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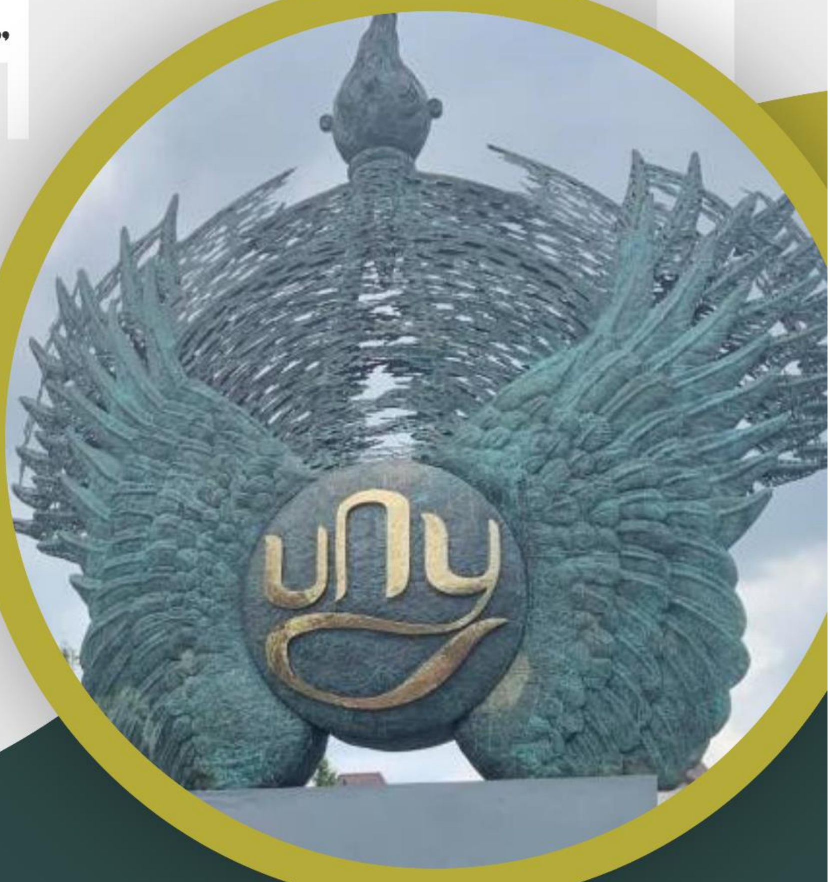
THEME:
"THE CHALLENGE OF NEW TECHNOLOGY ON EDUCATION AND BUSINESS SUSTAINABILITY"



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INTERNATIONAL CONFERENCE OF ETHICS ON BUSINESS, ECONOMICS, AND SOCIAL SCIENCE (ICEBESS)

THEME:
"THE CHALLENGE OF NEW TECHNOLOGY ON EDUCATION AND BUSINESS SUSTAINABILITY"

FACULTY OF ECONOMICS AND BUSINESS, SATURDAY, SEPTEMBER 21ST, 2024

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ICEBESS 2024

International Conference of Ethics on Business, Economics, and Social Science

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Yogyakarta, September 21st, 2024

Prof. Dr. Siswanto, M.Pd.

The Dean of the Faculty of Economics dan Business

Universitas Negeri Yogyakarta

List of Content

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

HUMAN CAPITAL ON BUSINESS PERFORMANCE: THE MEDIATING ROLE OF SPIRITUAL CAPITAL TITLE

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ABSTRACT

Introduction/Main Objectives: MSMEs or Micro, Small, and Medium Enterprises are the main pillars of national economic growth, of course, various elements, including business performance, impact the potential of MSMEs to develop. Background Problems: MSMEs in Indonesia made the largest contribution to the Gross Domestic Product of Indonesia at 61%. At present, MSMEs are recorded to contribute 97% of the workforce, so MSMEs are considered capable of creating jobs to improve people's lives. The purpose of this study is to determine the effect of human capital on business performance, spiritual capital on business performance, and the role of spiritual capital in mediating the relationship between human capital and business performance Novelty: This study uses a sample of MSME in Banyumas, Brebes, and Cilacap. This study uses spiritual capital as a mediating variable. Research Methods: This study used MSMEs in Banyumas, Brebes, and Cilacap, Central Java. The convenience sampling questionnaire method was used to collect data. To conduct statistical analysis, the Partial Least Square Structural Equation Modeling (PLS-SEM) method was used. Finding/Results: Overall, the research findings show that human capital and spiritual capital have a significant positive impact on business performance, and spiritual capital can mediate the relationship between human capital and MSME business performance in Banyumas, Brebes, and Cilacap. Conclusion: It is expected that this research can help small and medium enterprises (MSMEs) stay alive in the era of globalization by gaining a competitive advantage in every situation and condition.

Keywords: Business Performance, Human Capital, Spiritual Capital, MSMEs

PROCEEDING ICEBESS - SEP 2024
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INTRODUCTION

One form of economy that is linked to various industries that cater to the needs of society is micro, small, and medium enterprises (MSMEs). In 2023, MSMEs in Indonesia made the largest contribution to Gross Domestic Product in Indonesia at 61%. At present, MSMEs are recorded to contribute 97% of the workforce, so MSMEs are considered capable of creating jobs to improve people's lives It is crucial to encourage the creation of new businesses and foster the spirit of entrepreneurship as their emergence can boost the economy and reduce the number of unemployed people. (Agus Suyono & Nur Septiana, 2022). It is possible that the right strategic move that Indonesia needs is to pay attention to the huge number of MSMEs. The phenomenon of the formation of the Telkom way culture which has a basic belief, namely always the best at PT Telkom Tbk from research (Pudjiantoro & Iftadi, 2019) Provides evidence that a company's decision to develop, strengthen, and sustainably maintain corporate culture through the spiritual capital dimension shows the importance of spirituality for companies in developing their business. And spirituality in the company needs to be managed as an asset of spiritual capital. (Pudjiantoro & Iftadi, 2019). Where the asset power will become increasingly important for the company in the process of value creation of all types of economic activities (Ariawan et al., 2016). In the field of entrepreneurship, capital is also found to play an important role in entrepreneurial processes and activities. (Khamimah, 2021). So to sustain an economic activity such as business to continue to survive, moral capital or spiritual capital is needed for each company. (Abdullah & Sofian, 2012).

The theory known as the resources-based perspective of the company, or RBV theory for short, first surfaced in the field of strategic management throughout the 1990s. This RBV theory attempts to explain why some businesses in the same industry are successful while many others are not. According to Barney (1991), Assuming: (1) There is heterogeneity of resources within the company; and (2) Some resources within the company are difficult to copy or are not elastic in supply, a company's success or failure will be largely determined by the strengths and weaknesses that exist within the company, not the external environment (Ferreira et al., 2011). The heterogeneity of firm resources means that in an industry all firms can't have the same resources. Some company resources will be difficult to copy by its competitors, especially in the matter of human resources such as spiritual capital. In other words, the success of the company is largely determined by the resources it has and the company's capability to turn these resources into an economic value advantage (Mulyono, 2013).

Disclosure of business performance is a performance that can refer to the actual results outputs of business in a company, how an activity is carried out, or the ability to obtain results (Saunila, 2017). Business performance management encompasses a methodical approach to establishing and preserving a competitive edge inside modern enterprises. Business performance is also a key component of BPM (Business Process Management), particularly when it comes to converting strategy into operational outcomes, diagnosing the organization and developing action plans, monitoring, giving feedback, communicating, and inspiring employees with performance-based rewards.

So spiritual capital becomes one of the successful efforts in building intelligent humans with high IQs and humans who are good at managing their emotions in influencing others (Maslow & Abraham H, 1954). Moreover, in economic activities such as business, the application of spiritual capital can provide the creative power, morality, sustainability, and integration needed in business performance. So that by integrating spiritual values in business performance, business people can achieve sustainable success in running their businesses. In essence, professionalism, high intellect capability and competence are necessary. Madhani (2010) Also said that spiritual capital has a positive effect as a driver of competitive differentiation in improving business performance. As we know the company's success in

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

improving the quality of human resources is also something that needs to be considered because spiritual capital among business people greatly affects structural and relational capital.

This study focuses on spiritual capital which has a significant influence on the business environment and the recognition of entrepreneurial opportunities. In this context, we can highlight that religious values, morals, and spiritual practices among helping economic actors can create individual emotional calmness, so that a stable mentality, attitude, and behavior can have a positive effect on creativity to innovate in their business. The society around us itself tends to embrace religion or spirituality. Therefore, the spiritual values of business people can form structural and relational capital. Spirituality is thus seen as a source of motivation, passion, and dedication to entrepreneurial activities (Eva et al., 2019). This study contributes to the literature by examining the Role of Human Spiritual Capital on Business Performance.

Resource-Based View (RBV)

Resources Based View Theory (RBV) as a conceptual model, sees resources as the determinants of organizational success. Ong & Mahazan (2020) Mentions that these determining resources must be unique, rare, and difficult to imitate. Madhani (2010) States that unique resources are resources that are not easily transferred or purchased, but require long learning within the organization. Madhani (2010) Added that resources that can be categorized as RBV are organizational processes, organizational attributes, information, or knowledge that is only known to the organization concerned. Fareed et al. (2016) Added that resources with unique, rare, and difficult-to-imitate categories in RBV refer to the human capital of an organization. Organizations must be able to develop their human resources so that the knowledge, work abilities, capabilities, and other characteristics needed, reach their full potential and provide added value to the organization for sustainable growth. The knowledge, skills, and experience of every human resource are different and will never be the same. It is not possible to replicate an organization's human resources in a short period.

Resource-based View In contrast to the SCP theory, the Resource-based View theory views that a firm's advantage is not determined by market characteristics, but rather by the resources owned by the firm (J. Barney, 1991; Peteraf, 1993). Firms are special market actors with heterogeneous resources. This is what distinguishes the ability and performance of each company from one another even in the same industry or even with the same company size and products in understanding and articulating value creation strategies for the benefit of their customers. RBV views that the strength of a company lies within the organization itself. The superiority of empowering the resources owned by the company is what enables the company to maximize its potential profits (Grant, 2001). This theory argues that the key to improving firm performance is based on the internal characteristics of the firm (J. B. Barney & Mackey, 2005). Performance differences are explained primarily by the existence of organizational resources that are valuable, scarce, and not easily imitated and substituted by competition (Peteraf & Barney, 2003). Resources are the firm's owned tangible and intangible assets (Galbreath, 2005). Financial resources, physical resources (plant, machinery, etc.), human resources, and technology resources are examples of tangible assets; knowledge, skills, reputation, and capabilities are examples of intangible assets. Generally, businesses want to obtain and utilize either permanent or semi-permanent control over resources that can provide them with a competitive edge over their rivals.

Businesses will differ from one another in terms of providing distinct goods or services since they have differing degrees of control over various resource kinds. Businesses leverage organizational resources including capabilities, management guidelines, and human resources to create and execute new ideas and plans. The firm will benefit from having human capital with high skill levels and good alignment between the capabilities represented in the organization and those needed to meet its strategic needs (Crook et al., 2011). Therefore, the

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

main reason for a company's growth and success comes from within the company. In other words, companies with superior resources and capabilities will build the foundation for gaining and maintaining a competitive advantage (Mohamad Radzi et al., 2017).

Business Performance Theory

According to Margie et al., (2020) in his book defines business as follows: "Business is an activity that is inseparable from the activities of production, purchase, sale, and exchange of goods and services involving people or companies to make a profit." According to Margie et al., (2020), the term performance or performance is often associated with the company's financial condition. Performance is an important thing that must be achieved by every company everywhere because performance is a reflection of the company's ability to manage and allocate its resources. Fisher (1998) in (Astuti & Sabeni, 2005) Also said that Business performance is described in formal control system performance measures including financial and non-financial measures. Financial measures show various actions that occur outside the financial field. The increased financial return is the result of various operational performances, including increased consumer confidence in the products produced by the company, increased cost-effectiveness of internal business processes used by the company to produce products, and increased employee productivity and commitment (Mulyadi & Setyawan, 2001), in (Astuti & Sabeni, 2005). Increased business performance is when the preparation of human resources has been done early so that after entering the world of work has been qualified and able to accept changes or work in any form. This is a fortune for every resource, especially productive resources to increase business progress. From this information, the hypothesis of this study is: If human capital increases, the business performance of MSMEs will also increase.

Effect of Human Capital on Business Performance

The business environment in the 4.0 era has undergone many changes, therefore a company must be able to adapt to changes to compete and survive. Human Capital is one of the important capitals for the company because it is a source of innovation and renewal of strategies, re-engineering processes, and the source of the company (Juwita & Anggraini, 2007). Human capital reflects the overall capacity of an organization to create the best arrangements given the information owned by individuals in the organization, which will increase competitive advantage if the organization can utilize the information owned by its employees (Ongkorahardjo et al., 2008).

Previous research Juwita & Anggraini (2007) Stated that human capital has a positive influence on business performance due to the intelligence and creativity possessed by employees. Thus, companies or MSMEs can increase market share, and consumer profiles, and understand market segments, to improve overall company performance for the progress of MSMEs.

H1: Human Capital has a positive effect on Business Performance

Effect of Spiritual Capital on Business Performance

Research from Oxford University shows that other worlds are created because of important human emergencies, so the presence of associations must also give meaning to organizational goals. The implications that arise in an association will empower each individual who works in it to further develop themselves. Thus, they can also work better (Nasrullah & Pohan, 2020).The spiritual intelligence that everyone has is not the same. It depends on each person's personality to give meaning to his or her life. Spiritual intelligence is more broad and not limited to religion alone. The differences that each individual has will make their work different (Sardar et al., 2019). Knowledge of spiritual intelligence is used by employees to

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

improve company performance and is integrated into organizational goals, resulting in an impact on business sustainability.

Previous research from (Abdullah & Sofian, 2012), and (Khalique et al., 2018) Found that spiritual capital has a positive effect on business performance which shows that spiritual capital affects company performance. Spiritual Capital can affect company performance where the higher the spiritual capital will significantly improve company performance. Achieving Business Performance collectively requires information system support to achieve MSME goals.

H2: Spiritual Capital has a positive effect on Business Performance

Spiritual Capital Mediates the Effect of Human Capital on Business Performance

The importance of Business Performance encourages individual satisfaction, knowing the capacity of representatives so that work can be completed perfectly by individuals, distinguishes the obstacles experienced by workers during work, and creates workers' professional success. Optimal and good work results can certainly be achieved by groups of people or individuals within the company by the responsibilities, authorities, and rules of each (Nurjaya, 2021). Spiritual Capital is considered an intangible and transcendent resource that comes from the religious and moral beliefs of individuals mixed in organizations that are used for economic activities (Sastrodihardjo & Suraji, 2020).

Valuable and exclusive Human Capital associated with different organizational capacities is summarized and refined to contribute to developing the company's core competencies (Kumara & Putra, 2023). Van der Ploeg et al., (2017) To develop Human Capital in a way of strategic importance, companies must provide individual learning facilities, organize, training activities, skills development, and education to encourage a variety of knowledge, experience, and knowledge between employees and between employees and clients. Thus, the existence of several variables can prove Spiritual Capital mediates the influence of Human Capital on Business Performance to help overcome the business problems of entrepreneurs and produce quality innovations to optimize the competence of MSME businesses.

H3: Spiritual Capital Mediates the Effect of Human Capital on Business Performance

METHOD, DATA, AND ANALYSIS

Data and Samples

Quantitative research is a type of scientific research that investigates phenomena and collects and analyzes data. The results are quantitative numbers (Indriantoro & Supomo, 2016). This research uses a survey method by distributing questionnaires to MSME owners in Banyumas, Brebes, and Cilacap. The population used in this study was 200 MSME owners. The sample consists of micro, small, and medium enterprises (MSMEs) in Central Java, categorized according to their annual turnover by Article 6 of the MSME Law. These criteria consist of micro-enterprises with a turnover of less than IDR 50,000,000, small enterprises with a turnover between IDR 50,000,000 and IDR 500,000,000, and medium enterprises with a turnover of more than IDR 500,000,000 to IDR 10,000,000,000. In this study, primary data was used; this is original data that refers to information obtained from and used to answer the formulation of research problems (Indriantoro & Supomo, 2016). The main primary data in this study was obtained directly from questionnaire respondents. Those who answered the questionnaire voted based on a five-point Likert scale, with a value of five for strongly agree (SS), four for agree (S), three for moderate (C), four for TS, and one for strongly disagree (1).

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

Table 1. Operational Definition and Measurement of Variables

No	Definition	Indicator	Code
1.	**X: Human Capital** Human capital is one of the important factors in finding entrepreneurial opportunities and economic growth. Human capital as a company resource consists of skills, talents, knowledge, and experience that are used for the continuity of a business (Khalique et al., 2018).	Skills knowledge & expertise (Khalique et al., 2018)	HC 1
		Attitude (Khalique et al., 2018)	HC 2
		Intellectual agility (Khalique et al., 2018)	HC 3
2.	**Z: Spiritual Capital (SPC)** Spiritual capital consists of behavior, living habits, and associations that are adjusted to the teachings of a particular religion. Spiritual capital is utilized by MSMEs to check that business operations are by applicable work standards (Khalique et al., 2018).	Religious (Khalique et al., 2018)	SPC 1
		Ethic Values (Khalique et al., 2018)	SPC 2
3.	**Y: Business Performance (BP)** Organizational performance can be interpreted as the level of success in completing tasks carried out by the organization, which includes four main dimensions: the financial perspective, customer perspective, internal business process perspective, and learning and growth perspective (Khalique et al., 2018).	Financial Perspective	OP 1
		Customer Perspective	OP 2
		International Business Process Perspective	OP 3
		Learning and Growth Perspective	OP 4

Statistical Research Model

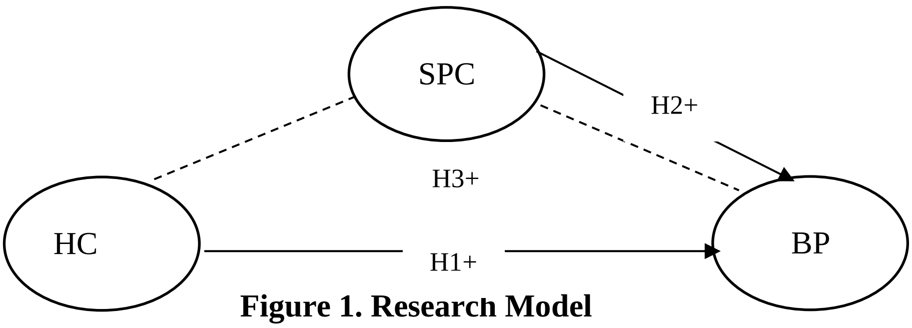

Figure 1. Research Model

Data Analysis Method

In quantitative research, data analysis is a process carried out after data from respondents or data sources are thoroughly collected. Then, the data is grouped by variables and types of respondents, tabulated, presented, or calculated to answer problem formulations or test hypotheses that have been made (Indriantoro & Supomo, 2016).

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

To test the hypotheses, PLS-SEM was used with Smart Partial Least Square (SmartPLS) 3 for data analysis (Rasoolimanesh et al., 2018). PLS-SEM has benefits in the interim analysis of structural models and construction assessment. This technique is considered flexible in modeling and can produce specific results after avoiding data normality issues and small sample sizes. To test validity and reliability, the PLS-SEM method in SMART PLS 3 uses a measurement model (outer model) and a structural or predictive model (inner model). The bootstrapping technique is used to complete the PLS algorithm by evaluating the loading value, significance level, and path coefficient.

RESULT AND DISCUSSION

Description of MSME Respondent

MSME players from Banyumas, Brebes, and Cilacap were the respondents of this study. A total of 200 respondents collected the successful questionnaires. Respondent characteristics included gender, age, religion, region, firm seniority (years), criteria, ownership structure, and business type. Table 2 shows the statistical description of the respondents.

