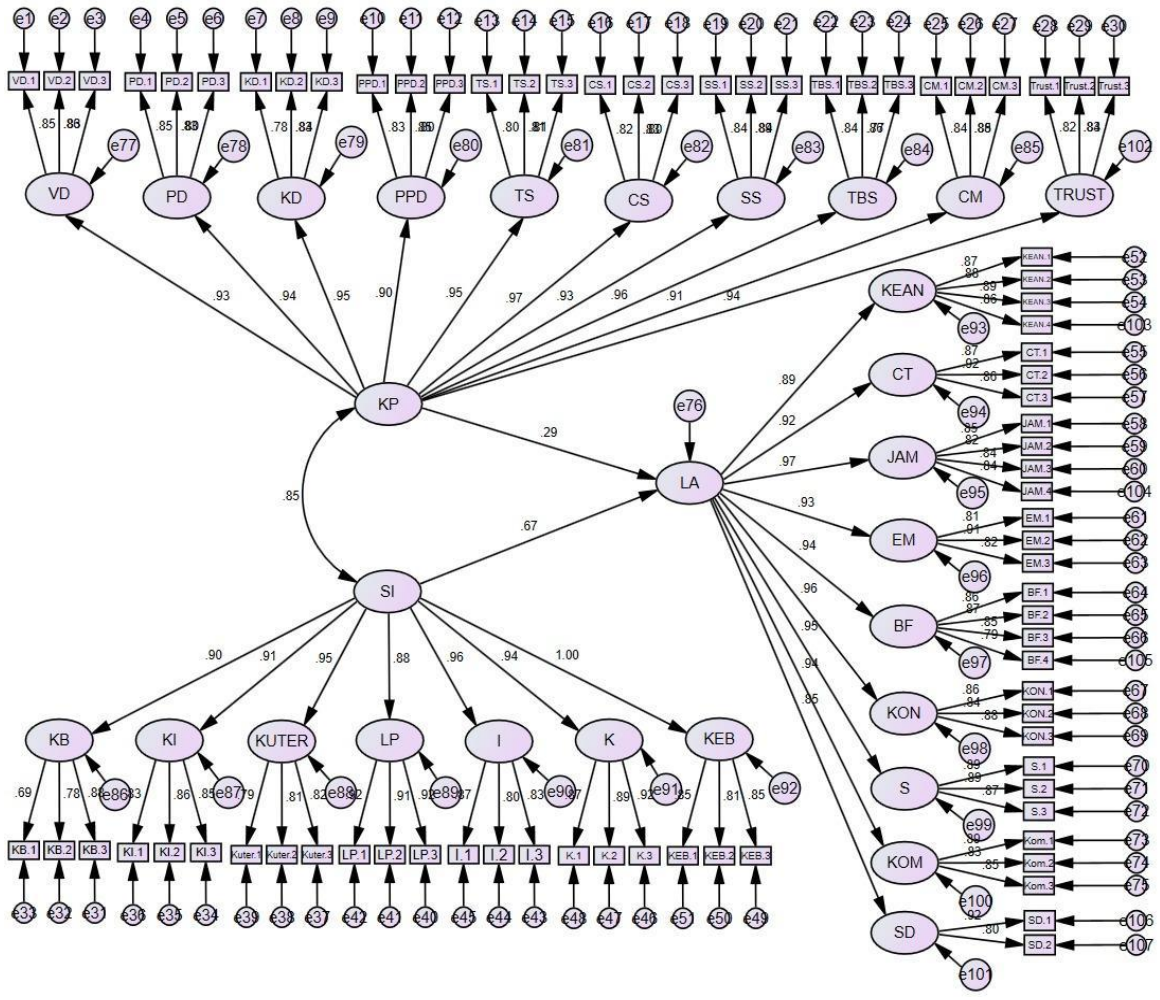

Figure 4. Parameter Estimation Model of Digital Leadership Toward Academic Services

Figure 4, the theoretical framework model created, will be visualized to show causal relationships in a flow diagram or path diagram. From this figure, the digital leadership and academic information system variables are exogenous variables, which are indicated by the arrows pointing toward the endogenous variable, namely academic services.