Table 2. Statistical Description of the Respondents

Respondents	Categories	Frequency	Percentage
Gender	Male	104	52%
	Female	96	48%
Age	19-28	35	17,5%
	29-38	54	27%
	39-48	54	27%
	49-59	49	24,5%
	60-87	8	4%
Religion	Islam	198	99%
	Konghucu	1	0,5%
	Kristen Protestan	1	0,5%
Region	Banyumas	133	66,5%
	Brebes	34	17%
	Cilacap	33	16,5%
Years	<2 Years	43	21,5%
	2-6 Years	94	47%
	7-11 Years	33	16,5%
	12-16 Years	11	5,5%
	18-23 Years	9	4,5%
	24-55 Years	10	5%
Criteria	Micro	124	62%
	Small	60	30%
	Medium	16	8%
Ownership	Privately-owned Business	170	85%
	Family Business	25	12,5%
	Commanditaire Vennotschap (CV)	4	2%
	Limited Liability Company (PT)	1	0,5%
Type	Food	88	44%
	Fashion	16	8%
	Service	29	14,5%
	Craft	5	2,5%

Respondents	Categories	Frequency	Percentage
	Farm	1	0,5%
	Store	61	30,5%

Source: Primary Data Processed, 2024

According to Table 2, 52 percent of the respondents, or 104 people, were male with an average age between 44 and 48 years. In addition, the majority of respondents were Muslim (99%; n=198). The study involved six small and medium-sized industries (MSMEs), which made up 43.5% (n=87) of the total culinary industry. This was followed by 30.5% (n=61) from the shop sector; 8.5% (n=17) from the fashion sector; 2.5% (n=5) from the boat sector; and 0.5% (n=1) from the livestock sector. In addition, the microenterprise category represents 61.5% of the umkm criteria. Privately owned businesses dominate the ownership structure (85%; n=170). The longest working time criterion was two to six years (47%; n=94).

Convergent Validity

The convergent validity value is a measure of the correlation between constructs and highly correlated latent variables. The loading factor value for latent variables greater than 0.7 will produce an ideal value and the indicator is declared valid (Hair et al., 2019). All indicators of these variables have a correlation value of more than 0.7, as shown in the figure below. Therefore, it can be concluded that these indicators can be used as a measure.

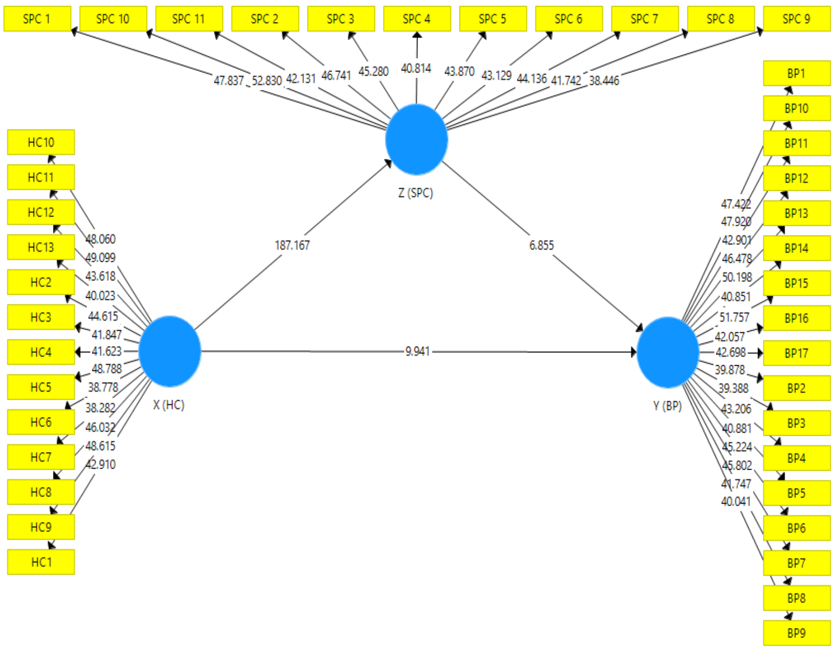

Figure 2. Variable Correlation

Discriminant Validity Test

The ability to quickly distinguish a construct from other constructs is the purpose of the Discriminant Validity test. as well as the level of variation between constructs and related indicators (Hair et al., 2019). The discriminant validity test uses the Fornell-Lacker test, this test is used to measure discriminant validity, the diagonal value represents the square root of the AVE which indicates the variation between the construct and its items. In addition, the off-diagonal elements measure the squared correlation between latent constructs (Henseler et al., 2015). The AVE threshold value is 0.5, so it will be said to be reliable (Chin & Marcoulides, 1998).

E-ISSN : 2528 - 671X

Table 3. Forner-Lacker criterion analysis for discriminant validity

	AVE	Human Capital	Business Performance	Spiritual Capital
Human Capital	0.792	0.890		
Business Performance	0.793	0.982	0.891	
Spiritual Capital	0.790	0.977	0.978	0.889

Source: Results of data processing with Smart PLS, 2024

Table 3 displays the average variance extracted (AVE) and composite reliability values. According to Ghozali et al., (2015) The average variance extracted (AVE) value must be greater than 0.5 to satisfy reliability criteria and convergent validity requirements. It is clear from the above table that the study's model satisfies the requirements.

Composite Reliability Test

The composite reliability test is a stage carried out to test the extent to which research variables have reliable reliability. Composite reliability can assess internal consistency between observed variables of the same construct to ensure observed variables estimate factors or constructs that are closely related (Hair et al., 2019). Composite reliability with a value above 0.7 is said to be reliable. Based on the data in the table below, the value of human capital, business performance, and spiritual capital has a value greater than 0.7, so the variable is said to be reliable.

Table 4. Composite Reliability Test

Latent Constructs	**Composite Reliability**
Human Capital	0.980
Business Performance	0.985
Spiritual Capital	0.976

Source: Results of data processing with Smart PLS, 2024

R-Square (R2)

The R2 value refers to the measurement of the predictive accuracy of the structural model (Chin & Marcoulides, 1998). The endogenous constructs of business performance and spiritual capital have R2 values of 0.971 and 0.954 respectively in Table 5.

Table 5. Results of R2

	R Square	**R Square Adjusted**
Business Performance	0.972	0.971
Spiritual Capital	0.954	0.954

Source: Results of data processing with Smart PLS, 2024

According to (Ghozali et al., 2015) The R-Square has a value criterion of 0.75, 0.50, and 0.25 which indicates that the model has a strong, moderate, and weak influence. Based on table 5, shows the R-Square Business performance value of 0.972. This value means that business performance is influenced by human capital and spiritual capital and the remaining 2,8% is influenced by other variables outside the variables studied.

F-Square (F^2)

The F^2 value illustrates the magnitude of the influence of exogenous latent variables on endogenous latent variables in the structural order. According to Chin & Marcoulides (1998), if the F^2 value is more than 0.02 but smaller than 0.15, it is categorized as a small influence, the F^2 value lies between 0.15 and 0.35, it is categorized as a moderate influence, and if the F^2 value is more than 0.35, it is categorized as a large influence.

Table 6. Results of F^2

	Business Performance	Spiritual Capital
Human Capital	0.551	20.922
Business Performance		
Spiritual Capital	0.262	

Source: Results of data processing with Smart PLS, 2024

Based on the f-square table reveals the results of 0, 551 on Human Capital on Business performance, which means that human capital has a moderate or moderate influence on Business performance. Human Capital on Spiritual Capital reveals the results of 20, 922 which means that human capital has a weak influence on Spiritual capital. Spiritual capital on business performance reveals the results of 0, 262 which means that spiritual capital has a strong influence on business performance.

Model Structure Analysis

Bootstrapping was used on 200 data and 500 samples to normalize the data and check the statistical significance of the path coefficients. The results of the path coefficient significance test for each variable are in Table 7.

Table 7. Total Effects

	Original Sample (O)	Sample Mean (M)	Standard Deviation	T Statistics	P Values	Decision
Human Capital-> Business Performance (H1)	0.587	0.584	0.059	9.941	0.000	Supported
Spiritual Capital -> Business performance (H2)	0.405	0.408	0.059	6.855	0.000	Supported

Source: Results of data processing with Smart PLS, 2024

Table 8. Specific Indirect Effects

	Original Sample (O)	Sample Mean (M)	Standard Deviation	T Statistics	P Values	Decision
Human Capital -> Spiritual Capital -> Business Performance (H3)	0.395	0.398	0.058	6.842	0.005	Supported

Source: Results of data processing with Smart PLS, 2024

PROCEEDING ICEBESS - SEP 2024
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The research hypothesis can be declared significant if the P-Values <0.05 and declared significant if the t-table> 1.96 (Ghozali et al., 2015). All relationships are said to have a positive direction if the original sample value (O) shows a positive value, while for hypotheses that have a negative direction, the original value (O) shows a negative value.

Discussion

First Hypothesis Test Results

The bootstrapping test results in Table 7 show that the P-value of human capital on business performance is 0.000 which is lower than 0.05 and the original sample (O) has a result of 0.587 which has a positive direction as determined by the direct effect test using PLS analysis. These results provide a conclusion that human capital has a positive and significant influence on business performance and confirm that the first hypothesis is supported.

Human resources reflect the overall capacity of an organization to create the best arrangements given the information owned by individuals in the organization, which will increase competitive advantage if the organization can utilize the information owned by its employees (Ongkorahardjo et al., 2008). Quality business performance will increase market share and affect the increase in income of business actors. This is by the resource-based view (RBV) theory regarding resources as the best asset that will lead the company to a competitive advantage (Wernerfelt, 1984). Human capital as an important asset for business actors must be managed properly to produce the best innovation for business continuity. The results of this study are in line with research by (Juwita & Anggraini, 2007; Ongkorahardjo et al., 2008) Which states that human capital has a positive and significant influence on business performance, stating that service quality as a source of competitive advantage has a role in improving service to consumers and avoiding potential problems that arise.

Second Hypothesis Test Results

The bootstrapping test results in Table 7 show that the P-value of human capital on spiritual capital is 0.000 which is lower than 0.05 and the original sample (O) has a result of 0.977 which has a positive direction as determined by the direct effect test using PLS analysis. These results provide the conclusion that human capital has a positive and significant influence on spiritual capital and confirm that the second hypothesis is supported.

Resource-based view theory explains that a company that can manage assets well can create a competitive advantage for the company (Wernerfelt, 1984). human capital is one of the resources that will bring a competitive advantage in increasing the potential of business performance according to RBV theory. The results of this study are in line with (Abdullah & Sofian, 2012; Khalique et al., 2018; Muzakki, 2020) that spiritual capital has a positive effect on business performance. Spiritual Capital can affect company performance where the higher the spiritual capital will significantly improve company performance. Achieving Business Performance collectively will require information system support for the achievement of MSME goals.

Third Hypothesis Test Results

The bootstrapping test results in Table 8 show that the P-value of human capital on business performance with spiritual capital as a mediating variable is 0.025 which is lower than 0.05 and the original sample (O) has a result of 0.062 which has a positive direction as determined by the direct effect test using PLS analysis. These results provide the conclusion that spiritual capital mediates the effect of human capital on business performance and confirm that the third hypothesis is supported. A culture of spirituality in the workplace can positively influence the attitudes and mentality of employees because it adheres to existing spiritual values, it makes employees calmer and more confident to bring up many new creativities that can support innovation through existing knowledge and skills (Afsar & Rehman, 2015). This is in line with research conducted by (van der Ploeg et al., 2017) Which has the result that spiritual capital can mediate the relationship between the influence of human capital on business performance.

CONCLUSION

The results of this study show significant positive results in each hypothesis put forward. The results of this research study have important implications for MSME players in Indonesia, especially Central Java. This study provides results that the importance of human capital as an asset for business people in creating business performance to win business competition domestically and internationally. In this case, improving the quality of human resources is an important point to get around MSME actors who have a shortage of human resources. In addition to human capital, MSME actors who have appropriate, complete, and strong spiritual capital will be able to improve business performance because optimizing the potential of human capital in using systems or technology to support work becomes easier. In maximizing the business performance of MSME actors, human capital and spiritual capital are needed which can be used between employees. Business actors who want to increase innovation can consider providing training to increase the quality and motivation of employees so that they can overcome business obstacles in the future. In addition, MSME players need to apply spirituality in the work environment to increase understanding of the values of honesty, integrity, and responsibility in employees. A well-integrated business will produce good output results as well as improve business quality in terms of sustainable innovation.

The recommendation from this research for future research is to be able to reach more MSME samples such as adding districts and can reach up to the provincial to national level. In addition, this research uses Smart-PLS statistical tools, other statistical tools such as SPSS and so on can be used to get results that may be different. Due to the limitations of this study, conclusions cannot fully represent the results obtained, future research can add other variables such as innovation capacity, intellectual capital, training, and so on which of course can increase the influence of the dependent variable, namely business performance.

REFERENCE

Abdullah, D. F., & Sofian, S. (2012). The Relationship between Intellectual Capital and Corporate Performance. *Procedia - Social and Behavioral Sciences*, *40*, 537–541. https://doi.org/10.1016/j.sbspro.2012.03.227

Afsar, B., & Rehman, M. (2015). The relationship between workplace spirituality and innovative work behavior: The mediating role of perceived person-organization fit. *Journal of Management, Spirituality and Religion*, *12*(4), 329–353. https://doi.org/10.1080/14766086.2015.1060515

Agus Suyono, N., & Nur Septiana, T. (2022). Pengaruh Kecerdasan Intelektual, Kecerdasan Emosional, Kecerdasan Spiritual dan Modal Usaha Terhadap 95 Pengaruh Kecerdasan Intelektual, Kecerdasan Emosional, Kecerdasan Spiritual dan Modal Usaha Terhadap Kinerja Usaha Mikro, Kecil Dan Menengah (UMKM). *Jurnal Akuntansi, Manajemen & Perbankan Syariah*, *2*(5).

Ariawan, Sudarma, M., Djumahir, & Ghozali. (2016). THE ROLE OF SPIRITUAL CAPITAL, HUMAN CAPITAL, STRUCTURAL CAPITAL, AND RELATIONAL CAPITAL OF SMES TO IMPROVING ON PERFORMANCE: STUDY LITERATURE. *South East Asia Journal of Contemporary Business, Economics and Law*, *11*(2).

Astuti, P. D., & Sabeni, A. (2005). Hubungan Intellectual Capital dan Business Performance dengan Diamond Spesification: Sebuah Perspektif Akuntansi. *Conference: Simposium Nasional Akuntansi (SNA) VIII*.

Barney, Jay. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management*, *17*(01), 99–120.

Barney, J. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management*, *17*(1), 99–120. https://doi.org/10.1177/014920639101700108

Barney, J. B., & Mackey, T. B. (2005). *Testing Resource-Based Theory* (pp. 1–13). https://doi.org/10.1016/s1479-8387(05)02001-1

Chin, W. W., & Marcoulides, G. A. (1998). *The Partial Least Squares Approach to Structural Equation Modeling*. https://www.researchgate.net/publication/311766005

Crook, T. R., Todd, S. Y., Combs, J. G., Woehr, D. J., & Ketchen, D. J. (2011). Does human capital matter? A meta-analysis of the relationship between human capital and firm performance. *Journal of Applied Psychology*, *96*(3), 443–456. https://doi.org/10.1037/a0022147

Eva, N., Robin, M., Sendjaya, S., van Dierendonck, D., & Liden, R. C. (2019). Servant Leadership: A systematic review and call for future research. *Leadership Quarterly*, *30*(1), 111–132. https://doi.org/10.1016/j.leaqua.2018.07.004

Fareed, M., Faizal, M., Isa, M., Maznah, S., & Salleh, M. (2016). Developing human capital for sustainable competitive advantage: The roles of organizational culture and high performance work system. *International Journal of Economic Perspectives*, *10*(4). http://www.econ-society.org

Ferreira, J. J., Azevedo, S. G., & Ortiz, R. F. (2011). Contribution of resource-based view and entrepreneurial orientation on small firm growth. *Cuadernos de Gestion*, *11*(1), 95–116. https://doi.org/10.5295/cdg.100185jf

Ghozali, Imam, & Latan, H. (2015). Partial least squares konsep, teknik dan aplikasi menggunakan program smartpls 3.0 untuk penelitian empiris. *Badan Penerbit UNDIP*, *4 (1)*.

Grant, R. M. (2001). *The Resource-Based Theory of Competitive Advantage: Implications for Strategy Formulation*.

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. In *European Business Review* (Vol. 31, Issue 1, pp. 2–24). Emerald Group Publishing Ltd. https://doi.org/10.1108/EBR-11-2018-0203

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, *43*(1), 115–135. https://doi.org/10.1007/s11747-014-0403-8

Indriantoro, N., & Supomo, B. (2016). *Metodologi penelitian bisnis : untuk akuntansi & manajemen (Edisi 1)* (BPFE). BPFE.

Juwita, S. P., & Anggraini, F. (2007). Pengaruh Human Capital Terhadap Business Performance Melalui Customer Capital. *Jurnal Akuntansi Dan Keuangan Indonesia*, *4*(2), 229–250. https://doi.org/10.21002/jaki.2007.12

Khalique, M., Bontis, N., Nassir Bin, A., Shaari, J., Yaacob, M. R., & Ngah, R. (2018). Intellectual capital and organisational performance in Malaysian knowledge-intensive SMEs. In *Int. J. Learning and Intellectual Capital* (Vol. 15, Issue 1). www.imf.org

Khamimah, W. (2021). Peran Kewirausahaan Dalam Memajukan Perekonomian Indonesia. *Jurnal Disrupsi Bisnis*, *4*(3), 2017. https://doi.org/10.32493/drb.v4i3.9676

Kumara, I. D., & Putra, A. W. G. (2023). Pengaruh spiritual capital, human capital, structural capital terhadap relational capital dalam meningkatkan performance di perusahaan PT. Shopee. *Fair Value : Jurnal Ilmiah Akuntansi Dan Keuangan*, *05*(08).

Madhani, P. M. (2010). *Resource Based View (RBV) of Competitive Advantage An Overview*. http://ssrn.com/abstract=1578704Electroniccopyavailableat:http://ssrn.com/abstract=1578704https://ssrn.com/abstract=1578704Electroniccopyavailableat:http://ssrn.com/abstract=1578704Electroniccopyavailableat:http://ssrn.com/abstract=1578704

Margie, L. A., Yulianto, Triputra, D. R., & Darmansyah, M. (2020). *Pengantar Bisnis*. Unpam Press. www.unpam.ac.id

Maslow, & Abraham H. (1954). *Motivation (Psychology) and Self-actualization*. New York, Harper.

Mohamad Radzi, K., Mohd Nor, M. N., & Mohezar Ali, S. (2017). The impact of internal factors on small business success: A case of small enterprises under the felda scheme. *Asian Academy of Management Journal*, *22*(1), 27–55. https://doi.org/10.21315/aamj2017.22.1.2

Mulyono, F. (2013). Sumber Daya Perusahaan Dalam Teori Resource-based View. *Jurnal Administrasi Bisnis*, *9*(01), 59–78.

Muzakki, K. (2020). Analisis Pengaruh Human Capital dan Structural Capital terhadap Kinerja Perusahaan. *Kinerja Perusahaan. Journal of Research and Technology*, *VI*, 267–276.

Nasrullah, A., & Pohan, E. sari. (2020). Intellectual Capital dan Spiritual Capital Terhadap Business Performance pada Perusahaan Manufaktur di Banten. *Jurnal Riset Akuntansi Tirtayasa*, *05*(01).

Nurjaya, N. (2021). Pengaruh Displin Kerja, Lingkungan kerja dan Motivasi Kerja Terhadap Kinerja Karyawan pada PT. Hazara Cipta Pesona. *AKSELERASI: Jurnal Ilmiah Nasional*, *3*(1).