Test The Structural Model

AMOS has two outputs: Maximum Likelihood (ML) and Bootstrap. The Standardized Regression Weight output from Maximum Likelihood (ML) determines the magnitude of the influence between variables, while the bootstrap p-value output determines whether the influence between variables is significant or not. For respondents from study program heads, secretaries, and staff, the digital leadership variable did not significantly influence the academic service variable, amounting to 0.336 with a p-value (0.106) > 0.05. By increasing the digital leadership variable, the academic service variable will decrease. In the 95% confidence interval, the influence of the digital leadership variable on the academic service variable is between - 0.714 and 1.146.

For lecturer respondents, the digital leadership variable significantly influences the academic service variable of 0.294 with a p-value (0.002) < 0.05. By increasing the digital leadership variable, the academic service variable will increase. In the 95% confidence interval, the influence of the digital leadership variable on the academic service variable is between 0.138 and 0.482. For student respondents, the digital leadership variable did not significantly influence the academic service variable of 0.132 with a p-value (0.134) > 0.05. by increasing the digital leadership variable, the academic service variable will decrease. In the 95% confidence interval, the influence of the information system variable on the academic service variable is between -0.043 and 0.326.

Goodness of Fit (GOF) Criteria Evaluation Results

Table 4. Goodness of Fit Findings for Student Respondents

Goodness of Fit					
Evaluation	**Cut-off Value**	**Value before Modification**	**Information**	**Value after Modification**	**Information**
Chi-square	<=3180,615175	7934,452	No Fit	2878,78	Fit
Probability	> dari alpha (5%)	0,000	No Fit	0,000	No Fit
RMSEA	<= 0,08 fit	0,081	No Fit	0,068	Fit
TAG	>= 0,90 fit	0,813	No Fit	0,9	Fit
NFI	>= 0,90 fit	0,737	No Fit	0,839	No Fit
PCFI	The bigger it gets fit	0,791	Fit	0,908	Fit
PNFI	The bigger it gets fit	0,712	Fit	0,773	Fit

Based on the Goodness of Fit findings above, the model after modification is a model that is suitable and fit after testing.

Model Modification

Next, model modifications were carried out. A model that has been tested and meets the testing criteria does not necessarily mean that it is the best.

Modifying a model repeats the process of testing and estimating the model. The purpose of the modification is to see whether the modifications can reduce the chi-square value. There are two alternative model modifications, which are called modified models.