Ong, J. O., & Mahazan, M. (2020). STRATEGI PENGELOLAAN SDM DALAM PENINGKATAN KINERJA PERUSAHAAN BERKELANJUTAN DI ERA INDUSTRI 4.0. *Business Economic, Communication, and Social Sciences)*, *2*(1), 159–168. https://kemenperin.go.id/artikel/18803/Pertumbuhan-

Ongkorahardjo, M. D. P. A., Susanto, A., & Rachmawati, D. (2008). *Analisis Pengaruh Human Capital Terhadap Kinerja Perusahaan (Studi Empiris pada Kantor Akuntan Publik di Indonesia)*.

Peteraf, M. A. (1993). The Cornerstones of Competitive Advantage: A Resource-based View. *Strategic Management Journal*, *14*, 180.

Peteraf, M. A., & Barney, J. B. (2003). Unraveling the resource-based tangle. In *Managerial and Decision Economics* (Vol. 24, Issue 4, pp. 309–323). https://doi.org/10.1002/mde.1126

Pudjiantoro, F. K. P., & Iftadi, I. (2019). Analisis Implementasi Analisis Implementasi Pembinaan Karakter Karyawan Berbasis Spiritual Pada PT. Telkom Indonesia Tbk. *Prosiding SNST Ke-10*, 58–65.

Rasoolimanesh, S. M., Ali, F., & Jaafar, M. (2018). Modeling residents' perceptions of tourism development: Linear versus non-linear models. *Journal of Destination Marketing and Management*, *10*, 1–9. https://doi.org/10.1016/j.jdmm.2018.05.007

Sardar, Z., Nafik Hadi Ryandono, M., & Tri Ratnasari, R. (2019). *Implementation of Spiritual Capital in Islamic Perspective to Business Performance*. 181–185. https://doi.org/10.5220/0007539801810185

Sastrodihardjo, I., & Suraji, R. (2020). *Kekuatan Spiritualitas dalam Enterpreneurship*. CV. Pena Persada.

Saunila, M. (2017). Understanding innovation performance measurement in SMEs. *Measuring Business Excellence*, *21*(1), 1–16. https://doi.org/10.1108/MBE-01-2016-0005

Van der Ploeg, R., Kretschmer, T., Salmivalli, C., & Veenstra, R. (2017). Defending victims: What does it take to intervene in bullying and how is it rewarded by peers? *Journal of School Psychology*, *65*, 1–10. https://doi.org/10.1016/j.jsp.2017.06.002

Wernerfelt, B. (1984). A Resource-based View of the Firm. In *Strategic Management Journal* (Vol. 5).

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THE EFFECT OF LEARNING INTEREST AND LEARNING FACILITIES ON STUDENT LEARNING MOTIVATION IN BASIC ACCOUNTING AND INSTITUTIONAL FINANCE CLASS X ACCOUNTING AND INSTITUTIONAL FINANCE AT SMK NEGERI 7 YOGYAKARTA IN THE 2023/2024 ACADEMIC YEAR

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ABSTRACT

Introduction/Main Objectives: Based on observations, there is a gap in high learning motivation and high learning interest according to experts with what happens in the field. In addition, the use of learning facilities is less than optimal. **Background Problems:** This study aims to find out: (1) The effect of learning interest on student learning motivation, (2) The effect of learning facilities on student learning motivation, (3) The effect of learning interest and learning facilities together on student learning motivation. **Novelty:** This research explains the factors that influence learning motivation, both internal and external factors, especially at SMK Negeri 7 Yogyakarta. **Research Methods:** This study is an ex-post facto research with a quantitative approach. The subjects of this study were all students of class X Accounting and Institutional Finance of SMK Negeri 7 Yogyakarta in the 2023/2024 academic year as many as 71 students. The analysis technique used is simple linear regression analysis and multiple linear regression analysis. **Finding/Results:** The results of this study (1) there is a positive effect of Learning Interest on student Learning Motivation, (2) there is a positive effect of Learning Facilities on student Learning Motivation, (3) there is a positive effect of Learning Interest and Learning Facilities together on student Learning Motivation. **Conclusion:** Learning interest and learning facilities on student learning motivation have a positive effect both partially and simultaneously. Therefore, teachers and schools can provide services and facilities that suit the needs of students.

Keywords: Learning Interest, Learning Facilities, Learning Motivation

INTRODUCTION

Education plays a crucial role in enhancing knowledge, honing skills, and fostering moral character in individuals, enabling them to improve themselves and face life's challenges. Education in Indonesia aims to develop students potential to become people of faith and piety towards God, with noble character, health, knowledge, competence, creativity, independence, democratic, and responsible citizens (Sisdiknas, 2003). Educational institutions serve as places for groups to obtain education. One such institution is the Vocational High School, which aims to prepare graduates for work, entrepreneurship, or further studies. Vocational High School equip students with competencies through theoretical and practical learning aligned with specific vocational programs. To help schools achieve these educational goals, a curriculum is necessary as a guideline for implementing learning activities, thereby achieving academic objectives.

The curriculum currently being promoted by the government is “Kurikulum Merdeka”, though its implementation remains optional depending on the readiness of the

PROCEEDING ICEBESS - SEP 2024
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schools. The purpose of "Kurikulum Merdeka" is to create meaningful and effective learning that enhances faith, piety, and noble character, while also fostering the creativity, emotions, and desires of students as lifelong learners with Pancasila character (Kemendikbudristek, 2024). SMK Negeri 7 Yogyakarta is one of the secondary schools implementing "Kurikulum Merdeka". According to the Decree of the Director General of Vocational Education of the Ministry of Education, Culture, Research, and Technology No. 33/D/O/2023, SMK Negeri 7 Yogyakarta operates a teaching factory for the Multimedia department, while the Accounting program has not yet implemented a teaching factory. Academic activities at SMK Negeri 7 Yogyakarta are formulated in "Capaian Pembelajaran", include elements of cognitive, affective, and psychomotor skills, which are tracked and developed from one phase to the next. In class X or phase E, students take all subjects, while in class XI and XII, they take general subjects and those aligned with their interests (Kemendikbudristek, 2024). Therefore, the Accounting and Institutional Finance program are termed "Basic Accounting and Institutional Finance". Within this subject, there are several elements, but this research will focus on the most basic aspect of accounting, which is the element of Basic Accounting. Basic Accounting is a subject that has not been taught at previous educational levels, so students need to be introduced to it from the most fundamental concepts, both in theory and practice. The teaching material used is the "Akuntansi Dasar" book by Dwi Harti, published in 2020. The teaching medium employed is an LCD projector.

The Class X Accounting and Institutional Finance students at SMK Negeri 7 Yogyakarta study accounting theory at the beginning of the semester, followed by practical materials. Based on interviews with subject teachers, it was revealed that the theory of accounting is taught through group presentations by students, while practical accounting lessons use a problem-solving model assisted by peer tutors. Observations showed that after the teacher opened the class and checked attendance, they immediately reviewed the previous lesson and provided practice exercises. Unfortunately, before the main lesson, students did not receive any motivation from the teacher to boost their learning spirit. During the core lesson, the teacher explained each practice exercise and assisted students who had difficulties. In the odd Semester's Final Assessment for the Class X Accounting and Institutional Finance subject, 46% of the 71 students scored below the Minimum Competency Criteria of 75. Remedial sessions were conducted via Google Form as a closed-book test with 25 multiple-choice questions selected from the 45 questions in the Final Assessment. The selected questions were the most challenging ones to make it easier for students to complete the test.

Effective learning can be achieved while the learning process is well-managed, communicative, elicits student responses, involves active participation from both students and teachers, and results in at least 85% of students achieving mastery (Bistari, 2018). The success of the learning process is influenced by student personality, learning attitudes and habits, motivation, concentration, self-confidence, the ability to process information and extract learning outcomes, teacher professionalism, peer influence, the curriculum, and school facilities (Aunurrahman, 2014:180-197). Someone will be more enthusiastic and ambitious to achieve a goal if they have motivation during the learning process. Students will strive harder to achieve academic success when they have strong internal motivation. Learning motivation has a linear relationship with academic achievement. This was proven in another study on learning motivation and academic achievement in the Basic Accounting subject for Class X Accounting and Institutional Finance students at SMK Negeri 7 Yogyakarta in the 2018/2019 academic year, which showed that learning motivation positively affected students academic performance with a determination coefficient of 76,7% (Kirana, 2019).

Learning motivation is crucial for students to achieve their planned goals. Motivation drives students to take action and reach specific outcomes (Purwanto, 2014:73). In line with this understanding, learning motivation is a change in human energy related to psychological

PROCEEDING ICEBESS - SEP 2024
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aspects, feelings, and emotions that encourages actions toward achieving goals, needs, or desires (Sardiman, 2018:74). Additionally, learning motivation can be defined as the drive within students to engage in learning activities, originating from both internal and external factors, to accomplish a specific objective.

Students with high learning motivation can be observed through their behaviors during the learning process. Such behaviors include actively asking questions, expressing opinions, summarizing learning materials, taking notes and making resumes, practicing skills, completing exercises and evaluations as required, studying diligently, attentively listening to lessons, and completing assignments. Conversely, students with low learning motivation tend to have lower endurance in studying and less dedication to completing tasks (Aunurrahman, 2014:180). Learning motivation has indicators that can demonstrate the level of a student's motivation. Indicators of high learning motivation include a desire and ambition to succeed, a drive and need for learning, hopes and aspirations, recognition, engaging learning, and a conducive environment (Uno, 2017:23). Based on observations, there is a gap between the indicators of high learning motivation according to Uno and the actual classroom situation. For example, while high motivation is marked by a drive and need for learning, in reality, 86% of students have not yet actively participated in class. Another indicator suggests that students have hopes, ambitions, and future goals, but in practice, 86% of students lack clear aspirations and career plans. Additionally, high learning motivation is characterized by recognition of learning, engaging lessons, and a conducive learning environment. Unfortunately, students receive little recognition, and the learning process is often monotonous.

Learning motivation grows and develops under the influence of various factors. These factors are categorized into internal factors, which are the drives from within the students themselves, and external factors, which include influences from the students surrounding environment. The internal factors affecting learning motivation, in descending order of impact, are interest, attitude, intelligence, physical condition, emotion, and talent. Meanwhile, the external factors, also in descending order of impact, include family, school, and society (Djarwo, 2020).

One of the internal factors influencing learning motivation is learning interest. Students motivation to study a particular subject arises from their interest and the tendency for their attention to the subject (Dimyati & Mudjiono, 2013:43). This view is supported by other research findings indicating that learning interest affects learning motivation among students at Universitas Panca Sakti Bekasi (Rista, 2022). Besides university students, the interest of high school students also impacts their learning motivation. This is demonstrated by research on Class X Accounting students at SMK Muhammadiyah 1 Borobudur, which shows a positive and significant influence of interest on student learning motivation. The higher the learning interest, the higher the students motivation to learn (Izzati, 2017).

Learning interest encompasses students attraction, enjoyment, and participation in cognitive, affective, and psychomotor behavior changes through learning activities. Students with a genuine learning interest are characterized by behaviors such as diligent study habits, enjoyment of learning, ease in memorization, task completion, attention to lessons, and active participation in learning activities (Khairani, 2017:194,196). Such students enjoy reading textbooks, study with a cheerful disposition, learn without being prompted, ask questions when they do not understand, strive to be beneficial to themselves and others, are enthusiastic about learning and are never late for lessons (Djarwo, 2020). Learning interest has indicators that reflect the high or low levels of students interest. Based on observations, there is a gap between the indicators of high learning interest according to Slameto (2015:57, 180), and the actual classroom situation. Indicators of students with high learning interest include paying attention to lessons and preferring certain subjects over others. However, observations reveal that students often chat and check social media after completing assignments. Another indicator

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

suggests that students with high interest give more attention to learning and can study independently, yet in practice, students take a long time to complete simple tasks, leading to a noisy classroom. Furthermore, while high learning interest is indicated by students studying earnestly to achieve their goals, observations show that 86% of students are not actively participating in class, and 46% scored below the Minimum Competency Criteria on the Semester's Final Assessment.

One of the external factors influencing learning motivation is learning facilities. Adequate learning facilities contribute to effective and conducive learning, aligning with the planned learning objectives. Learning facilities in schools include the resources and infrastructure provided to support all learning activities. Well-maintained resources and infrastructure can create a more conducive learning environment, facilitate access to information and learning resources, and enhance students motivation to achieve optimal learning outcomes. Conversely, poorly organized classrooms and buildings, limited learning resources, incomplete libraries, insufficient textbooks, and the unavailability of learning media can lead to decreased student motivation and an ineffective learning environment (Aunurrahman, 2014:196).

Learning facilities encompass all resources and infrastructure used in the teaching and learning process that affect the achievement of educational goals. Improving learning motivation is expected through the provision of adequate learning facilities for students (Febrini, 2017:91). Other research has demonstrated that learning facilities impact motivation. For instance, a study on class XI accounting students at SMK Cut Nya' Dien revealed that learning facilities positively and significantly influenced learning motivation as an intervening variable (Handayani, 2018). This implies that the more complete and adequate the learning resources and infrastructure in classrooms and schools, the higher the students motivation to learn. In this study, the focus is limited to classroom environments, teaching materials, and learning media.

Based on observations, the classroom is hot during the day, despite the presence of fans. However, some of the fans are not functioning properly. This issue has been reported to the facilities department, but no further action has been taken due to budget constraints. Ideally, students would be more comfortable with functioning fans or even air conditioning. The teaching materials for the Basic Accounting and Institutional Finance course are obtained from books provided by the library and information available online. Each student is lent a copy of the Basic Accounting book from the library. However, the book's content is incomplete; for example, the material on closing entries and reversing entries must be sourced elsewhere. Another issue is the underutilization of classroom learning media, such as the LCD screen and projector. During lessons using PowerPoint, the teacher does not use the LCD screen, even though it is available in the classroom. The projector is too small and not properly adjusted, which causes difficulties for students with poor eyesight who are not wearing glasses to read the PowerPoint slides.

Based on the problems that occur in the field, this study aims to determine (1) the effect of learning interest on student learning motivation, (2) the effect of learning facilities on student learning motivation, and (3) the effect of learning interest and learning facilities together on student learning motivation in Basic Accounting and Institutional Finance Class X Accounting and Institutional Finance at SMK Negeri 7 Yogyakarta in the 2023/2024 Academic Year.

METHOD, DATA, AND ANALYSIS

This study was ex post facto research with a quantitative approach. It involved population research, including all 71 students from class X Accounting and Institutional Finance at SMK Negeri 7 Yogyakarta. The research techniques and instruments included

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

questionnaires, observations, and documentation. The data analysis techniques employed were simple linear regression and multiple linear regression analysis.

RESULT AND DISCUSSION

Result

a. The Effect of Learning Interest (X_1) on Student Learning Motivation (Y)

Based on the calculations, it was found that a = 15,108 dan b = 0,786, which resulted in the following simple linear regression equation:

$$Y = 15{,}108 + 0{,}786X_1 + e$$

This equation indicates that the regression coefficient is positive at 0,786, meaning that for each unit increase in Learning Interest (X_1), Learning Motivation (Y) would increase by 0,786. These results show a positive influence of learning interest on student learning motivation. Thus, higher learning interest correlates with higher student learning motivation. This test confirmed that H_1 was accepted and H_0 was rejected, indicating that there was an effect of Learning Interest on student Learning Motivation in the subject of Basic Accounting and Institutional Finance for class X Accounting and Institutional Finance at SMK Negeri 7 Yogyakarta for the 2023/2024 academic year.

The coefficient of determination (r^2) represents the proportion of the dependent variable (Y) that is explained by the independent variable (X) or how well the independent variable (X) explains the dependent variable (Y). The coefficient of determination shows the percentage of variance in the dependent variable explained by the variance in the independent variable (Sugiyono, 2015:231). Based on the calculations, the coefficient of determination (r^2) was 0.553 meaning that 55,3% of Learning Motivation (Y) was influenced by Learning Interest (X_1), with the remaining 44,7% influenced by other variables.

b. The Effect of Learning Facilities (X_2) on Student Learning Motivation (Y)

Based on the calculations, it was found that a = 10,028 and b = 0,357, which resulted in the following simple linear regression equation:

$$Y = 10{,}028 + 0{,}357X_2 + e$$

This equation indicates that the regression coefficient was positive at 0,357, meaning that for each unit increase in Learning Facilities (X_2), Learning Motivation (Y) would increase by 0,357. These results show a positive influence of learning facilities on student learning motivation. Thus, more optimal use of learning facilities would correlate with higher student learning motivation. This test confirmed that H_2 was accepted and H_0 was rejected, indicating that there was an effect of Learning Facilities on student Learning Motivation in the subject of Basic Accounting and Institutional Finance for class X Accounting and Institutional Finance at SMK Negeri 7 Yogyakarta for the 2023/2024 academic year.

The coefficient of determination (r^2) represents the proportion of the dependent variable (Y) explained by the independent variable (X) or how well the independent variable (X) explains the dependent variable (Y). The coefficient of determination shows the percentage of variance in the dependent variable caused by the variance in the independent variable (Sugiyono, 2015:231). Based on the calculations, the coefficient of determination (r^2) was 0,526 meaning that 52,6% of Learning Motivation (Y) was influenced by Learning Facilities (X_2), with the remaining 47,4% influenced by other variables.

c. The Effect of Learning Interest (X_1) and Learning Facilities (X_2) Together on Student Learning Motivation (Y)

Based on the calculations, it was found that a = 2,573; b_1 = 0,489 dan b_2 = 0,196, resulting in the following simple linear regression equation:

E-ISSN : 2528 - 671X

$$Y = 2,573 + 0,489X_1 + 0,196X_2 + e$$

This equation indicates that the regression coefficient for Learning Interest (X_1) was positive at 0,489 and the regression coefficient for Learning Facilities (X_2) was positive at 0,196. If Learning Interest (X_1) and Learning Facilities (X_2) were each 0, then Learning Motivation (Y) would be 2,573. If Learning Interest (X_1) increased by one unit while Learning Facilities (X_2) remained unchanged, Learning Motivation (Y) would increase by 0,489. Conversely, if Learning Interest (X_1) remained unchanged and Learning Facilities (X_2) increased by one unit, Learning Motivation (Y) would increase by 0,196. If both Learning Interest (X_1) and Learning Facilities (X_2) increased by one unit each, Learning Motivation (Y) would increase by 0,685.

Multiple correlation was used to examine the relationship between two or more independent variables simultaneously with one dependent variable (Sugiyono, 2015:231-232). Based on the analysis, the correlation coefficient (R_{x1x2y}) for Learning Interest (X_1) and Learning Facilities (X_2) together with Learning Motivation (Y) was 0,796. This result indicated a positive influence of Learning Interests and Learning Facilities together on student Learning Motivation. Thus, higher levels of learning interest and learning facilities together were associated with higher student learning motivation. This test confirmed that H_3 was accepted and H_0 was rejected, meaning that there was a effect of Learning Interest and Learning Facilities together on student Learning Motivation in the subject of Basic Accounting and Institutional Finance for class X Accounting and Institutional Finance at SMK Negeri 7 Yogyakarta for the 2023/2024 academic year.

The coefficient of determination (R^2) represents the proportion of the dependent variable (Y) explained by the independent variables (X) or the extent to which the independent variables (X) can explain the dependent variable (Y). The coefficient of determination indicates the percentage of variance in the dependent variable that is caused by the variance in the independent variables (Sugiyono, 2015:231). Based on the calculations, the coefficient of determination (R^2) was 0,634 meaning that 63,4% of Learning Motivation (Y) was influenced by Learning Interest (X1) and Learning Facilities (X2) together, while the remaining 36,6% was influenced by other variables not examined in this study.

The results of the multiple regression analysis showed the relative and effective contributions of Learning Interest (X1) and Learning Facilities (X2) to Learning Motivation (Y). The following are the results of the calculations for relative and effective contributions:

Table 1. Results of the Calculations for Relative Contribution and Effective Contribution

	JK Regression X	**JK Regression**	**R^2**	**RC%**	**EC%**
Learning Interest (X_1)	1179,007	2167,354	0,634	54%	34,5%
Learning Facilities (X_2)	988,3479			46%	28,9%
Total				100%	63,4%

Based on the table above, it was found that the Relative Contribution showed the magnitude of the contribution of each independent variable, such as Learning Interest and Learning Facilities, to the dependent variable, such as Learning Motivation, at 54% and 46%, respectively. Meanwhile, the Effective Contribution was 34,5% for Learning Interest and 28,9% for Learning Facilities, resulting in a total effective contribution of

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

63,4%. Therefore, it can be concluded that 36,6% of the Learning Motivation of Class X Accounting students at SMK Negeri 7 Yogyakarta was influenced by other variables not examined in this study.

Discussion

a. The Effect of Learning Interest (X_1) on Student Learning Motivation (Y)

Based on the analysis, it was shown that there was a positive effect of learning interest on student leraning motivation with a regression coefficient of 0,786. It means that Learning Interest (X_1) and student Learning Motivation (Y) increased in the subject of Basic Accounting and Institutional Finance for Class X at SMK Negeri 7 Yogyakarta in the 2023/2024 academic year. The coefficient of determination for learning interest on learning motivation was 0,553. This indicates that learning interest could influence learning motivation by 55,3%, while the remaining 44,7% of student learning motivation was affected by other variables.

Most students in class X Accounting at SMK Negeri 7 Yogyakarta had a moderate level of learning interest, with 25 students falling into this category. Similarly, the student learning motivation levels were mostly moderate, with 29 students showing this level of learning motivation. This was due to a lack of rewards from the teacher, monotonous teaching models that caused bored, and the use of conventional teaching materials, which were less innovative. Furthermore, students learning interests can arise from their desires, needs, and motives. Therefore, it can be concluded that to enhance student's learning interest, efforts must come from the students themselves, supported by the teacher's efforts in the school's learning activities, to improve their learning motivation.

Student learning motivation arises from interest and attraction to a subject (Dimyati & Mudjiono, 2013:43). Various measures can be taken to increase students learning interest, such as providing rewards, teaching conceptually and in relation to students aspirations, and using engaging teaching materials (Slameto, 2015:57,181). Students who are interested in a subject will engage in learning activities with enthusiasm, enjoyment, and active participation. Students learning interest can generate the drive or motivation needed to achieve their expected goals. Result of relevant research titled "Pengaruh Minat Belajar Terhadap Motivasi Belajar Siswa di SMA Negeri 1 Waytenong" which found a positive and significant effect of learning interest on accounting motivation, with a correlation coefficient (r_{xy}) of 0,640; t value > t table of 7,124 > 1,661; and a coefficient of determination of 0,341 (34,1%) (Novianti et al., 2022).

b. The Effect of Learning Facilities (X_2) on Student Learning Motivation (Y)

The analysis showed that there was a positive effect of learning facilities on student learning motivation with a regression coefficient of 0,357. It means that the use of Learning Facilities (X_2) became more optimal, and increased student Learning Motivation (Y) in the subject of Basic Accounting and Institutional Finance for Class X at SMK Negeri 7 Yogyakarta in the 2023/2024 academic year. The coefficient of determination for learning facilities on motivation was 0,526, indicating that learning facilities could influence learning motivation by 52,6%, while the remaining 47,4% of student learning motivation was affected by other variables.

Most of the students in Class X Accounting at SMK Negeri 7 Yogyakarta reported that the learning facilities were moderate, with 33 students indicating this level. Similarly, the students learning motivation levels were mostly moderate, with 29 students showing this level of learning motivation. This was due to the school's failure to address the maintenance of classroom facilities that required repairs, such as a

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

damaged LCD screen, uncomfortable room conditions due to malfunctioning fans, and the lack of up-to-date and complete teaching materials.

Learning facilities are used to facilitate the achievement of educational goals, so maintenance is necessary to ensure that all equipment functions properly. The methods for maintaining school facilities include preventing damage, storing equipment in designated places, cleaning dirt, checking conditions periodically, replacing damaged components, and repairing facility damage (Jabar, 2016:133). One principle of selecting teaching materials is that they should contain neither too little nor too much material, ensuring they sufficiently aid students in mastering competencies (Aunurrahman, 2014:80). Adequate facilities and infrastructure, such as building and classroom conditions, learning resources, teaching materials, and learning media, can facilitate student learning, create a conducive learning environment, and enhance student motivation (Aunurrahman, 2014:196). Result of relevant research titled "Pengaruh Persepsi Siswa tentang Kompetensi Pedagogik, Kompetensi Profesional Guru dan Fasilitas Belajar terhadap Motivasi Belajar Ekonomi Siswa di SMA Negeri 1 Ngemplak Sleman Tahun Ajaran 2017/2018" which found a positive and significant effect of learning facilities on accounting motivation, with a regression coefficient (r_{xy}) of 0,168 and a t value of 2,336 with a significance value of 0,023 < 0,05 (Hartaji, 2018).

c. The Effect of Learning Interest (X_1) and Learning Facilities (X_2) Together on Student Learning Motivation (Y)

The analysis showed that there was a positive effect of learning interest and learning facilities together on student learning motivation with a correlation coefficient (R_{x1x2y}) of 0,796. If both Learning Interest (X_1) and Learning Facilities (X_2) were each valued at 0, then student Learning Motivation (Y) would be 2,573. If student learning interest increased by one unit while learning facilities remained unchanged, the student learning motivation for the subject of Basic Accounting and Institutional Finance would increase by 0,489. If student learning interest remained unchanged and learning facilities increased by one unit, the student learning motivation for the subject would increase by 0,196. Conversely, if both learning interest and learning facilities each increased by one unit, the student learning motivation for the subject would increase by 0,685. This indicated that higher learning interest and more optimal use of Learning Interest (X_1) and Learning Facilities (X_2) led to higher student Learning Motivation (Y) in the subject of Basic Accounting and Institutional Finance for Class X at SMK Negeri 7 Yogyakarta in the 2023/2024 academic year. Conversely, lower levels of learning interest and facilities would result in lower student learning motivation. The coefficient of determination for the effect of learning interest and learning facilities together on student learning motivation was 0,634, meaning that learning interest and learning facilities together could influence learning motivation by 63,4%, with the remaining 36,6% of student learning motivation being affected by other variables not examined in this study.

CONCLUSION

Learning interest and learning facilities on student learning motivation have a positive effect both partially and simultaneously. Therefore, teachers and schools can provide services and facilities that suit the needs of students.

PROCEEDING ICEBESS - SEP 2024
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REFERENCE

Aunurrahman. (2014). *Belajar dan Pembelajaran*. Alfabeta.

Bistari, B. (2018). Konsep Dan Indikator Pembelajaran Efektif. *Jurnal Kajian Pembelajaran Dan Keilmuan*, *1*(2), 13. https://doi.org/10.26418/jurnalkpk.v1i2.25082

Dimyati, & Mudjiono. (2013). *Belajar dan Pembelajaran*. PT Rineka Cipta.

Djarwo, C. . (2020). ANALISIS FAKTOR INTERNAL DAN EKSTERNAL TERHADAP MOTIVASI BELAJAR KIMIA SISWA SMA KOTA JAYAPURA. *Jurnal Ilmiah IKIP Mataram*.

Febrini, D. (2017). *Psikologi Pembelajaran*. Pustaka Pelajar.

Handayani, L. (2018). Pengaruh Fasilitas Belajar dan Disiplin Belajar terhadap Motivasi Belajar dan Hasil Belajar Akuntansi MYOB pada Siswa Kelas XI SMK Cut Nya'Dien Semarang Tahun 2017/2018. *Seminar Nasional KeIndonesiaan III Tahun 2018 "Penguatan SDM Di Era Disrupsi Teknologi Melalui Pendidikan,"* 63–68.

Hartaji, H. D. (2018). Pengaruh Persepsi Siswa tentang Kompetensi Pedagogik, Kompetensi Profesional Guru dan Fasilitas Belajar terhadap Motivasi Belajar Ekonomi Siswa di SMA Negeri 1 Ngemplak Sleman Tahun Ajaran 2017/2018. *Jurnal Pendidikan Ekonomi, 7(1)*, 336–345. https://journal.student.uny.ac.id/index.php/ekonomi/article/view/10964

Izzati, H. . (2017). Pengaruh Minat Belajar dan Metode Mengajar terhadap Motivasi Belajar Akuntansi Siswa. *Kajian Pendidikan Akuntansi Indonesia*, *6(1)*, 1–17. https://journal.student.uny.ac.id/ojs/index.php/kpai/article/view/9649

Jabar, C. S. A. (2016). *Manajemen Pendidikan*. UNY Press.

Kemendikbudristek. (2024). *Kajian Akademik "Kurikulum Merdeka"*. Pusat Kurikulum dan Pembelajaran Badan Standar, Kurikulum, dan Asesmen Pendidikan Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi.

Khairani, M. (2017). *Psikologi Pendidikan*. Aswaja Pressindo.

Kirana, 2019. (2019). Pengaruh Motivasi Belajar, Kemandirian Belajar, Dan Manajemen Kelas Terhadap Prestasi Belajar Akuntansi Dasar Siswa Kelas X Akuntansi Dan Keuangan Lembaga SMK Negeri 7 Yogyakarta Tahun Ajaran 2018/2019. *Universitas Negeri Yogyakarta 2019*.

Novianti, M. S., Nurdin, N., Pujiati, P., & Rizal, Y. (2022). Pengaruh Minat Belajar Terhadap Motivasi Belajar Siswa Di SMA Negeri 1 Waytenong. *Journal of Social Education*. https://doi.org/10.23960/jips/v3i1.79-86

Purwanto, N. (2014). *Psikologi Pendidikan*. PT Remaja Rosdakarya.

Sardiman. (2018). *Interaksi dan Motivasi Belajar Mengajar*. PT Rajagrafindo Persada.

Setiani, A., & Priansa, D. . (2018). *Manajemen Siswa dan Model Pembelajaran : Cerdas, Kreatif, dan Inovatif*. Alfabeta.

Sisdiknas. (2003). *Undang-Undang No. 20 Tahun 2003 tentang Sistem Pendidikan Nasional*. https://jdih.kemdikbud.go.id/sjdih/siperpu/dokumen/salinan/UU_tahun2003_nomor020.pdf

Slameto. (2015). *Belajar dan Faktor-Faktor yang Mempengaruhinya*. PT Rineka Cipta.

Sopiatin, P. (2010). *Manajemen Belajar Berbasis Kepuasan Siswa*. Ghalia Indonesia.

Sugiyono. (2015). *Statistika untuk Penelitian*. Alfabeta.

Uno, H. . (2017). *Teori Motivasi dan Pengukurannya Analisis di Bidang Pendidikan*. PT Bumi Aksara.

PROCEEDING ICEBESS - SEP 2024
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THE RESISTANCE TO ARTIFICIAL INTELLIGENCE IN EDUCATION: STUDENT PERSPECTIVES AND ETHICAL IMPLICATIONS

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ABSTRACT

The study will also investigate the reasons students would resist the adoption of AI in education and ethical issues arising from it. The research was carried out with the use of a survey methodology, whereby purposive sampling was used to administer questionnaires to respondents; 30 university students not applying AI in their learning process were sampled. Data analysis was done using descriptive statistics. The reasons for resistance, as suggested by the questionnaire, included reasons such as not feeling creative with AI, limitations on device support, aversion to change, plagiarism concerns, ethical and moral impact, and issues regarding data privacy. The results showed that most of the students felt more comfortable and more effective in learning with the lecturers than AI; a great number strongly agreed that lecturers can never be replaced by AI. Data privacy and over-dependency on AI were highlighted with major concerns, while data privacy concerns and fears over over-dependency on AI were considerably high. The ethical use of AI in education also formed one of the key concerns for the respondents. This present study, therefore, highlights the need for a more reflective and ethical approach towards integrating AI into education. Overcoming technological limitations and psychological barriers is important to further increase the adoption of AI by students. Therefore, it is important that education and ethics frameworks are developed continuously to ensure responsible and beneficial use of AI in educational settings. These findings suggest that while AI holds great potential, care about student concerns and ethical implications must be considered for its integration to be successful in the educational process.

Keywords: Artificial Intelligence, Student Resistance, Ethical Implications, Privacy, Plagiarism.

PROCEEDING ICEBESS - SEP 2024
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INTRODUCTION

Artificial Intelligence (AI) in other terms is referred to as instant knowledge is rapidly developing in all aspects of human life (Holmes, Bialik and Fadel, 2019). In the context of education, AI is used for various applications, such as adaptive learning, predictive analytics, and managing education administration (Baker and Smith, 2019). These technologies can improve the efficiency of the learning process, provide personalised learning experiences, and assist educators in identifying student needs more effectively (Zawacki-Richter *et al.*, 2019). However, despite the significant benefits, the adoption of AI in education is not without challenges. Concerns related to data privacy, ethical and moral repercussions, and over-reliance on technology are some of the issues that serve as major barriers (Selwyn, 2019). Therefore, it is important to further explore how AI can be ethically and effectively integrated in the education system to maximise its benefits without compromising other important aspects.

The Indonesia AI Survey 2024 report illustrates the high level of understanding of AI among Indonesians, combined with great optimism and hope for the potential impact of AI. Many see AI as something that can improve efficiency, increase productivity, and inspire innovation in education, healthcare, and industry (Carmichael, 2024). For example, AI is considered capable of providing smarter medical diagnoses, improving the quality of education through adaptive learning, and optimising business processes due to more accurate data analysis. This optimism captures the belief that AI will soon become one of the key drivers of Indonesia's sustainable digital transformation, enabling new opportunities and driving more inclusive and sustainable economic growth (Yang and Zhang, 2019).

However, behind this optimism, there are concerns about the impact of AI on jobs, privacy and security (Zainuddin, 2024). Many fear that the rapid adoption of AI could threaten employment, especially in sectors that rely heavily on routine and repetitive tasks. Data privacy is also a major concern, as AI often requires access to personal data to function optimally (Gluoksnyte, White and Žitkus, 2024). These concerns are further compounded by the potential for data misuse and privacy breaches that can occur if proper ethical and regulatory frameworks are not in place. Therefore, public education on AI should be increased and ethical and responsible frameworks established.

The resistance to artificial intelligence (AI) in education stems from various student perspectives and ethical implications. Students' express concerns about AI's impact on their autonomy, privacy, and the integrity of educational processes. Many students recognize the potential benefits of AI, such as personalized learning experiences, but also highlight ethical concerns regarding data privacy and algorithmic bias (Gluoksnyte, White and Žitkus, 2024).

Ethical risks include the potential for biased algorithms that could perpetuate inequalities, particularly affecting marginalized groups (Zainuddin, 2024). Students also worry about the erosion of learner autonomy and the changing dynamics of teacher-student relationships due to AI's pervasive role in education (Famaye *et al.*, 2024). While students acknowledge the transformative potential of AI, their concerns highlight the need for careful consideration of ethical frameworks and governance to ensure that AI serves educational goals without compromising student rights.

Resistance to AI in education is not only a technical issue, but also involves complex social, psychological, and ethical aspects (Zainuddin, 2024). College students, as a generation that grew up in the digital age, have a unique perspective towards the integration of technology in their learning. On the one hand, they are familiar with technology, but on the other hand, they also have concerns about the impact of AI on education quality, data privacy, and human interaction in the teaching-learning process (Zawacki-Richter *et al.*, 2019). The ethical implications of AI implementation are also an important concern in education. Issues of algorithmic fairness, transparency of AI system decision-making, and potential bias in AI-based assessments have been significantly debated (Chaudhary, 2024). In addition, the dehumanisation of education and the loss of socio-emotional aspects in the learning process are also part of the AI resistance discourse.

Understanding students' perspectives and analysing the ethical implications of AI resistance in education is crucial to developing and implementing more responsible and inclusive AI technologies. The purpose of this study is to delve deeper into the factors that influence student resistance to AI in education and explore the ethical implications arising from this phenomenon. This will ensure that AI is applied in such a way as to protect individual rights and maximise benefits for the greater good. Continued education and strict regulation are necessary to maintain a balance between innovation and social responsibility in the use of AI.

METHOD, DATA, AND ANALYSIS

This study used a cross-sectional survey design with a quantitative approach to explore resistance to AI in education from the perspective of university students. The main research instrument was a structured questionnaire designed to measure the level of resistance, identify the factors that influence it, and explore students' views on the ethical implications of using AI in education. This research involved 251 active student respondents who were divided into 221 AI users and 30 non-users. The sample of this article is students who were selected using a purposive sampling technique, to find out the reasons why students do not use AI in the learning process. Data were analysed using descriptive statistics to provide a comprehensive picture.

RESULT AND DISCUSSION

Respondents

This research involved 251 active student respondents who were divided into 221 AI users and 30 non-users. Furthermore, this article discusses resistance for students who do not use AI. This research involved 30 active student respondents, both undergraduate and postgraduate. The following is the profile data of the research respondents:

Table 1. Characteristic of Respondents

No	Characteristic	Frequency	Percentage
User AI			
1	Yes	221	88
2	No	30	12
Age			
1	<20	15	50
2	20-24	13	44
3	25-30	1	3
4	>30	1	3
Location of Residence			
1	Boarding House	13	44
2	Brother's house	4	12
3	Own House/Parents	13	44
	Jumlah	30	100.0

The demographic characteristics of the respondents of this study include age and place of residence. Respondents who were less than 20 years old totalled 15 people with a frequency of 50%. Then the age between 20-24 years is 44% or 13 people, while at the age of 25-30 years and more than 30 years there is only 1 person each or 3%. For residence, respondents were evenly divided between living in boarding houses/contracts and their own

PROCEEDING ICEBESS - SEP 2024
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homes/parents. Each has a frequency of 13 people or 44%. A small proportion, namely 12% or 4 people, lived at a relative's house. Overall, the respondents of this study were 30 students, so it was representative enough to be able to provide an overview of the age and residence of the students involved in this study.

Student Resistance to Artificial Intelligence (AI)

Students have various reactions to the development of AI in education, from resistance to adoption. This study attempts to explore students' perspectives on AI in education and its ethical implications. Building on previous research that indicated concerns about the role of AI in learning, the current survey uncovered several factors that contribute to resistance among students. Here are the data on the reasons for students' resistance to AI in education:

Tabel 2. Student resistance to AI

Reasons of student	Strongly Agree	Agree	Netral	Disagree	Strongly Disagree
Lecturers are not replaced by AI	33%	43%	23%	0%	0%
Learn more with humans	30%	43%	23%	3%	0%
Worried about relying on AI	43%	47%	7%	3%	0%
Worried about data privacy	37%	50%	13%	0%	0%
Using AI is limited and costly	13%	40%	37%	7%	3%
Concerned about ethical and moral impact	23%	37%	27%	13%	0%
Concerned about plagiarism due to AI	33%	50%	17%	0%	0%
Difficulty with change	3%	3%	50%	43%	0%
My device does not support	0%	13%	30%	50%	7%
Feel uncreative with AI	20%	37%	33%	10%	0%

Based on the survey, most students still believe in the role of lecturers as the providers of learning materials, which is indicated by 76% of respondents agreeing or strongly agreeing that lecturers are not replaced by AI. The result supports the key arguments of De Felice et al. (2023), social and cognitive mechanisms enhance learning in an interactive context. This argument is enhanced, as 73% of the total respondents prefer interacting with humans during learning, which is an indication of the value of social interaction in education as suggested. Concern over AI dependency is very high with 90% of respondents expressing concern. This is in reflection of Chaudhary (2024) where students fear losing critical thinking skills. Data privacy is also a major issue for most of the respondents at 87%, which is in tandem with the ethical issues on data as brought up by Zawacki-Richter et al. (2019).

Interestingly, only 53% of the respondents agreed that the use of AI is limited and paid, indicating a growing awareness of AI accessibility. However, 60% of respondents were concerned about the ethical and moral impact of AI use, reflecting the growing ethical discussion in the literature (Luckin *et al.*, 2016). Plagiarism was a significant concern, with 83% of respondents expressing concern. This is in line with the debate on academic integrity in the AI era (Slimi and Villarejo-Carballido, 2024). Most respondents (57%) felt the use of AI could reduce their creativity, despite recent research showing the potential for AI to enhance creativity if used appropriately (Gluoksnyte, White and Žitkus, 2024). While Resistance to change and device limitations were not significant factors, only 6% of respondents disliked change and 13% with device limitations. That suggests that resistance is based more on substantive concerns than external factors.