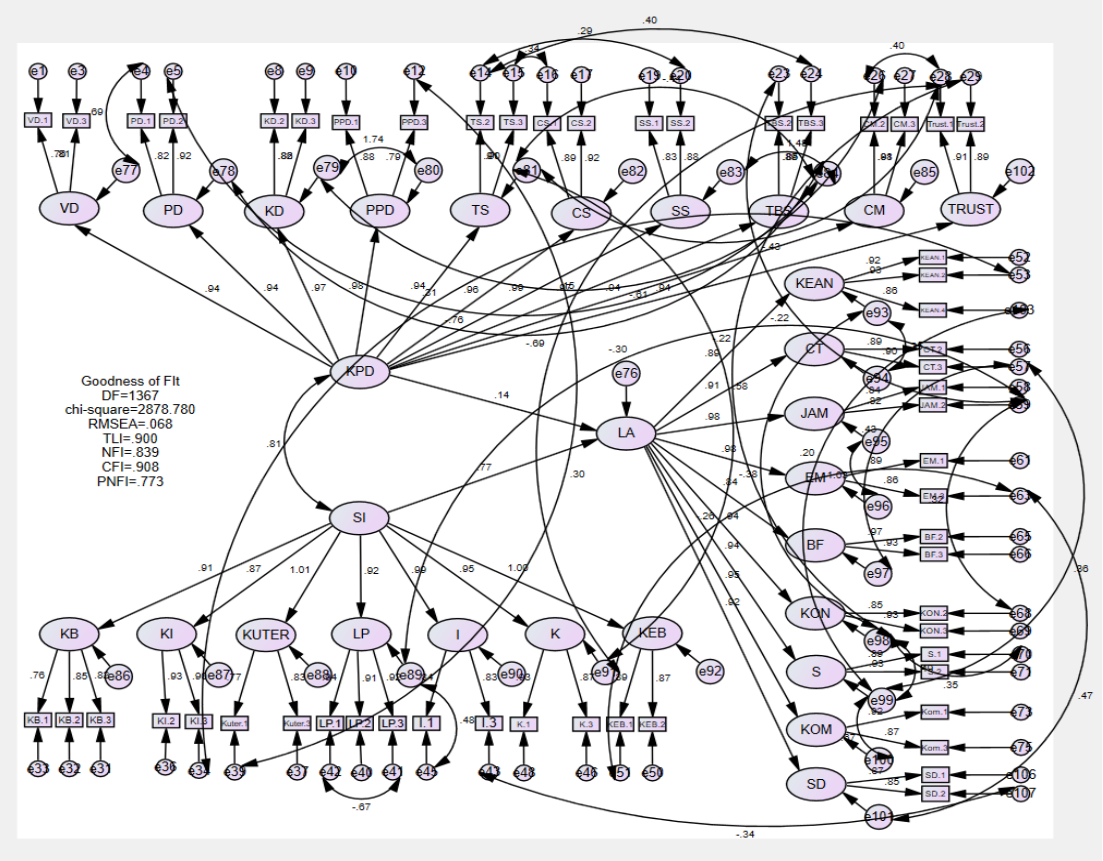

Figure 5. Student Modification Model

Meanwhile, for student respondents. The modification steps for the Student respondent model are as follows: Combining e77 with e4; Combining e5 with e84; Combining e79 with e26; Combining e79 with e80; Combining e81 with e91; Combining e81 with e28; Combining e14 with e20; Combining e15 with e16; Combining e81 with e84; Combining e23 with e59; Combining e26 with e28; Combining e83 with e84; Combining e28 with e91; Combining e29 with e98; Combining e53 with e34; Combining e93 with e98; Combining e93 with e94; Combining e103 with e99; Combining e57 with e97; Combining e57 with e99; Combining e59 with e89; Combining e59 with e68; Combining e95 with e96; Combining e63 with e51; Combining e63 with e101; Combining e98 with e99; Combining e70 with e98; Combining e99 with e100; Combining e107 with e43; Combining e89 with e45; Combining e42 with e41; Combining e77 with e4; Combining e12 with e39; Combining e77 with e4; Eliminate VD.1; Eliminate PD.3; Eliminate KD.1; Eliminates PPD.2; Eliminate TS.1; Eliminates CS.3; Eliminate SS.3; Eliminate TBS.1; Eliminate CM.1; Eliminating Trust.3; Eliminates KEAN.3; Eliminates JAM.3; Eliminates JAM.4; Eliminates EM.2; Eliminate BF.3; Eliminate KON.1; Eliminate S.3; Eliminate Comm.2; Eliminate KEB.3; Eliminates K.2; Eliminating I.2; Eliminate Kuter.2; Eliminate KI.1.

Model Interpretation

In model interpretation, hypothesis testing is based on AMOS SEM analysis. This test compares the P (Probability) value of the Regression Weights output findings with the required limits, namely the P value < 0.05. If the findings show that the P value is less than 0.05, then H0 is rejected and H1 is accepted. In the hypothesis that respondents Kapordi, secretary, and staff have a value of 0.106 > 0.05, meaning that H0 is accepted, so there is no influence between digital leadership variables on academic services. In the hypothesis, the lecturer has a value of 0.002 < 0.05, meaning that H0 is rejected, so there is an influence between digital leadership variables on academic services. For student respondents, the value is 0.134 > 0.05, meaning that H0 is accepted, so there is no influence between digital leadership variables and academic services.

Discussion

Overview of Academic Services

Academic services are a process of providing services from educational institutions to users, namely students and lecturers, regarding all forms of educational needs, such as curriculum, educational calendars, lecture materials, correspondence, evaluations, practicums, guidance, libraries, and so on(Eom & Lee, 2022; Obi et al., 2021). Higher education as an organization must provide quality services so that users, namely students, lecturers, and educational staff, feel satisfied with the services provided. The quality of academic services is absolute in higher education institutions(Zhong et al., 2023). A service of quality must meet several indicators, including reliability, responsiveness, assurance, empathy, physical evidence, content, attitude, competence, and availability of sources.

Reliability is a skill or ability and the expertise of higher education officers in mastering knowledge by the type of service provided. Higher education institutions must provide timely, accurate, and reliable services. The officers' performance must be based on the expectations of users or customers, be implemented relatively, not pick and choose, have a sympathetic attitude, and have responsibility. Officers providing services to users or customers must have adequate skills, especially technology-related ones, especially during the Industrial Revolution. Revolutionaries use digital to facilitate communication and interaction (Eom & Lee, 2022). Furthermore, a service has a reliability dimension that can be measured from several indicators, including 1) suitability of service provision with the expectations given; 2) having reliability solving problems in the field; 3) honestly and correctly delivering services; 4) providing services in line with the schedule that has been made; and 5) keep archives for important records/documents related to services without errors (McCarthy et al., 2022).

Responsiveness or responsiveness: The service provided must be fast and precise. This means the speed of responsibility and accuracy of the service provider in providing services to customers and conveying clear information to avoid misperceptions in digesting the information. Providing appropriate and clear reasons for delays in information aims to ensure that there is no opposing view of service quality. The following situation can illustrate this: universities have equipment such as academic information systems that are fast, easy to access, and easy to understand. Services are provided online so that they can be accessed

anytime and anywhere. Furthermore, responsive service can be measured from several indicators: 1) sharing information regarding the exact time to provide service, 2) providing services responsively, 3) being willing to provide services, and 4) responding to customer requests.

Guarantee is the existence of certainty in fostering a sense of trust from customers in the services they receive. The knowledge, courtesy, and abilities of the officers can characterize this. The guarantee dimension can be measured from several indicators, including helping increase customer confidence, providing a sense of security to customers when providing services, having employees consistently have hapoliteous ethics, and being capable of answering customer questions appropriately. According to Adriantoni et al. (2023), the guarantee aspect is related to officers' knowledge, courtesy, and ability to provide customer service. Consists of several components, including communication, credibility, security, competence, and courtesy.

The empathy dimension means universities provide customers personal service related to their desired needs. In another sense, the dimension of empathy, namely efforts to understand desires or needs and problems, can be done by privately giving sincere and personal affection to customers. A service provider agency is expected to have a convenient organization time for customers, have good knowledge about customers, and understand the specifics of customer needs. The dimension of empathy in service can be said to be of high quality if it is measured by several indicators, including acting effectively with individual customers; treattreatingomers fairly and affectionately; seeing seriously about prioritizing customer interests above personal interests; officers understanding customer needs well; and comfort when providing services.

The dimension of physical evidence in meaningful services to attract customers requires universities' ability to demonstrate existence. Concrete evidence universities can provide is their ability to meet the availability of physical facilities and infrastructure as well as the conditions of the surrounding environment (Zaini, 2023; Zhong et al., 2023). The physical evidence dimension means universities must have complete facilities, adequate equipment, and skilled human resources. Indicators of physical evidence include: 1) the equipment used is sophisticated and modern in line with current developments; 2) the facilities used are attractive to customers; 3) a neat, clean, and professional appearance displayed by employees; and 4) the presence of material or elements that correlate with the service and attract customer attention.

The research findings from the three respondents, lecturers, heads, secretaries, study program staff, and students regarding academic service variables at UIN Imam Bonjol Padang generally indicate that they are in the high or good category. This means that the academic services provided meet the dimensions described above. The service process has been carried out optimally, quickly, and responsively to customer needs and requests.