CONCLUSION

This research reveals some important findings regarding students' resistance to AI in education and its ethical implications. Most students still highly value the role of lecturers and human interaction in the learning process. Students are very concerned about the impact of ethical and moral consequences of using AI in education. There are significant concerns among students about AI dependency and data privacy issues. The state of plagiarism associated with the use of AI is alarming. There is a need to review academic integrity policies and develop ways of evaluation in accordance with the A1 era. Concerns that AI reduces creativity point to learning strategies that integrate AI while still nurturing students' critical thinking skills and creativity. Resistance to AI is based on substantive issues rather than accessibility or technological readiness.

While AI offers great potential to improve learning, there is a clear need for a balanced and ethical approach to its implementation. Educational institutions need to develop strategies that integrate the benefits of AI while addressing student concerns, ensuring academic integrity, and maintaining the core values of humanist education. Future research needs to comprehensively engage policymakers, educators, and students in shaping the future of AI-enabled education. By understanding and overcoming resistance, educational institutions can create more inclusive, ethical, and effective learning environments in the digital age.

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REFERENCE

Baker, T. and Smith, L. (2019) *Educ-AI-tion Rebooted? Exploring the Future of Artificial Intelligence in Schools and Colleges*.

Carmichael, M. (2024) *The IPSOS Monitor 2024*.

Chaudhary, G. (2024) 'Unveiling The Black Box: Bringing Algorithmic Transparency To Ai', *Masaryk University Journal of Law and Technology*, 18(1), pp. 93–122. Available at: https://doi.org/10.5817/MUJLT2024-1-4.

Famaye, T. *et al.* (2024) '"What Makes ChatGPT Dangerous is Also What Makes It Special": High-School Student Perspectives on the Integration or Ban of Artificial Intelligence in Educational Contexts', *International Journal of Technology in Education*, 7(2), pp. 174–199. Available at: https://doi.org/10.46328/ijte.651.

De Felice, S. *et al.* (2023) 'Learning from others is good, with others is better: The role of social interaction in human acquisition of new knowledge', *Philosophical Transactions of the Royal Society B: Biological Sciences*, 378(1870). Available at: https://doi.org/10.1098/rstb.2021.0357.

Gluoksnyte, O., White, C. and Žitkus, M. (2024) 'Possible Impacts on Education Provision of the Transformative Role of Artificial Intelligence in Education: Current Student and Teacher Perspectives', in. International Journal of Innovative Research in Engineering and Multidisciplinary Physical Sciences. Available at: https://doi.org/10.37082/ijirmps.ictimesh-24.1.

Holmes, W., Bialik, M. and Fadel, C. (2019) *Artificial intelligence in education: Promises and implications for teaching and learning*. Boston: Center for Curriculum Redesign.

Luckin, R. *et al.* (2016) *Intelligence unleashed: An argument for AI in education*. Pearson.

Selwyn, N. (2019) *Should Robots Replace Teachers? AI and the Future of Education*. Cambridge UK: Polity Press.

Slimi, Z. and Villarejo-Carballido, B. (2024) 'Unveiling the Potential: Experts' Perspectives on Artificial Intelligence Integration in Higher Education', *European Journal of Educational Research*, volume-13-2024(volume-13-issue-4-october-2024), pp. 1477–1492. Available at: https://doi.org/10.12973/eu-jer.13.4.1477.

Yang, J. and Zhang, B. (2019) 'Artificial intelligence in intelligent tutoring robots: A systematic review and design guidelines', *Applied Sciences (Switzerland)*. MDPI AG. Available at: https://doi.org/10.3390/app9102078.

Zainuddin, N. (2024) 'Does Artificial Intelligence Cause More Harm than Good in Schools?', *International Journal of Language Education and Applied Linguistics*, 14(1), pp. 1–3. Available at: https://doi.org/10.15282/ijleal.v14i1.10432.

Zawacki-Richter, O. *et al.* (2019) 'Systematic review of research on artificial intelligence applications in higher education – where are the educators?', *International Journal of Educational Technology in Higher Education*. Springer Netherlands. Available at: https://doi.org/10.1186/s41239-019-0171-0.

THE EFFECT OF SELF-EFFICACY ON THE ACADEMIC PROCRASTINATION OF VOCATIONAL SCHOOL ACCOUNTING STUDENTS

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ABSTRACT

Introduction/Main Objectives: Academic procrastination is the behaviour of procrastinating on doing or completing academic assignments. Self-efficacy is one of the important factors that affect academic procrastination. Self-efficacy is related to a person's belief in their ability to succeed in facing academic tasks. **Background Problems:** This study aims to determine the influence of self-efficacy on academic procrastination of vocational school accounting students. **Novelty:** This study focuses on exploring the effect of self-efficacy on academic procrastination which is still rarely studied in vocational school student respondents. **Research Methods:** The data collection technique used in this study is a questionnaire. The validity of the data was tested using total items, while the reliability was analysed using *Alpha Cronbach*. Hypothesis testing was carried out using simple regression analysis. **Finding/Results:** The results showed that there was a negative and significant influence of self-efficacy on academic procrastination with a regression coefficient of -0.375 and a Sig. value of 0.000. **Conclusion:** This study succeeded in proving that self-efficacy has a negative and significant influence on the academic procrastination of accounting students. Schools need to develop learning programs that can increase students' self-efficacy such as time management skills training and achievement motivation training. Suggestions for further research may explore other factors that may interact with self-efficacy and academic procrastination.

Keywords: self-efficacy, academic procrastination, accounting students

INTRODUCTION

Improving the quality of human resources has been carried out in Indonesia for a long time. A country that has a low quality of human resources will cause the country to lag behind other countries (Anas, 2022). One of the efforts made to improve the quality of human resources in Indonesia is through the implementation of education. The revitalization of vocational education and vocational training carried out by the government is an effort to improve vocational education that is carried out comprehensively, continuously, integrated, and coordinated at both the vocational school and vocational college levels. Vocational schools are included in vocational education at the secondary level which is part of the national education system with the goal to produce a skilled workforce who could meet the demands of the workforce.

The learning system of students who study in vocational high schools does not only focus on theoretical learning, but also focuses on practicum learning (Prasetyowati et al., 2021). This makes the burden of duties, demands, and responsibilities as a vocational school student even more. These many demands trigger various problems that occur in students (Agustina et

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

al., 2023). Students lack understanding the importance of preparing optimally for exams and practices that can affect their ability to work. One of the behaviours of students that shows problems in students is procrastinating work. This behaviour of procrastinating is called procrastination, which in the academic realm is called academic procrastination.

Problems related to academic procrastination still often occur in schools, as well as in vocational schools. Based on the results of observations made during learning, there are several trends in academic procrastination behaviour, which are illustrated in the behaviour of delaying starting and completing the task at hand, the time gap between the plan and the actual performance, and also doing other activities that are more enjoyable (Ashaf et al., 2021). Students often put off their schoolwork until close to the deadline for assignment or exam submission. Students also distract themselves from tasks that should be done by doing more fun activities such as snacking in the cafeteria, playing games, chatting, or playing social media.

Academic procrastination is a type of procrastination that is carried out on a type of formal task related to academic tasks (Herawati & Suyahya, 2019). Academic procrastination has a negative impact on vocational school students. Procrastination can affect lifestyle, health problems, and academic opportunities in the future until they work (Kandemir, 2014). Academic procrastination can have a negative impact on vocational school students who will work after graduation (Rahmaniah, 2019). Academic procrastination needs serious attention because if left unchecked, it will affect the formation of student discipline, hinder learning achievement, and ultimately will reduce the quality of learning in schools (Asri, 2018).

One of the factors that affect academic procrastination is self-efficacy. Self-efficacy is a person's belief in their ability to succeed in facing certain tasks, is an important factor in determining procrastination behaviour. Previous research found that students with high self-efficacy believe in their ability to complete assignments, thereby reducing their tendency to procrastinate (Liu et al., 2020; Morin-Huapaya et al., 2023), both study use undergraduate student respondents. Another study by Salsabila et al. (2023) obtained the result that there was a negative influence between self-efficacy and academic procrastination. Students who have a high level of self-efficacy tend to be better able to cope with academic challenges more effectively, so they are not tempted to procrastinate because improving self-efficacy can indirectly reduce procrastination (Li et al., 2020). They have a strong belief that they can complete these tasks well, so they are more motivated to start and complete those tasks on time.

On the other hand, previous studies have also shown inconsistencies in results due to several studies that have found a positive effect of self-efficacy on academic procrastination. Research conducted by Herawati & Suyahya (2019) states that there is an influence of self-efficacy on academic procrastination, without mentioning the direction of influence is negative or positive. Although self-efficacy generally reduces procrastination, its effects can be complicated because even some students with high self-efficacy may procrastinate if they experience high levels of fear or low motivation (Visser et al., 2015).

The possibility of differences in research results opens opportunities for current research to reconfirm the effect of self-efficacy on academic procrastination, especially with respondents from vocational school students. Therefore, this study is here to confirm this. Specifically, this study aims to investigate the effect of self-efficacy on academic procrastination in vocational school accounting students.

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

METHOD, DATA, AND ANALYSIS

The research design used in this study is *ex post facto*, because it is carried out after an event occurs and then looks back to find out the factors that can cause the event. This study uses a quantitative approach, because the data in this study is in the form of numbers which are then analysed using statistical techniques. This research was conducted at SMKN 7 Yogyakarta for four months. The number of research samples was 122 students, but the data that could be processed was 94 students because some of the data collected were outliers.

The research data was collected using questionnaires distributed online. The items of the research instrument are in the form of a closed questionnaire with four alternative answers arranged using the Likert scale. The instruments used in this study include an academic procrastination scale consisting of 16 items adopted from Madura (2007) and the Self-Efficacy scale which consisted of 21 items adopted from Erlina, (2020) and Zarkasyi & Partana (2020). The validity of the instrument was measured using product moment correlation, while the reliability of the instrument was measured using *alpha Cronbach*.

The research questionnaire that has been prepared and tested is then proven to be valid using the product moment correlation formula from Pearson. The results of the validity test of the instrument were known that in the academic procrastination instrument, all items totalling 16 items were declared valid. The results of the validity test of the self-efficacy instrument had 18 valid items and 3 invalid items. Because valid items are still representative to measure the indicators that must be measured, invalid items are dropped by researchers and not used in research. The results of the reliability test with alpha Cronbach formula showed that the research instruments in each of the research variables had a reliability index above 0.800. The academic procrastination variable and the self-efficacy variable have very strong reliability with an alpha Cronbach coefficient of 0.938 and 0.824. Then the data that has been collected is analysed using regression analysis.

RESULT AND DISCUSSION

The first step that researchers take after the data is collected is to analyze descriptive statistics of research data. The results of data analysis with descriptive statistics are presented in Table 1.

Table 1. Results of Descriptive Statistical Analysis

Variable	N	Min	Max	Mean	Std. Deviation
Academic Procrastination	94	19	67	39.03	11.26
Self-Efficacy	94	57	85	71.71	6.60

Furthermore, hypothesis testing to determine the effect of self-efficacy on students' academic procrastination was carried out by simple regression analysis. The results of the simple regression analysis are presented in Table 2.

Table 2. Regression Analysis Results

Variable	Estimates	Std. Error	Standardized Coefficient	t	Sig.
Self-Efficacy → Academic Procrastination	-0.640	0.165	-0.375	-3.879	0.000

The results of simple regression analysis showed that the value of the estimated regression coefficient was -0.640, the standardized coefficient value was -0.375, the t-value was -3.879, and the Sig. value was 0.000. Since the value of Sig. = 0.000 < 0.05, H0 is rejected.

PROCEEDING ICEBESS - SEP 2024
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So, it can be concluded that there is a negative and significant influence of self-efficacy on the academic procrastination of vocational schools accounting students. The effect score of self-efficacies on academic procrastination can be seen from the standardized coefficient value of -0.375

This study shows that the self-efficacy variable has a negative and significant influence on students' academic procrastination. This means that the higher the self-efficacy that students have, the lower the student's academic procrastination. On the other hand, the lower the level of self-efficacy of students, the higher the academic procrastination. The results of this study are in line with the research conducted by Salsabila et al. (2023), the study shows that self-efficacy has a negative effect on students' academic procrastination behaviour. This is also in accordance with Wang's (2022) discovery that increasing self-efficacy can effectively reduce and overcome students' academic delays, thereby increasing students' academic achievement.

This study also supports the conclusion of Herawati & Suyahya (2019) which states that there is an influence of self-efficacy on academic procrastination, because students who have high self-efficacy, will never give up in taking various actions and are ready to face difficulties. This research is supported by the theory put forward by Winarso (2023) in his book which states that self-confidence and self-efficacy play an important role in academic procrastination. In line with Sudjianto & Alimbudiono (2021), in their theoretical study, they said that students who have low emotional intelligence and self-efficacy tend to do academic procrastination more often than students who have high self-efficacy. A person who feels unsure of his or her abilities tends to procrastinate on their work because they feel they need time to prepare.

High levels of self-efficacy are associated with low levels of academic procrastination (Morin-Huapaya et al., 2023). When a person has high academic self-efficacy, they have a strong belief that they can complete academic tasks well. Students who are confident in their abilities are less likely to postpone their academic assignments (Ghaleb & Sundram, 2024). This makes them more motivated and better prepared to face academic challenges. In contrast, students with low academic self-efficacy tend to feel insecure and less confident in their ability to complete academic tasks (Guo et al., 2019). As a result, they are more vulnerable to academic procrastination because they feel incapable of completing these tasks.

Self-efficacy not only reduces procrastination but also has a positive impact on the emotional state of students. Students with high self-efficacy experience fewer emotional problems when they avoid procrastination (Morin-Huapaya et al., 2023). Self-efficacy acts as a mediator in various contexts. For example, he mediated the relationship between emotional intelligence and academic procrastination, which suggests that increased self-efficacy can help reduce procrastination by increasing emotional intelligence (Guo et al., 2019). Students with high self-efficacy tend to have an easier time and task management, so they experience fewer emotional problems when avoiding procrastination. With strong self-confidence, they can motivate themselves to carry out the tasks at hand, so as not to get caught up in a cycle of procrastination that can cause stress and anxiety. Similarly, according to research conducted by Li et al. (2022) that self-efficacy mediates the impact of physical activity on procrastination, which shows that physical activity can reduce academic procrastination by increasing self-efficacy.

Self-efficacy levels are generally similar across academic streams, but there are some differences between female and male students. Female students tend to have higher self-efficacy and lower levels of procrastination compared to male students (Mallick & Singh, 2015). Similar to the research conducted by Ifdil et al. (2016) which found a significant difference between the self-efficacy of female and male students, namely male students have lower self-efficacy compared to female students. These differences can be influenced by factors such as motivation, learning strategies, and the different social environments between men and women. Therefore, it is important to understand and develop educational programs that can increase self-efficacy and reduce procrastination among students, especially for male students who may need additional help to increase their self-confidence in academics.

Self-efficacy for self-regulation is predictive of procrastination tendencies. Students who are confident in their self-regulation abilities are less likely to procrastinate (Klassen et al., 2008). With strong confidence in their ability to regulate themselves when doing tasks, they can complete work on time. On the other hand, students who have low self-efficacy in self-regulation tend to experience procrastination tendencies. They feel unsure of their ability to complete tasks, making it easier to procrastinate. Therefore, increasing self-efficacy in self-regulation can be an effective strategy to reduce the tendency to procrastination.

By increasing self-confidence in academic ability, students are more likely to take action and face academic challenges with more confidence (Ghaleb & Sundram, 2024). This can reduce the tendency to procrastinate on assignments, allowing students to be more focused and productive in learning. Thus, this strategy not only helps to reduce academic procrastination, but also promotes emotional well-being and more optimal academic performance among students (Morin-Huapaya et al., 2023). In summary, increasing self-efficacy can be an important strategy in reducing academic procrastination, thereby improving academic performance and emotional well-being among students.

CONCLUSION

Self-efficacy has been proven to have a negative influence on students' academic procrastination. Therefore, it is necessary to increase students' self-efficacy to avoid academic procrastination behaviour. Schools need to implement educational programs that encourage the creation of high self-efficacy of students through time management training and motivation for achievement. Teachers as the frontline of education should have the ability to implement learning that motivates students so that they collect their homework on time. Potential future study should explore supplementary variables that might influence the relationship between self-efficacy and academic procrastination, analysing the interactions and potential mutual effects of these factors in different situations.

REFERENCE

Agustina, F. F., Rahmawati, & Khairun, D. Y. (2023). Profil Prokrastinasi Akademik Siswa SMK Negeri Kota Serang. *Jurnal Bimbingan Dan Konseling*, *20*(1).

Anas. (2022). Sumber Daya Manusia Indonesia di Era Globalisasi. *Jurnal Ilmiah Promis*, *3*(2), 110–130.

Ashaf, A. R., Samad, S., Si, M., Anas, D. H. M., & Si, M. (2021). *Perilaku Prokrastinasi Akademik (Studi Kasus Pada Siswa Di SMPN 1 Gantarangkeke Kab . Bantaeng) Academic Procrastination Behavior (Case Study on Students at SMPN 1 Gantarangkeke Bantaeng Regency). 2.*

Ashraf, M. A., Sahar, N.-E., Kamran, M., & Alam, J. (2023). Impact of Self-Efficacy and Perfectionism on Academic Procrastination among University Students in Pakistan. *Behavioral Sciences*, *13*(7). https://doi.org/10.3390/bs13070537

Asri, D. N. (2018). *Prokrastinasi Akademik: Teori dan Riset dalam Perspektif Pembalajaran Berbasis Proyek dan Self-Regulated Learning* (D. Apriandi (ed.)). UNIPMA PRESS.

Erlina, L. (2020). Efikasi Diri Dalam Meningkatkan Kemampuan Mobilisasi Pasien. In *Politeknik Kesehatan Kemenkes Bandung*. Politeknik Kesehatan Kemenkes Bandung.

Ghaleb, M. M. S., & Sundram, V. P. K. (2024). Impact of Teacher Support, Learning Motivation, Emotional Intelligence on Academic Procrastination and Self-Regulation: Exploring Mediating Role of Educational Self-Efficacy. *Eurasian Journal of Educational*

Research, *2024*(109), 297–313. https://doi.org/10.14689/ejer.2024.109.017

Guo, M., Yin, X., Wang, C., Nie, L., & Wang, G. (2019). Emotional intelligence a academic procrastination among junior college nursing students. *Journal of Advanced Nursing*, *75*(11), 2710–2718. https://doi.org/10.1111/jan.14101

Herawati, M., & Suyahya, I. (2019). Pengaruh Efikasi Diri Terhadap Prokrastinasi Akademik Peserta Didik SMK Islam Ruhama. *Prosiding Seminar Nasional Pendidikan KALUNI*, *2*(December). https://doi.org/10.30998/prokaluni.v2i0.148

Ifdil, I., Apriani, R., Yendi, F. M., & Rangka, I. B. (2016). Level of students` self-efficacy based on gender. *COUNS-EDU| The International Journal of Counseling and Education*, *1*(1), 29. https://doi.org/10.23916/29-33.0016.11-i41b

Kandemir, M. (2014). Predictors of Academic Procrastination : Coping with Stress, Internet Addiction and Academic Motivation. *World Applied Sciences Journal*, *32*(5), 930–938. https://doi.org/10.5829/idosi.wasj.2014.32.05.60

Klassen, R. M., Krawchuk, L. L., & Rajani, S. (2008). Academic procrastination of undergraduates: Low self-efficacy to self-regulate predicts higher levels of procrastination. *Contemporary Educational Psychology*, *33*(4), 915–931. https://doi.org/10.1016/j.cedpsych.2007.07.001

Li, L., Gao, H., & Xu, Y. (2020). The mediating and buffering effect of academic self-efficacy on the relationship between smartphone addiction and academic procrastination. *Computers and Education*, *159*. https://doi.org/10.1016/j.compedu.2020.104001

Liu, G., Cheng, G., Hu, J., Pan, Y., & Zhao, S. (2020). Academic Self-Efficacy and Postgraduate Procrastination: A Moderated Mediation Model. *Frontiers in Psychology*, *11*. https://doi.org/10.3389/fpsyg.2020.01752

Madura, J. (2007). *Pengantar Bisnis* (4th ed.). Salemba Empat.