Digital Leadership Overview

Digital leadership is a pattern or leadership model that utilizes technology to carry out its functions and achieve common goals to be more effective and efficient. Digital leadership or e-leadership is a process of social influence

mediated by digital technology that changes attitudes, feelings, ways of thinking, behavior, and performance at the individual, team, and organizational levels. Meanwhile, according to Long et al. (2022), digital leadership or virtual leadership is a leader who directs people remotely to carry out work to achieve organizational goals. Meanwhile, according to Subaidi et al. (2023), digital leadership is also called e-leadership, which means combining technology in communication. Where the organizational process uses technology as a medium. By utilizing technology, the service process, especially in educational services, can be carried out quickly, precisely, practically, economically, and efficiently for consumers.

As a digital leadership skill, it has several dimensions or indicators that a leader must meet in the current digital era, including (1) a digital vision that is articulated, ambitious, meaningful, holistic, and sustainable; (2) digital behavior: To realize the digital vision that has been proclaimed, leaders must display digital behavior, including leading by example, eliminating obstacles by involving all members inclusively, and actively making changes that are cultural, not sporadic-responsive, (3) digital skills to display digital behavior in leading, superiors must have must-have skills in the form of understanding and using digital technology, looking for opportunities and anticipating risks from digital technology, and developing entrepreneurial capability; (4) digital mindset, digital behavior is not only supported by digital skills, but also by a digital mindset, such as learning continuously, being open to new technology, and always wanting to keep changing. Digital technology is crucial for enhancing communication, transactions, and customer interactions. Leadership support is essential for creating policies that drive digitalization and deliver excellent customer service, as shown.

CONCLUSION

The influence of digital leadership on improving academic services at Imam Bonjol Padang State Islamic University, it was concluded that the respondents, Head of Study Program, Secretary and staff and Students had no influence in Digital Leadership on improving Academic Services with a probability value of 0.106; 0.134, while Lecturer Respondents have a significant influence in digital leadership on improving Academic Services with a Probability value of 0.002.

It was concluded that the average of the three respondents, lecturers, chairpersons, secretaries, study program staff, and students regarding academic service variables, was generally in the high category. This means that academic services are very much needed to ensure the smooth running of the education process for students and the academic community. Meanwhile, the description of digital leadership concluded that the average of the three respondents, lecturers, chairpersons, secretaries, study program staff, and students, regarding the digital leadership variable, was generally in the high category. This means that digital leadership is a leadership model that is very important to use at this time.

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REFERENCES

Adriantoni, A., Komariah, A., Nurdin, D., & Herawan, E. (2023). The Effect of Transformational Leadership and Madrasah Climate on Elementary School Teacher Performance. *Journal of Innovation in Educational and Cultural Research*, *4*(2), 238–247. https://doi.org/10.46843/jiecr.v4i2.647

Alkhayyal, S., & Bajaba, S. (2023). The Impact of E-Leadership Competencies on Workplace Well-Being and Job Performance: The Mediating Role of E-Work Self-Efficacy. *Sustainability*, *15*(6), 4724. https://doi.org/10.3390/su15064724

Alzahrani, B., Bahaitham, H., Andejany, M., & Elshennawy, A. (2021). 5How Ready Is Higher Education for Quality 4.0 Transformation According To the Lns Research Framework? *Sustainability (Switzerland)*, *13*(9), 5169. https://doi.org/10.3390/su13095169

Chavez, J. V., Libre, J. M., Gregorio, M. W., & Cabral, N. P. (2023). Human Resource Profiling for Post-Pandemic Curriculum Reconfiguration in Higher Education. *Journal of Infrastructure, Policy and Development*, *7*(2), 1975. https://doi.org/10.24294/jipd.v7i2.1975

Chee, C. S., & Salamzadeh, Y. (2021). The Impact of Digital Leadership Competencies on Virtual Team Effectiveness in MNC Companies in Penang, Malaysia. *Journal of Entrepreneurship, Business and Economics*, *8*(2), 219–253.

Chen, L., & Weng, Q. (2023). Authoritarian-Benevolent Leadership and Employee Behaviors: An Examination of the Role of LMX Ambivalence. *Journal of Business Ethics*, *186*(2), 425–443. https://doi.org/10.1007/s10551-022-05225-8

Eom, S. J., & Lee, J. (2022). Digital Government Transformation in Turbulent Times: Responses, Challenges, and Future Direction. In *Government Information Quarterly* (Vol. 39, Issue 2, p. 101690). Elsevier. https://doi.org/10.1016/j.giq.2022.101690

Gao, P., & Gao, Y. (2024). How Does Digital Leadership Foster Employee Innovative Behavior: A Cognitive–Affective Processing System Perspective. *Behavioral Sciences*, *14*(5), 362. https://doi.org/10.3390/bs14050362

Hermawan, E., & Arifin, A. L. (2021). Human Resources Education and Innovation to Face the Demands of Business in the Digital Age. *Jurnal Iqra' : Kajian Ilmu Pendidikan*, *6*(2), 136–147. https://journal.iaimnumetrolampung.ac.id/index.php/ji/article/view/1122

Ivaldi, S., Scaratti, G., & Fregnan, E. (2022). Dwelling Within the Fourth Industrial Revolution: Organizational Learning for New Competences, Processes and Work Cultures. *Journal of Workplace Learning*, *34*(1), 1–26. https://doi.org/10.1108/JWL-07-2020-0127

Li, J., Jiang, H., Shang, A., & Chen, J. (2021). Research on Associative Learning Mechanisms of L2 Learners Based on Complex Network Theory. *Computer Assisted Language Learning*, *34*(5–6), 637–662. https://doi.org/10.1080/09588221.2019.1633356

Long, N. D. B., Ooi, P. T., Le, T. V., Thiet, L. T., Ai, T. Van, An, L. Q., Hudson, A., Tan, K. S., & Van, N. T. Le. (2022). Leading in the Age of the Fourth Industrial Revolution – A Perspective from Vietnam. *International Journal of Technology*, *13*(5), 949–957. https://doi.org/10.14716/ijtech.v13i5.5839

Marnita, M., Nurdin, D., & Prihatin, E. (2023). The Effectiveness of Elementary Teacher Digital Literacy Competence on Teacher Learning Management. *Journal of Innovation in Educational and Cultural Research*, *4*(1), 35–43. https://doi.org/10.46843/jiecr.v4i1.444

McCarthy, P., Sammon, D., & Alhassan, I. (2022). Digital Transformation Leadership Characteristics: A Literature Analysis. *Journal of Decision Systems*, *32*(1), 79–109. https://doi.org/10.1080/12460125.2021.1908934

Moll, I. (2021). The Myth of The Fourth Industrial Revolution: Implications for Teacher Education. *Theoria*, *68*(167), 91–110. https://doi.org/10.4102/aosis.2021.bk305.06

Moraes, E. B., Kipper, L. M., Hackenhaar Kellermann, A. C., Austria, L., Leivas, P., Moraes, J. A. R., & Witczak, M. (2023). Integration of Industry 4.0 Technologies with Education 4.0: Advantages for Improvements in Learning. *Interactive Technology and Smart Education*, *20*(2), 271–287. https://doi.org/10.1108/ITSE-11-2021-0201

Nurfitria, M. A., Widihastuti, W., Kholifah, N., & Maslahah, S. (2021). Readiness of Fashion Education and Training Institutions Management in Facing The Industrial Revolution 4.0 and Society 5.0. *Jurnal Pendidikan Vokasi*, *11*(2), 265–274. https://doi.org/10.21831/jpv.v11i3.44094

Obi, I. M., Bollen, K., Aaldering, H., & Euwema, M. C. (2021). Servant and Authoritarian Leadership, and Leaders' Third-Party Conflict Behavior in Convents. *International Journal of Conflict Management*, *32*(5), 769–790. https://doi.org/10.1108/IJCMA-02-2021-0027