Mallick, M. K., & Singh, K. (2015). Academic achievement of higher education students: Influence of academic procrastination and self-efficacy. *Man in India*, *95*(4), 1091–1103.

Morin-Huapaya, J. C., Yupanqui-Lorenzo, D. E., Tamayo, M. J. C., Acosta-Porzoliz, R. P. E., & Quispilaya-Capcha, K. L. (2023). Role of Procrastination as a Mediator of Self-Efficacy and Emotional State in Academic Situations. *Paideia*, *33*. https://doi.org/10.1590/1982-4327e3340

Prasetyowati, D., Indiati, I., & Nayla, A. (2021). Analisis Keterlaksanaan Perencanaan Dan Proses Kegiatan Pembelajaran Praktik Di SMK. *Jurnal Riptek*, *15*(2), 69–74. https://doi.org/10.35475/riptek.v15i2.121

Rahmaniah. (2019). Hubungan antara Kontrol Diri dengan Prokrastinasi Akademik Siswa di SMP Negeri 1 Tanete Riaja. *Jurnal Bimbingan Dan Konseling*, *6*(2), 11,17.

Salsabila, D., Faslah, R., & Yohana, C. (2023). Pengaruh Efikasi Diri Dan Manajemen Waktu Terhadap Prokrastinasi Akademik Di Smkn 31 Jakarta. *Berajah Journal*, *3*(1), 131–142. https://doi.org/10.47353/bj.v3i1.205

Sudjianto, M. P., & Alimbudiono, R. S. (2021). *Buku Monograf Dampak Prokrastinasi Akademik Pada IPK Mahasiswa Akutansi Universitas Surabaya*.

Visser, L. B., Korthagen, F. A. J., & Schoonenboom, J. (2015). Influences on and consequences of academic procrastination of first-year student teachers. *Pedagogische Studien*, *92*(6), 394–412. https://www.scopus.com/inward/record.uri?eid=2-s2.0-85018314671&partnerID=40&md5=7c91ce9e932dbe49365ca929d6e59a75

Wang, S. (2022). The Relationship between Academic Procrastination and Self-Efficacy in Online Educational Model. *Proceedings of the 2022 International Conference on Social Sciences and Humanities and Arts (SSHA 2022)*, *653*(Ssha), 380–385. https://doi.org/10.2991/assehr.k.220401.074

Winarso, W. (2023). *Mengelola Prokrastinasi Akademik (Pendekatan Psikoedukasi Berbasis Religiositas)* (Toheri (ed.)). Jejak Pustaka.

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

Zarkasyi, C. S., & Partana, C. F. (2020). Profile of Students Self-Efficacy in Chemistry Learning: Case Study at Senior High School. *Journal of Physics: Conference Series*, *1440*(1). https://doi.org/10.1088/1742-6596/1440/1/012011

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ENHANCING FINANCIAL PERFORMANCE OF MSMEs THROUGH GREEN ENTREPRENEURIAL ORIENTATION, FINANCIAL CAPABILITY, AND GREEN TECHNOLOGY DYNAMISM

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ABSTRACT

Introduction/Main Objectives: This study aims to examine and analyze the impact of green entrepreneurial orientation and financial capability on the financial performance of Micro Small and Medium Enterprises (MSMEs), while also assessing the moderating role of green technology dynamism on the relationship between green entrepreneurial orientation and financial performance. **Background Problems:** MSMEs play a significant role in the Indonesian economy, contributing 60.5% to GDP, which amounts to approximately IDR 8,573 trillion annually, and accounting for 97% of total national employment, or around 116 million jobs. Given their crucial role, MSMEs must continuously sustain and improve their financial performance. However, due to environmental changes, MSMEs are increasingly required to not only consider economic aspects but also address social and environmental concerns.
Novelty: This study uniquely examines the influence of green entrepreneurial orientation, financial capability, and the moderating effect of green technology dynamism on MSMEs' financial performance. **Research Methods:** This quantitative study employs a questionnaire-based data collection method, with questionnaires distributed directly to respondents. The sample consists of 217 MSME actors located in Siak District, Siak Regency. **Finding/Results:** The results demonstrate that green entrepreneurial orientation and financial capability significantly influence the financial performance of MSMEs. MSMEs with green entrepreneurial orientation and financial capability are better equipped to innovate, take proactive measures, and embrace risk to improve financial performance, all while considering economic, social, and environmental aspects within their operational context.
Conclusion: This research offers valuable insights for MSME actors, highlighting the importance of green entrepreneurial orientation and financial capability in enhancing financial performance.

Keywords: Green Entrepreneurial Orientation, Financial Capability, Green Technology Dynamism, Financial Performance

PROCEEDING ICEBESS - SEP 2024
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INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) have been widely recognized as one of the primary drivers of economic growth in many countries (Supriatna et al., 2023). Di IIn Indonesia, MSMEs contribute significantly to the nation's economy (Anantadjaya et al., 2023). MSMEs also play a crucial role in alleviating poverty by absorbing millions of workers each year (Murwanti, 2023).

According to data from the Indonesian Chamber of Commerce and Industry, MSMEs contribute 60.5% to the Gross Domestic Product (GDP), amounting to approximately IDR 8,573 trillion annually. Additionally, they account for 97% of national labor absorption, which equates to around 116 million workers (Indonesia, 2022). However, the performance of local MSMEs declined during the first two years of the Covid-19 pandemic in 2020 and 2021. A survey conducted by UNDP and LPEM UI involving 1,180 MSME respondents revealed that during this period, more than 48% of MSMEs faced raw material shortages, 77% experienced a decline in revenue, 88% suffered from decreased product demand, and 97% reported a decline in asset value (Limanseto, 2022).

The impact of the Covid-19 pandemic was also felt by MSMEs in the Siak Regency. According to data from the Siak Cooperative and MSME Office, at least 800 out of the 1,400 MSMEs in the region were affected by the pandemic. A large portion of these businesses even opted to close (Hadi, 2020). Consequently, the financial performance of MSMEs deteriorated due to the pandemic, significantly affecting their overall financial outcomes.

Financial performance refers to the results achieved through a series of actions and decisions aimed at attaining financial objectives (Mukarromah et al., 2020). It is essential to evaluate financial performance to assess the success of a business based on its financial activities (Rosyadah et al., 2022) In their efforts to maintain and improve financial performance, MSMEs face numerous challenges, including environmental and financial constraints.

The business world views health and living conditions as critical components of their core activities, as environmental challenges increasingly threaten economic growth (Asad, Majali, et al., 2023). All business aspects are now expected to engage in environmentally friendly practices. Such practices refer to conducting business activities that yield commercial profits without harming the environment (Asad, Majali, et al., 2023). Recent studies, in particular, highlight the significance of Green Entrepreneurial Orientation (GEO) in enhancing both environmental and financial performance ((Makhloufi et al., 2022); (Majali et al., 2022); (Fatoki, 2019); (Asad, Majali, et al., 2023); (Asad, Aledeinat, et al., 2023); (Gazali & Zainurrafiqi, 2023); (Muangmee et al., 2021); (Habib et al., 2020)).

Green entrepreneurial orientation reflects the willingness of entrepreneurs to engage in innovation, take proactive and risky actions, while considering the economic, social, and environmental aspects of the areas in which their businesses operate (Golsefid-Alavi et al., 2021). MSMEs that adopt green entrepreneurial orientation can enhance their financial performance, first by reducing energy or resource costs through eco-friendly product and process advancements, and second, by proactively seeking environmentally sustainable business opportunities (Asad, Majali, et al., 2023). Hence, green entrepreneurial orientation can improve financial performance. However, despite extensive research on green entrepreneurial orientation, it remains underexplored in developing countries like Indonesia, where financial priorities often take precedence over environmental concerns (Asad et al., 2021).

Although the benefits of green entrepreneurial orientation have been studied and researched in the past, the findings remain inconsistent. Some studies demonstrate a significant impact of green entrepreneurial orientation on financial performance ((Fatoki, 2019); (Asad, Majali, et al., 2023); (Gazali & Zainurrafiqi, 2023)), while others show no direct influence on financial performance ((Asad, Aledeinat, et al., 2023); (Habib et al., 2020)). Given these inconsistencies in the literature, this study introduces green technology dynamism as a moderator in the relationship between green entrepreneurial orientation and financial performance.

In this study, green technology dynamism represents a rapidly evolving technological environment (Asad, Majali, et al., 2023). It is defined as the degree and uncertainty of paradigm shifts in green technology within the external environment (Schilke, 2014). When businesses experience rapid technological changes, their motivation to gather information about new technologies increases (Zhao et al., 2018). The uncertainty associated with technological advancements underscores the importance of information absorption capabilities in coping with green technology dynamism. Information absorption can help businesses acquire specialized knowledge to support environmentally friendly practices, such as research and development, technological leadership, and innovation (Pavlou & El Sawy, 2011). This strengthens the relationship between green entrepreneurial orientation and financial performance.

In addition to environmental challenges, MSMEs face issues related to financial capability. Financial capability extends the concept of financial literacy by encompassing both abilities and opportunities. When an individual acquires skills and knowledge but does not apply them to practical decision-making, they are considered incapable. Financially capable individuals possess both the skills and opportunities to enhance their financial well-being by making informed financial decisions and taking appropriate financial actions (Çera et al., 2021).

Financial capability not only optimizes MSMEs' credit loan choices and reduces liquidity constraints but also encourages decision-making and entrepreneurial management levels, which play a vital role in MSME business activities (Yi et al., 2023). Therefore, financial capability can contribute to improved financial performance ((Yi et al., 2023); (Anantadjaya et al., 2023)). Although studies on financial capability are extensive, there remains limited research on its impact on financial performance, particularly in MSMEs ((Babajide et al., 2023); (Çera et al., 2021); (Guo & Huang, 2023); (Amalina & Damayanti, 2021)).

This research focuses on MSMEs in the Siak Regency, as similar studies have not been conducted in this region. Moreover, the potential of MSMEs in Siak is substantial, especially as drivers of economic growth in Riau Province (Dewi, 2022). Additionally, Siak Regency is striving to set an example in MSME development by promoting sustainable business practices that prioritize not only profitability but also environmental impact (Redaksi, 2023).

The purpose of this study is to examine and analyze the influence of green entrepreneurial orientation and financial capability on MSME financial performance, as well as to test and analyze green technology dynamism as a moderator in the relationship between green entrepreneurial orientation and MSME financial performance.

METHOD, DATA, AND ANALYSIS

Population, Sample, and Variable Measurement

The study was conducted in the Siak District, Siak Regency, Riau Province. The research took place in 2024, spanning a duration of 8 months, from February to September 2024. The population of this study comprises all MSMEs in the Siak District, Siak Regency, Riau Province. According to data from the Cooperative, Micro, Small, and Medium Enterprises Office of Siak Regency, there are 1,609 MSMEs in the Siak District. The sampling technique used in this study is based on the Yamane formula (Sugiyono, 2018). Using this formula, a sample size of 320 MSMEs was determined. This research employs a quantitative approach,

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

with data collection conducted through direct distribution of questionnaires to MSME operators.

The study variables are categorized into three groups: independent variables, which include green entrepreneurial orientation (X_1) and financial capability (X_2); a moderating variable, which is green technology dynamism (M); and the dependent variable, which is MSME financial performance (Y). All variables are measured using instruments from previous research, with responses recorded on a Likert scale from 1 to 5. Financial performance is measured using the instrument from Asad, Majali, et al. (2023). Green entrepreneurial orientation is measured with the instrument from Asad, Majali, et al. (2023). Financial capability is measured using the instrument from Babafemi (2022). Green technology dynamism is measured with the instrument from Asad, Majali, et al. (2023).

Data Analysis Method

Data analysis in this study begins with descriptive statistical analysis (Sugiyono, 2018). Descriptive statistical analysis is used to provide an overview or description of the research variables, displayed through frequency distribution tables that indicate minimum values, maximum values, mean values, and standard deviations. To describe the demographic characteristics of the respondents, including gender, education level, business age, and annual income, frequency distribution and percentage tables are utilized. The data analysis methods employed in this study include multiple linear regression analysis and moderated regression analysis (MRA) (Ghozali, 2021).

RESULTS AND DISCUSSION

This study was conducted by distributing questionnaires directly to the respondents. A total of 320 questionnaires were distributed, corresponding to the sample size. Of these, 217 questionnaires were returned, representing a response rate of 67.8%. All returned questionnaires were complete and could be analyzed.

Table 1. Characteristics of Respondents

	Number (N)	Percentage (%)
Gender		
Male	136	62.6
Female	81	36.4
Age		
< 25 Years	30	13.8
25 – 40 Years	103	47.5
41 – 55 Years	66	30.4
> 55 Years	18	8.3
Education		
Elementary School	12	5.5
Middle School	26	12
High School	95	43.7
Diploma	28	12.9
Bachelor's Degree (S1)	56	25.9
Business Duration		
< 1 Year	12	5.5

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

	Number (N)	Percentage (%)
1 - 3 Years	96	44.3
4 – 5 Years	32	14.7
> 5 Years	77	35.5

Source: Processed Data, 2024

Descriptive Statistical Results

Descriptive statistical analysis in this study was conducted by presenting the number of data points, minimum (min) value, maximum (max) value, mean value, and standard deviation of the variables used.

Table 2. Descriptive Statistical Results

	N	Minimum	Maximum	Mean	Std. Deviation
Green Entrepreneurial Orientation	217	17	25	22.33	2.179
Financial Capability	217	97	130	117.54	7.299
Green Technology Dynamism	217	14	20	18.08	1.905
Financial Performance	217	18	25	22.65	2.018
Valid N (listwise)	217				

Source: Processed Data, 2024

Based on the descriptive statistical results presented in Table 2, it can be observed that the mean values for each variable are greater than the standard deviation values. This indicates that the level of data deviation is relatively small and suggests a low level of variation, reflecting that the data distribution in this study is normal and unbiased (Ghozali, 2021).

Results of the Coefficient of Determination (R^2) Test

Table 3. Coefficient of Determination (R^2) Test Results

	Adjusted R Square
R^2 Test	0.086

Source: Processed Data, 2024

Based on Table 3, the Adjusted R Square value of 0.086 indicates that the influence of green entrepreneurial orientation, financial capability, and green technology dynamism on MSME financial performance is 8.6%, while the remaining 91.4% is influenced by other variables not included in this study.

Hypothesis Testing and Discussion

Table 4. Multiple Linear Regression Test Results (Model 1)

Variable	B	Sig	t_{value}	t_{table}	Result
Green Entrepreneurial Orientation	-0.137	0.033	-2.147	1.971	Significant
Financial Capability	0.089	0.004	4.669	1.971	Significant

Source: Processed Data, 2024

From Table 4, regarding hypothesis 1 (H1), it can be stated that green entrepreneurial orientation significantly influences MSME financial performance. This is evident as the t-value of 2.147 is greater than the t-table value of 1.971, and the significance value of 0.033 is less

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

than 0.050. Based on these results, it can be concluded that green entrepreneurial orientation significantly impacts MSME financial performance.

MSMEs that demonstrate green entrepreneurial orientation are willing to innovate, act proactively, and take risks while considering economic, social, and environmental aspects in their business operations (Golsefid-Alavi et al., 2021). Innovativeness indicates a readiness to support experimentation involving creativity in introducing new products and services, research and development, and the application of new technologies. Proactiveness refers to the speed of action in anticipating and meeting future market needs, thereby creating a competitive advantage. Risk-taking reflects the courage to enter previously unknown markets, allocate resources to build new business units, and operate in uncertain environments (Nuringsih et al., 2022). Thus, MSMEs that adopt green entrepreneurial orientation in their business activities will be able to enhance their financial performance.

This study aligns with the dynamic capabilities theory, which suggests that dynamic capabilities help organizations transition toward sustainability, leading to superior financial and environmental performance, including for MSMEs (Asad, Majali, et al., 2023). Dynamic capabilities assist businesses in developing models that focus on the triple bottom line, emphasizing society, business, and consumers, thereby improving financial and environmental performance (Alcalde-Calonge et al., 2022). This study supports previous research findings, such as those Fatoki (2019), Asad, Majali, et al. (2023); Gazali & Zainurrafiqi (2023) , which demonstrated that green entrepreneurial orientation positively influences MSME financial performance.

Furthermore, based on Table 4, regarding hypothesis 2 (H2), it can be concluded that financial capability significantly influences MSME financial performance. This is supported by a t-value of 4.669, which is greater than the t-table value of 1.971, and a significance value of 0.004, which is less than 0.050. Therefore, financial capability has a significant impact on MSME financial performance.

MSMEs with financial capability possess the knowledge and skills to understand their financial situation and the motivation to take actions leading to financial improvement (Birkenmaier et al., 2013). MSME operators with financial capability are also able to manage their money and control their finances, including making sound financial decisions, managing credit and debt effectively, and identifying appropriate financial products and services (Taylor et al., 2011). Financial capability not only optimizes MSME operators' choices regarding effective credit loans and reduces liquidity constraints but also fosters decision-making and entrepreneurial management, which play critical roles in business activities (Yi et al., 2023). Therefore, financial capability can contribute to improving financial performance.

This finding aligns with the Resource-Based View (RBV) theory, which asserts that competitive advantage and superior performance are grounded in specific firm capabilities (Simatupang, 2013). Resources are inputs that enable firms to carry out their activities, and internal resources and capabilities determine strategic choices when competing in the external business environment (Barney, 1991). Capabilities not only serve as the foundation for competitive advantage and superior performance but also guide strategic decisions (Simatupang, 2013). Capabilities allow firms to add value to the customer value chain, develop new products, or expand into new markets (Suardhika et al., 2018). According to the RBV approach, strengthening MSME assets or resources in the area of financial capability will provide sustainable competitive advantages, thereby enhancing MSME financial performance. This study supports previous findings by Yi et al. (2023) and Anantadjaya et al. (2023), which demonstrated that financial capability plays a role in improving financial performance.

Table 5 Multiple Linear Regression Test Results (Model 2)

Variable	B	Sig	t_{value}
Green Entrepreneurial Orientation	-0.134	0.000	-3.919
Financial Capability	0.033	0.002	3.159
Green Technology Dynamism	0.877	0.000	22.927

Source: Processed Data, 2024

Table 6 Moderated Regression Analysis Test Results (Model 3)

Variable	B	Sig	t_{value}
Green Entrepreneurial Orientation	-0.386	0.220	-1,230
Financial Capability	0.555	0.149	1.448
Green Entrepreneurial Orientation*Green Technology Dynamism	0.016	0.361	0.916

Source: Processed Data, 2024

In comparing three regression models based on Table 4, 5 and 6:

1) $Y= 15{,}268-(0{,}137)X_1+(0{,}089)X_2+e$
2) $Y= 5{,}892-(0{,}134)X_1+(0{,}033)X_2+(0{,}877)Z+e$
3) $Y= 14{,}863-(0{,}386)X_1+(0{,}555)Z+(0{,}016)X_1.M+e$

It is evident that the type of moderation variable is a predictor moderation, as indicated by the coefficients b2 and b3, where b2 is significant, and b3 is not significant. Predictor moderation means that the moderating variable functions as a predictor or independent variable in the established relationship model. Therefore, this study concludes that green technology dynamism does not moderate the influence of green entrepreneurial orientation on MSME financial performance.

CONCLUSION

This study demonstrates that both green entrepreneurial orientation and financial capability significantly influence the financial performance of MSMEs. Theoretically, the research contributes to the empirical literature on the impact of green entrepreneurial orientation and financial capability on MSME financial performance. Practically, the study is highly beneficial for MSME actors, highlighting the importance of green entrepreneurial orientation and financial capability in enhancing their financial outcomes. MSMEs with a green entrepreneurial orientation will be able to innovate, act proactively, and take calculated risks to improve their financial performance while considering economic, social, and environmental aspects of their operational areas. Furthermore, MSMEs with financial capability will be better equipped to manage their finances, particularly in making sound financial decisions, understanding how to handle credit and debt, and identifying appropriate products and services that can enhance their financial performance.

This study has certain limitations, notably the low coefficient of determination (R^2) of 0.086, indicating that green entrepreneurial orientation, financial capability, and green technology dynamism together explain only 8.6% of the variance in MSME financial performance, while the remaining 91.4% is influenced by other variables not included in this study. For future research, it is recommended to include additional variables such as management accounting services (Gyamera et al., 2023), social capital, human resources, and education level (Winarsih et al., 2021) to improve the coefficient of determination.

REFERENCES

Alcalde-Calonge, A., Ruiz-Palomino, P., & Sáez-Martínez, F. J. (2022). The circularity of the business model and the performance of bioeconomy firms: An interactionist business-environment model. *Cogent Business & Management*, *9*(1), 2140745. https://doi.org/10.1080/23311975.2022.2140745

Amalina, S., & Damayanti, S. M. (2021). The Influence of Financial Well-Being, Financial Literacy, Financial Capability, and Money Attitude on Local Farmers' Attitude in Using Agricultural Banking Service in Blitar Regency, Indonesia. *Malaysian Journal of Social Sciences and Humanities (MJSSH)*, *6*(7), 343–349. https://doi.org/10.47405/mjssh.v6i7.847

Anantadjaya, S. P. D., Irma M. Nawangwulan, Candra, E., Rahmatya Widyaswati, & Achmad Choerudin. (2023). Pengaruh Financial Capabilities, Networking Terhadap Kinerja Usaha UMKM di Kota Sukabumi Melalui Intellectual Capital. *Jurnal Bisnisman : Riset Bisnis Dan Manajemen*, *5*(1), 16–32. https://doi.org/10.52005/bisnisman.v5i1.131

Asad, M., Aledeinat, M., Majali, T., Almajali, D. A., & Shrafat, F. D. (2023). Mediating role of green innovation and moderating role of resource acquisition with firm age between green entrepreneurial orientation and performance of entrepreneurial firms. *Cogent Business and Management*, *11*(1). https://doi.org/10.1080/23311975.2023.2291850

Asad, M., Asif, M. U., Bakar, L. J. A., & Sheikh, U. A. (2021). Transformational Leadership, Sustainable Human Resource Practices, Sustainable Innovation and Performance of SMEs. *2021 International Conference on Decision Aid Sciences and Application (DASA)*, 797–802. https://doi.org/10.1109/DASA53625.2021.9682400

Asad, M., Majali, T., Aledeinat, M., Abdelkarim Almajali, D., & Akhorshaideh, A. H. O. (2023). Green entrepreneurial orientation for enhancing SMEs financial and environmental performance: Synergetic moderation of green technology dynamism and knowledge transfer and integration. *Cogent Business and Management*, *10*(3). https://doi.org/10.1080/23311975.2023.2278842

Babajide, A., Osabuohien, E., Tunji-Olayeni, P., Falola, H., Amodu, L., Olokoyo, F., Adegboye, F., & Ehikioya, B. (2023). Financial literacy, financial capabilities, and sustainable business model practice among small business owners in Nigeria. *Journal of Sustainable Finance and Investment*, *13*(4), 1670–1692. https://doi.org/10.1080/20430795.2021.1962663

Barney. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management*, *17*(1), 99–120. https://doi.org/https://doi.org/10.1177/014920639101700108

Birkenmaier, J. M., Sherraden, M. S., & Curley, J. C. (2013). *Financial Capability: What is It, and How Can It Be Created? Financial Capability and Asset Building: Research, Education, Policy, and Practice*. *314*, 3–43.

Çera, G., Khan, K. A., Mlouk, A., & Brabenec, T. (2021). Improving financial capability: the mediating role of financial behaviour. *Economic Research-Ekonomska Istrazivanja* , *34*(1), 1265–1282. https://doi.org/10.1080/1331677X.2020.1820362

Dewi, R. S. (2022). *Stafsus Menkumham Ajak Pelaku UMKM di Siak Populerkan Produknya Lewat Online*.

Fatoki, O. (2019). Green entrepreneurial orientation and firm performance in South Africa. *Entrepreneurship and Sustainability Issues*, *7*(1), 247–262. https://doi.org/10.9770/jesi.2019.7.1(19)

Gazali, G., & Zainurrafiqi, Z. (2023). The The Effect of Green Entrepreneur Orientation on Network Resource Acquisition and Small and Medium Enterprises' Business Performance with Knowledge Transfer and Integration and Green Technology Dynamism as Moderator Variables. *Indonesian Interdisciplinary Journal of Sharia Economics*

(IIJSE), *6*(1), 136–153. https://doi.org/10.31538/iijse.v6i1.2723

Ghozali, I. (2021). *Aplikasi Analisis Multivariate Dengan Program IBM SPSS 26* (Edisi Kese). Badan Penerbit Universitas Diponegoro.

Golsefid-Alavi, M., Sakhdari, K., & Alirezaei, A. (2021). A review of the literature on entrepreneurship and the environment: Opportunities for researching on the green entrepreneurial orientation. *Environmental Engineering and Management Journal*, *20*(5), 819–839. https://doi.org/10.30638/eemj.2021.077

Guo, B., & Huang, J. (2023). Financial Well-Being and Financial Capability among Low-Income Entrepreneurs. *Journal of Risk and Financial Management*, *16*(3), 181. https://doi.org/10.3390/jrfm16030181

Gyamera, E., Abayaawien Atuilik, W., Eklemet, I., Henry Matey, A., Tetteh, L. A., & Kwasi Apreku-Djan, P. (2023). An analysis of the effects of management accounting services on the financial performance of SME: The moderating role of information technology. *Cogent Business and Management*, *10*(1), 1–19. https://doi.org/10.1080/23311975.2023.2183559

Habib, M. A., Bao, Y., & Ilmudeen, A. (2020). The impact of green entrepreneurial orientation, market orientation and green supply chain management practices on sustainable firm performance. *Cogent Business and Management*, *7*(1). https://doi.org/10.1080/23311975.2020.1743616

Hadi, H. (2020). *Bupati Alfedri Siapkan Skema Bantuan untuk 800 UMKM Terdampak Covid-19*. Https://Www.Cakaplah.Com/. https://www.cakaplah.com/berita/baca/52623/2020/04/19/bupati-alfedri-siapkan-skema-bantuan-untuk-800-umkm-terdampak-covid19#sthash.g8Lb7Qwv.4SCE6FyR.dpbs

Indonesia, K. (2022). *UMKM Indonesia*. https://kadin.id/en/data-dan-statistik/umkm-indonesia/

Limanseto, H. (2022). *Perkembangan UMKM sebagai Critical Engine Perekonomian Nasional Terus Mendapatkan Dukungan Pemerintah*. https://www.ekon.go.id/publikasi/detail/4593/perkembangan-umkm-sebagai-critical-engine-perekonomian-nasional-terus-mendapatkan-dukungan-pemerintah

Majali, T., Alkaraki, M., Asad, M., Aladwan, N., & Aledeinat, M. (2022). Green Transformational Leadership, Green Entrepreneurial Orientation and Performance of SMEs: The Mediating Role of Green Product Innovation. *Journal of Open Innovation: Technology, Market, and Complexity*, *8*(4). https://doi.org/10.3390/joitmc8040191

Makhloufi, L., Laghouag, A. A., Meirun, T., & Belaid, F. (2022). Impact of green entrepreneurship orientation on environmental performance: The natural resource-based view and environmental policy perspective. *Business Strategy and the Environment*, *31*(1), 425–444. https://doi.org/https://doi.org/10.1002/bse.2902

Muangmee, C., Dacko-Pikiewicz, Z., Meekaewkunchorn, N., Kassakorn, N., & Khalid, B. (2021). Green entrepreneurial orientation and green innovation in small and medium-sized enterprises (Smes). *Social Sciences*, *10*(4). https://doi.org/10.3390/socsci10040136

Mukarromah, D., Jubaedah, J., & Astuti, M. (2020). Financial Performance Analysis on Micro, Small, and Medium Enterprises of Cassava Product in Cibadak, Lebak Regency,. *Jurnal Economia*, *16*(2), 257–268. https://doi.org/10.21831/economia.v16i2.31232

Murwanti, A. (2023). *3 Faktor yang Mempengaruhi Kinerja UMKM di Indonesia, Rahasia Naik Kelas!* https://ukmindonesia.id/baca-deskripsi-posts/3-faktor-yang-mempengaruhi-kinerja-umkm-di-indonesia-rahasia-naik-kelas

Nuringsih, K., MN, N., & Rosa, J. A. (2022). Mendorong Green Entrepreneurial Intention Melalui Green Economy dan Green Entrepreneurial Orientation. *Jurnal Ekonomi*, *27*(3), 417–438. https://doi.org/10.24912/je.v27i3.1203

Pavlou, P. A., & El Sawy, O. A. (2011). Understanding the Elusive Black Box of Dynamic

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

Capabilities. *Decision Sciences*, *42*(1), 239–273. https://doi.org/https://doi.org/10.1111/j.1540-5915.2010.00287.x

Redaksi. (2023). *Dampingi UMKM Berkembang dan Sadar Lingkungan*. https://www.riaueditor.com/detail/Article/dampingi-umkm-berkembang-dan-sadar-lingkungan

Rosyadah, K., Rahman Mus, A., Semmaila, B., & Chalid, L. (2022). The Relevance of Working Capital, Financial Literacy and Financial Inclusion on Financial Performance and Sustainability of Micro, Small and Medium-Sized Enterprises (MSMEs). *American Journal of Humanities and Social Sciences Research*, *6*, 203–216. www.ajhssr.com

Schilke, O. (2014). On the contingent value of dynamic capabilities for competitive advantage: The nonlinear moderating effect of environmental dynamism. *Strategic Management Journal*, *35*(2), 179–203. https://doi.org/https://doi.org/10.1002/smj.2099

Simatupang, B. (2013). Tinjauan Komplementer Pengaruh Teori Market-Based View (MBV) dan Resource-Based View (RBV) terhadap Strategi dan Kinerja Perusahaan. *Binus Business Review*, *4*(1), 322. https://doi.org/10.21512/bbr.v4i1.1119

Suardhika, I. N., Yuesti, A., & Sudja, I. N. (2018). *INNOVATION STRATEGY BASED ON RESOURCE-BASED THEORY PERSPECTIVE AND ITS IMPACT ON SMALL AND MEDIUM BUSINESS PERFORMANCE*. *1*(1).

Sugiyono. (2018). *Metode Penelitian Bisnis* (Cetakan Ke). Alfabeta.

Supriatna, D., Candra, E., Adinugroho, I., Nasution, M. A., & Yanti, N. (2023). Pengaruh Kinerja UMKM Terhadap Pertumbuhan Ekonomi Kabupaten Sukabumi. *Sanskara Ekonomi Dan Kewirausahaan*, *1*(02), 43–53. https://doi.org/10.58812/sek.v1i02.88

Taylor, M. P., Jenkins, S. P., & Sacker, A. (2011). Financial capability and psychological health. *Journal of Economic Psychology*, *32*(5), 710–723. https://doi.org/https://doi.org/10.1016/j.joep.2011.05.006

Winarsih, W., Winarti, W., Machmuddah, Z., & Tahar, E. B. (2021). The Relationship between Capital Financial, Accounting Capability and Micro-, Small- and Medium-Sized Enterprises' (MSMEs) Financial Performance in Indonesia. *Jurnal Dinamika Akuntansi Dan Bisnis*, *8*(2), 229–242. https://doi.org/10.24815/jdab.v8i2.21425

Yi, H., Meng, X., Linghu, Y., & Zhang, Z. (2023). Can financial capability improve entrepreneurial performance? Evidence from rural China. *Economic Research-Ekonomska Istrazivanja* , *36*(1), 1631–1650. https://doi.org/10.1080/1331677X.2022.2091631

Zhao, Y., Feng, T., & Shi, H. (2018). External involvement and green product innovation: The moderating role of environmental uncertainty. *Business Strategy and the Environment*, *27*(8), 1167–1180. https://doi.org/https://doi.org/10.1002/bse.2060

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THE INFLUENCE OF LIQUIDITY, LEVERAGE, CAPITAL INTENSITY, AND INVENTORY INTENSITY ON TAX AGGRESSIVENESS IN ENERGY SECTOR COMPANIES LISTED ON THE INDONESIAN STOCK EXCHANGE 2018 – 2022.

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ABSTRACT

This research aims to determine: (1) The effect of liquidity on tax aggressiveness in energy sector companies listed on the Indonesia Stock Exchange in 2018-2022; (2) The effect of leverage on tax aggressiveness in energy sector companies listed on the Indonesia Stock Exchange in 2018-2022; (3) The effect of capital intensity on tax aggressiveness in energy sector companies listed on the Indonesia Stock Exchange in 2018-2022; and (4) The effect of inventory intensity on tax aggressiveness in energy sector companies listed on the Indonesia Stock Exchange in 2018-2022. This research is comparative causal research with a quantitative approach. The population in this research is energy sector companies listed on the Indonesia Stock Exchange in 2018-2022 with a research company sample of 17 companies and a research data sample of 81 data. Purposive sampling technique was used in this research. The data used is secondary data in the form of financial reports and company annual reports. The data analysis techniques used consist of descriptive statistical analysis, classical assumption testing, multiple regression analysis, and hypothesis testing. The research results show: (1) Liquidity has a positive but not significant effect on tax aggressiveness in energy sector companies listed on the Indonesia Stock Exchange in 2018-2022; (2) Leverage has a positive but not significant effect on tax aggressiveness in energy sector companies listed on the Indonesia Stock Exchange in 2018-2022; (3) Capital intensity has a negative and significant effect on tax aggressiveness in energy sector companies listed on the Indonesia Stock Exchange in 2018-2022; (4) Inventory intensity has a negative but not significant effect on tax aggressiveness in energy sector companies listed on the Indonesia Stock Exchange in 2018-2022.

Keywords: Liquidity, Leverage, Capital Intensity, Inventory Intensity, Tax Aggressiveness

INTRODUCTION

Based on the 2023 State Budget Performance data obtained from the official Instagram account of the Ministry of Finance of the Republic of Indonesia, the temporary realization of state revenue amounted to Rp2,774.3 trillion consisting of tax revenue of Rp1,869.2 trillion, customs and excise revenue of Rp 286.2 trillion, and non-tax revenue of Rp 605.9 trillion. The data shows that taxes are the largest source of state revenue in national development and a very vital thing in the sustainability of a country (Pratiwi & Ardiyanto, 2018). However, Finance Minister Sri Mulyani Indarawati reported in the press conference of the 2023 State Budget Realization on January 02, 2024, the tax ratio to GDP showed at 10.21 percent. This value has decreased compared to 2022 which was recorded at 10.39 percent (Ramli & Sukmana, 2024). Severel experts view the large tax gap or uncollected taxes as the cause of the decline in the tax ratio. Mr. Prianto Budi Saptono as a Fiscal Administration Lecturer at the University of

PROCEEDING ICEBESS - SEP 2024
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Indonesia explained that there are several causes of the large potential uncollected revenue that hold the acceleration of the tax ratio, one of which is the practice of tax evasion and tax avoidance (Arief, 2022).

In terms of taxation, there are differences in interests between company management and the government, where the government wants to optimize tax revenue, while company management wants to minimize tax payments. The company will try to reduce the value of the tax burden by doing tax planning as a strategy to manipulate income on profits earned by reducing the tax burden owed where this behavior has implications for tax aggressiveness (Pratiwi & Ardiyanto, 2018). Tax aggressiveness is a transaction system that aims to minimize the tax burden by utilizing the weaknesses of a country's tax regulations so that tax experts recognize it as legitimate because it does not violate tax regulations (Fahrani et al., 2018). The company is declared to have tax aggressiveness if the company tries to minimize its tax burden aggressively (Nurasiah & Riswandari, 2023).

Indonesia's natural resources have the potential to support energy sector activities and become the largest contributor to state revenue, so tax contributions can still be maximized through energy sector companies. Energy sector companies have a role in advancing the national economy in the form of state revenue, employment, provision of industrial raw materials, domestic fuel, etc. Despite the important role of energy sector companies in Indonesia, there is great hope that these companies will not engage in tax aggressiveness. However, there are still several companies in that sector still carry out tax aggressiveness which can hold state revenues for the country's development process. One of them is PT Adaro Energy Tbk, which is involved in tax avoidance by conducting transfer pricing through its subsidiary Coaltrade Services International in Singapore and resulting in the company paying smaller taxes than it should be worth US $ 125 million or equivalent to IDR 1.75 trillion (exchange rate of IDR 14,000) (Sugianto, 2019).

The company's ability to pay taxes is inseparable from liquidity. Company liquidity describes the company's ability to fulfill its short-term liabilities to creditors. The tax paid by the company is part of the company's short-term liabilities. Low liquidity value of a company can be indicated that the company will not comply with its tax liabilities. The results of research conducted by Sari & Rahayu (2020) found that liquidity has a positive effect on tax aggressiveness. Meanwhile, the results of research by Herlinda & Rahmawati (2021) found that liquidity has a negative effect on tax aggressiveness. In addition, company leverage also illustrates how much the company depends on debt in carrying out its operational activities. A company with a lot of debt will cause interest expense on the debt which can reduce taxable income and the tax paid will also be smaller. This situation can be exploited by companies to carry out tax aggressiveness. The results of research conducted by Wicaksono et al. (2023) show that leverage has a positive effect on tax aggressiveness. Meanwhile, the results of research by Wulansari et al. (2020) found that leverage has a negative effect on tax aggressiveness.

Companies in carrying out their operational activities will invest their funds in the form of fixed assets to support activities. Fixed assets owned by the company can come from self-ownership and lease from other companies. Basically, self-owned fixed assets will incur costs on these fixed assets such as depreciation costs, while fixed assets from the lease will only incur rental costs recognized as operational costs without depreciation costs. However, there are several companies that recognize leased fixed assets or right-of-use assets as fixed assets of the company, so that it will increase depreciation costs which result in a decrease in profits and have an impact on reducing taxes paid. The results of research conducted by Afrina et al. (2022) found that capital intensity has a positive effect on tax aggressiveness. Meanwhile, the results of Maulidah & Prastiwi (2019) research found that capital intensity has a negative effect on tax aggressiveness. In addition, companies that invest their funds in the form of inventory

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

in the warehouse will cause the formation of storage costs and inventory maintenance costs. These costs can be utilized by companies to reduce taxable income which results in smaller taxes. The results of research conducted by Adisamartha & Noviari (2015) found that inventory intensity has a positive effect on tax aggressiveness. Meanwhile, the results of research by Metta & Ickhsanto (2022) found that inventory intensity has a negative effect on tax aggressiveness.

Based on existing phenomena and inconsistencies in previous research, the researcher wants to re-examine the effect of liquidity, leverage, capital intensity, and inventory intensity variables on tax aggressiveness. The object of this research is the energy sector companies listed on the Indonesia Stock Exchange in 2018-2022. The case involving PT Adaro Energy Tbk is the reason researchers chose the energy sector in their research. In addition, the energy sector has a role in advancing the national economy in the form of state revenue, employment, provision of industrial raw materials, domestic fuel, etc.

Positive Accounting Theory.