Pagda, Z., Bayraktar, S., & Jimenez, A. (2021). Exploring Culture and Leadership After 23 Years: A Replication of GLOBE Project in Turkey. *Journal of International Management*, *27*(1), 100822. https://doi.org/10.1016/j.intman.2021.100822

Pizzolitto, E., Verna, I., & Venditti, M. (2023). Authoritarian Leadership Styles and Performance: A Systematic Literature Review and Research Agenda. *Management Review Quarterly*, *73*(2), 841–871. https://doi.org/10.1007/s11301-022-00263-y

Saari, A., Rasul, M. S., Yasin, R. M., & Pranita, D. (2021). Skills Sets for Workforce in The 4th Industrial Revolution: Expectation from Authorities and Industrial Players. *Journal of Technical Education and Training*, *13*(2), 1–9. https://doi.org/10.30880/jtet.2021.13.02.001

Salem, M., Van Quaquebeke, N., & Besiou, M. (2022). Aid Worker Adaptability in Humanitarian Operations: Interplay of Prosocial Motivation and Authoritarian Leadership. *Production and Operations Management*, *31*(11), 3982–4001. https://doi.org/10.1111/poms.13798

Sanjani, M. A. F. (2024). The Impact of School Principals on Graduate Quality Through Character Education Initiatives. *Journal of Educational Management Research*, *3*(1), 30–46. https://doi.org/10.61987/jemr.v3i1.347

Singh, M. N. (2021). Inroad of Digital Technology in Education: Age of Digital Classroom. *Higher Education for the Future*, *8*(1), 20–30. https://doi.org/10.1177/2347631120980272

Spöttl, G., & Windelband, L. (2021). The 4th Industrial Revolution–Its Impact on Vocational Skills. *Journal of Education and Work*, *34*(1), 29–52. https://doi.org/10.1080/13639080.2020.1858230

Subaidi, Komariah, A., Tantowi, A., Munasir, Sabban, I., Hartini, N., Suryadi, Muslim, A. Q., Kurniady, D. A., Rahman, F. S., Salsabil, S. H., & Barowi. (2023). Visionary Leadership in Improving the Quality and Competitiveness of Private Islamic Primary Schools. *Journal of Governance and Regulation*, *12*(2), 66–76. https://doi.org/10.22495/jgrv12i2art6

Volberda, H. W., Khanagha, S., Baden-Fuller, C., Mihalache, O. R., & Birkinshaw, J. (2021). Strategizing in a Digital World: Overcoming Cognitive Barriers, Reconfiguring Routines and Introducing new Organizational Forms. *Long Range Planning*, *54*(5), 102110. https://doi.org/10.1016/j.lrp.2021.102110

Widodo, S., Wibowo, M. E., & Purwanto, E. (2023). The Effects of Self-Regulated Learning and Peer Conformity on Students Academic Procrastination. *Jurnal Bimbingan Konseling*, *12*(1), 35–38.

Woodward, A. A., Urbanowicz, R. J., Naj, A. C., & Moore, J. H. (2022). Genetic heterogeneity: Challenges, Impacts, and Methods Through an Associative Lens. *Genetic Epidemiology*, *46*(8), 555–571. https://doi.org/10.1002/gepi.22497

Yunus, C. C. A., & Hua, T. K. (2021). Exploring A Gamified Learning Tool in the ESL classroom: The case of Quizizz. *Journal of Education and E-Learning Research*, *8*(1), 103–108. https://doi.org/10.20448/JOURNAL.509.2021.81.103.108

Zaini, A. W. (2023). Improving Islamic Religious Education Teachers' Performance Through Effective School Leadership. *AFKARINA: Jurnal Pendidikan Agama Islam*, *8*(1), 12–24. https://doi.org/10.33650/afkarina.v8i1.5331

Zhong, L., Sukpasjaroen, K., & Pu, R. (2023). Impact of E-Leadership on Organizational Innovation Performance: Role of Employee Followership. *Decision Making: Applications in Management and Engineering*, *6*(2), 503–535. https://doi.org/10.31181/dmame622023728