Positive accounting theory was introduced by Watts & Zimmerman (1986), which describes the actions of company management in preparing financial statements (Andhari & Sukartha, 2017). Meanwhile, in JayantoPurba & Kuncahyo (2020), it is explained that positive accounting theory gives freedom to company management to choose options that can be applied among several existing accounting methods with the aim of minimizing costs incurred and at the same time increasing company value. In Afrizal (2018), it is explained that there are three hypotheses in positive accounting theory, namely the bonus plan hypothesis, the debt equity hypothesis, and the political cost hypothesis. From these three hypotheses, it shows that positive accounting theory recognizes three agency relationships, including the relationship between management and owners, management and creditors, and management and the government (Ervina et al., 2022). This shows that agency theory is quite dominant in the positive accounting research model.

Tax Aggressiveness.

Tax aggressiveness is an action taken by company management to reduce the cost of taxes paid by conducting tax planning through tax avoidance or tax evasion practices. This is done by the company to make the profit or profit obtained by the company look optimal, so that it will make the company's shares more attractive and have a positive impact on the market (Asmara & Helmy, 2023). In the context of tax aggressiveness, there are three concepts that similar but have different implications. All three have a similar goal, which is to reduce or minimize the tax that should be paid (Fredlina & Dinata, n.d.). The three concepts include tax planning, tax avoidance, and tax evasion. The indicator used in this research is Effective Tax Rate (ETR), which is by comparing the amount of corporate income tax with profit before income tax. This indicator is also used by Pratiwi & Ardiyanto (2018) in their research.

Liquidity.

According to Prastowo (2011), the liquidity of the company describes the company's ability to fulfill its short-term liabilities to creditors. Short-term creditors are more interested in cash flow and working capital management than how much accounting profit the company reports. In measuring the liquidity of the company can use liquidity ratios. The liquidity ratio is a description of the relationship between cash and other current assets of the company and its current liabilities (Brigham & Houston, 2018). Meanwhile, in Goh & Erika (2022), the liquidity ratio is a ratio that describes the company's ability to meet its short-term liabilities that are due immediately. The ratio determines whether the company can pay its liabilities when its due. If the liabilities paid before the deadline, the company can be indicated as a good company. The indicator used in this research is the Current Ratio (CR), which is by comparing total current assets with current debt. This indicator is also used by Wicaksono et al. (2023) and Aulia & Suparyati (2023) in their research.

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

Leverage.

According to Prastowo (2011), company leverage is a description of the company's ability to meet its long-term liabilities. Long-term creditors will pay attention to the company's ability to meet the company's short-term and long-term liabilities. This is done to determine the company's ability to pay interest and pay the principal of the company's loans, so that long-term creditors have a greater risk than short-term creditors. In measuring the company's leverage, it can use the leverage ratio. The leverage ratio is the ratio used to measure the extent to which the company's assets are financed with debt, where this ratio measures how much debt the company must have in order to fulfill its assets (Thian, 2022). Meanwhile, according to Hery (2016) in Goh & Erika (2022), the leverage ratio is a description of the company's ability to fulfill all its liabilities. The indicator used in this research is the Debt to Equity Ratio (DER), which compares total debt to total equity. This indicator is also used by Wicaksono et al. (2023) in their research.

Capital Intensity.

According to Maulana (2020), capital intensity is the level of the company in investing its assets in fixed assets. A large amount of fixed assets own by a company will cause a large depreciation expense and will reduce tax payments. Meanwhile, according to Fahrani et al. (2018), explains that capital intensity is a measure of the ratio of fixed assets in the company to the total assets owned. It can be concluded that capital intensity is the ratio between total net fixed assets and total assets owned by the company which shows the amount of the company's capital investment in the form of fixed assets. The indicator used in this research is to compare total net fixed assets with total assets owned by the company. This indicator is also used by Fahrani et al. (2018) in their research.

Inventory Intensity.

According to Maulana (2020), inventory intensity is a measure of the amount of inventory invested by the company where it will incur storage costs and maintenance costs that increase the company's burden so that it will reduce the amount of company profit and tax burden. Meanwhile, according to Andhari & Sukartha (2017), it explains that inventory is part of the company's current assets that are used for the company's long-term needs and operations. When a company has a lot of inventory, the greater the burden of maintaining and storing inventory. The burden of maintaining and storing inventory will reduce company profits which also reduce taxes paid. The indicator used in this research is to compare total inventory with total assets owned by the company. This indicator is also used by Andhari & Sukartha (2017) in their research.

Hypothesis Development.

The liquidity of the company illustrates the company's ability to fulfill its short-term liabilities. The tax paid by the company is part of the company's short-term liabilities. When the company's liquidity is good, the company is considered capable of fulfilling its short-term liabilities. If the company's liquidity is low, then it can cause the company to be unable to settle its short-term liabilities. The company's difficulty in fulfilling its short-term liabilities can cause tax aggressiveness because the company will not fulfill its tax liabilities. It can be concluded that the smaller the company's liquidity value, the more aggressive the company's treatment of taxes, so that the level of corporate tax aggressiveness is higher. **H1 : Liquidity has a negative effect on tax aggressiveness**

The company's leverage shows the company's ability to fulfill its long-term liabilities. The greater the debt owned by the company, the greater the interest expense borne by the company. The interest expense can be a deduction for taxable income and will reduce the tax burden paid. Thus, the greater the debt owned by the company, the smaller the tax burden paid and indicates that the company is more aggressive towards taxes, so that the level of corporate tax aggressiveness is higher. **H2 : Leverage has a positive effect on tax aggressiveness**

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

Capital intensity is the amount of company capital invested in fixed assets. The more fixed assets invested, the more tax-aggressive the company is considered. This is because there is a depreciation expense on fixed assets that can be used as a deduction for taxable income and company profits. The greater the fixed assets owned by the company, the greater the depreciation expense borne by the company. This causes a reduction in company profits and the tax burden paid will be smaller. Thus, the greater the value of the company's fixed assets, the smaller the tax burden paid by the company and indicates that the company is more aggressive towards taxes, so the level of tax aggressiveness is higher. **H3 : Capital intensity has a positive effect on tax aggressiveness**

Inventory intensity is a measurement of the inventory invested by the company. Companies that invest their funds in the form of inventory in the warehouse will cause the formation of storage costs and inventory maintenance costs. When the company has a lot of inventory, the company will charge maintenance and storage costs for the inventory with a large value. These costs will be a deduction for the profit earned by the company so that the tax paid will also be reduced. It can be concluded that the more inventory the company has, the greater the costs of inventory will be and will reduce the amount of tax paid. Thus, the greater the value of the company's inventory, the smaller the tax burden paid by the company and indicates that the company is more aggressive towards taxes, so the level of tax aggressiveness is higher. **H4 : Inventory intensity has a positive effect on tax aggressiveness**

METHOD, DATA, AND ANALYSIS

This research uses a type of comparative causal research with a quantitative approach. The population in this research were energy sector companies listed on the Indonesia Stock Exchange. The sampling technique used purposive sampling method. The research uses secondary data in the form of financial reports and annual reports downloaded through the Indonesia Stock Exchange website or the website of each company. The financial and annual report data used is the 2018-2022 report. The variable of this research is tax aggressiveness as the dependent variable. The independent variables are liquidity, leverage, capital intensity, and inventory intensity. The data analysis technique used in this research is descriptive statistics, classical assumption test, and multiple regression analysis. The hypothesis proposed by the author was tested using the partial test (t test) and the coefficient of determination test (R^2).

RESULT

Description of research data.

Table 1. Research sample

Companies that belong to the energy sector and are listed on the IDX.	87
Companies that do not publish audited financial statements or annual reports during the 2018-2022 period.	(25)
Companies that pre-tax losses during the 2018-2022 period.	(39)
Companies that do not provide complete data required for research during the 2018-2022 period.	(6)
Total Sample Companies	17
Total Year of Observation	5
Total Sample (17 x 5)	85
Outlier Data Sample	(4)
Total Final Sample	81

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

Descriptive Statistics Analysis.

Table 2. Descriptive Statistics

	N	Min	Max	Mean	Standard Deviation
Tax Aggressiveness	81	0,002	0,482	0,24390	0,100588
Liquidity	81	0,732	6,717	2,09412	1,183061
Leverage	81	0,166	1,926	0,83556	0,448917
Capital Intensity	81	0,028	0,841	0,28863	0,212587
Inventory Intensity	81	0,001	0,194	0,04896	0,048731

Based on table 2, Tax Aggressiveness as measured using Effective Tax Rates (ETR) in energy sector companies listed on the Indonesia Stock Exchange (IDX) in 2018-2022 obtained a minimum result is 0.002 in the Transcoal Pacific Tbk. (TCPI) company in 2019. The maximum value generated was 0.482 in the Radiant Utama Interinsco Tbk. (RUIS) company in 2022. While the resulting average (mean) value is 0.24390 and the standard deviation is 0.100588 with a total sample (N) is 81.

Based on table 2, Liquidity as measured using Current Ratio (CR) in energy sector companies listed on the Indonesia Stock Exchange (IDX) in 2018-2022 obtained a minimum result is 0.732 in the company TBS Energi Utama Tbk. (TOBA) in 2020. The maximum value generated is 6.717 in the Samindo Resources Tbk. (MYOH) company in 2021. While the resulting average (mean) value is 2.09412 and the standard deviation is 1.183061 with a total sample (N) is 81.

Based on table 2, Leverage as measured using Debt to Equity Ratio (DER) in energy sector companies listed on the Indonesia Stock Exchange (IDX) in 2018-2022 obtained a minimum result is 0.166 in the company Samindo Resources Tbk. (MYOH) in 2021. The maximum value generated was 1.926 for the Radiant Utama Interinsco Tbk. (RUIS) company in 2020. While the resulting average (mean) value is 0.83556 and the standard deviation is 0.448917 with a total sample (N) is 81.

Based on table 2, Capital Intensity as measured using Capital Intensity (CAPINT) in energy sector companies listed on the Indonesia Stock Exchange (IDX) in 2018-2022 obtained a minimum result is 0.028 in the company TBS Energi Utama Tbk. in 2022. The maximum value generated was 0.841 in the Soechi Lines Tbk. (SOCI) company in 2022. While the resulting average (mean) value is 0.28863 and the standard deviation is 0.212587 with a total sample (N) is 81.

Based on table 2, Inventory Intensity as measured using Inventory Intensity (INVINT) in energy sector companies listed on the Indonesia Stock Exchange (IDX) in 2018-2022 obtained a minimum result is 0.001 in the company Rukun Raharja Tbk. (RAJA) in 2018. The maximum value generated is 0.194 in the AKR Corporindo Tbk. (AKRA) company in 2022. While the resulting average (mean) value is 0.04896 and the standard deviation is 0.048731 with a total sample (N) is 81.

Classic Assumption Test.

Normality Test.

Table 3. Normality Test Results

	Ustandardized Residual	Conclusion
Asymp. Sig. (2-tailed)	0,077[c]	Data is normally distibuted

Multicollinearity Test.

Table 4. Multicollinearity Test Results

Variable	Tolerance	VIF	Conclusion
Liquidity	0,578	1,729	There is no multicollinearity
Leverage	0,563	1,775	There is no multicollinearity
Capital Intensity	0,867	1,154	There is no multicollinearity
Inventory Intensity	0,857	1,167	There is no multicollinearity

Autocorrelation Test.

Table 5. Autocorrelation Test Results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0,378[a]	0,143	0,098	0,095544	1,838

Based on table 5, the D-W value shows a number is 1.838. Based on the Durbin-Watson table which has a significance value of 5%, with a sample size (N) of 81 and 4 independent variables (k = 4), the dU shows 1.7438 and dL shows 1.5372. Thus, the 4-dU value is 2.2562 and 4-dL is 2.4628. The D-W value in the table above is 1.838 and it between dU and 4-dU (1.7438 < 1.838 < 2.2562), which means there is no autocorrelation and fulfills the assumption of autocorrelation.

Heteroscedasticity Test.

Tabel 6. Heteroscedasticity Test Results

Variable	Sig.	Conclusion
Liquidity	0,575	There is no heteroscedasticity
Leverage	0,708	There is no heteroscedasticity
Capital Intensity	0,062	There is no heteroscedasticity
Inventory Intensity	0,957	There is no heteroscedasticity

Based on the four classic assumption tests, it can be concluded that there are no violations of each type of classic assumption test. Thus, the research data and research model are suitable for use in this research.

Hypothesis Testing.

Multiple Linear Regression.

Table 7. Multiple Linear Regression Results

Variable	Unstandardized Coefficients	
	B	Std. Error
(Constant)	0,265	0,052
Liquidity	0,008	0,012
Leverage	0,037	0,032
Capital Intensity	-0,183	0,054
Inventory Intensity	-0,349	0,237

The research multiple linear regression equation made refers to table 7 as follows:

$$\mathrm{Y} = 0{,}265 + 0{,}008\mathrm{X}_1 + 0{,}037\mathrm{X}_2 - 0{,}183\mathrm{X}_3 - 0{,}349\mathrm{X}_4 + e$$

Information:

Y = Dependent Variable Tax Aggressiveness
X_1 = Independent Variable Liquidity
X_2 = Independent Variable Leverage
X_3 = Independent Variable Capital Intensity
X_4 = Independent Variable Inventory Intensity

e = Standard Error

Partial Test (t test).

Table 8. Partial Test Results (*t test*)

Variable	Standardized Coefficients Beta	t	Sig.
(Constant)		5,056	0,000
Liquidity	0,098	0,699	0,486
Leverage	0,166	1,171	0,245
Capital Intensity	-0,387	-3,389	0,001
Inventory Intensity	-0,169	-1,473	0,145

This test is conducted to show the effect of the independent variable on the dependent variable. Based on table 8, it can be explained as follows:

Based on the results of data processing, it can be obtained that the t_{count} value is 0.699 and the significance value is 0.486. For t_{table} at a significance of 0.05/2 = 0.025 with degrees of freedom df = n-k-1 or 81-4-1 = 76, seen in the t table is 1.99167. This shows that $-t_{table} \leq t_{count} \leq t_{table}$ ($-1.99167 \leq 0.699 \leq 1.99167$) and significance is more than 0.05 (0.486> 0.05). It can be concluded that the Liquidity variable (X1) has a positive but insignificant effect on Tax Aggressiveness, so **H1 is rejected**.

Based on the results of data processing, it can be obtained that the t_{count} value is 1.171 and the significance value is 0.245. For t_{table} at a significance of 0.05/2 = 0.025 with degrees of freedom df = n-k-1 or 81-4-1 = 76, seen in the t table is 1.99167. This shows that $-t_{table} \leq t_{count} \leq t_{table}$ ($-1.99167 \leq 1.171 \leq 1.99167$) and significance is more than 0.05 (0.245> 0.05). It can be concluded that the Leverage variable (X2) has a positive but insignificant effect on Tax Aggressiveness, so **H2 is accepted**.

Based on the results of data processing, it can be obtained that the t_{count} value is -3.389 and the significance value is 0.001. For t_{table} at a significance of 0.05/2 = 0.025 with degrees of freedom df = n-k-1 or 81-4-1 = 76, seen in the t table is 1.99167. This shows that $-t_{count} < -t_{table}$ ($-3.389 < -1.99167$) and significance less than 0.05 (0.001 < 0.05). It can be concluded that the Capital Intensity variable (X3) has a negative and significant effect on tax aggressiveness, so **H3 is rejected**.

Based on the results of data processing, it can be obtained that the t_{count} value is -1.473 and the significance value is 0.145. For t_{table} at a significance of 0.05/2 = 0.025 with degrees of freedom df = n-k-1 or 81-4-1 = 76, seen in the t table is 1.99167. This shows that $-t_{table} \leq t_{count} \leq t_{table}$ ($-1.99167 \leq -1.473 \leq 1.99167$) and significance is more than 0.05 (0.145> 0.05). It can be concluded that the Inventory Intensity variable (X4) has a negative but insignificant effect on Tax Aggressiveness, so **H4 is rejected**.

Coefficient of Determination Test (R^2).

Table 9. Coefficient of Determination Test Result (R^2)

Model	R	*R Square*	*Adjusted R Square*
1	0,378[a]	0,143	0,098

Based on table 9, the R^2 value is 0.143. This means that the percentage contribution the influence of the Liquidity, Leverage, Capital Intensity, and Inventory Intensity variables on Tax Aggressiveness is 14.3%. While the remaining 85.7% is explained by other variables not included in this research model.

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

DISCUSSION

The effect of liquidity on tax aggressiveness in energy sector companies listed on the Indonesia Stock Exchange in 2018-2022.

The results of this research do not support the first hypothesis that liquidity has a positive but insignificant effect on tax aggressiveness. The positive influence between liquidity and tax aggressiveness is because good cash flow in the company is used to finance the company's operations in generating high profits. Companies tend to take aggressive tax actions to reduce the tax burden with these high profits (Sari & Rahayu, 2020). However, the results of this research indicate that there is an insignificant relationship between liquidity and corporate tax aggressiveness which may be due to the results of the coefficient of increase which is very low at 0.008 and sample companies tend to maintain liquidity in the average range of 2.09412. This value indicates that the company is able to pay its short-term liabilities including tax liabilities. However, if liquidity is too low, it will reduce creditor confidence in the company and can result in reduced creditor capital loans.

In positive accounting theory, namely the debt equity hypothesis that explains the company's relationship with creditors, the company will try to maintain its company's performance so that it is considered good and can be trusted again later. Companies that have good liquidity, then the company's performance is considered good and the level of creditor confidence in the company will be better. Therefore, the company will maintain its liquidity value and not be too aggressive regarding its tax. This is also the reason why liquidity is not significant to tax aggressiveness. The results of this research contradict with the research of Herlinda & Rahmawati (2021) which states that liquidity has a negative effect on corporate tax aggressiveness, which means that the greater the company's liquidity value, the smaller the company's tax aggressiveness value. However, the results of this research is in line with the research of Handayani et al. (2024) which states that liquidity has a positive but insignificant effect on tax avoidance which is part of tax aggressiveness.

The effect of leverage on tax aggressiveness in energy sector companies listed on the Indonesia Stock Exchange in 2018-2022.

The results of this research support the second hypothesis that leverage has a positive although insignificant effect on tax aggressiveness. The positive influence between leverage and tax aggressiveness is because the debt owned by the company will incur fixed costs in the form of interest expense. The interest expense on the debt will be utilized by the company to reduce taxable income as a form of suppressing the tax costs that must be paid (Kurniawan & Ardini, 2019). While the insignificant relationship between corporate leverage and corporate tax aggressiveness may be due to the results of the coefficient of increase which is very low at 0.037 and sample companies tend to have a leverage ratio in the average range of 0.83556 which means that the company uses debt as capital from external parties in carrying out its operational activities is not too large compared to capital from internal parties. Thus, the company does not depend on financing from external parties in carrying out its operations, so that debt is not utilized to carry out tax aggressiveness.

In positive accounting theory, namely the debt equity hypothesis that explains the company's relationship with creditors, if the company has a high level of leverage, the company must try to have a satisfactory profit so that the company's ability to carry out its liabilities is not doubted by creditors. Thus, a company with a high level of leverage will cause the company to increase its current period profit and indicate that the company is not too aggressive in carrying out its tax liabilities. This is also the reason why leverage is not significant to tax aggressiveness. The results of this research contradict with the research of Wulansari et al. (2020) which states that leverage has a negative effect on corporate tax aggressiveness.

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

However, the results of this research is in line with the research of Sari & Rahayu (2020) which also states that leverage has a positive and insignificant effect on tax aggressiveness.

The effect of capital intensity on tax aggressiveness in energy sector companies listed on the Indonesia Stock Exchange in 2018-2022.

The results of this research do not support the third hypothesis that capital intensity has a negative and significant effect on tax aggressiveness. The existence of a negative influence between capital intensity and tax aggressiveness indicates that the higher the capital intensity, the inversely proportional to the company's lower tax aggressiveness efforts. This is because the fixed assets owned by the company will experience depreciation every year. The depreciation costs are included in the deductible expense category or costs that can be deducted as a tax deduction. With the bigger the fixed assets of the company, the greater the depreciation costs and the smaller the tax payable. Thus, when the company's capital intensity is high, it shows that the amount of depreciation expense attached to fixed assets is also high, so that the practice of corporate tax aggressiveness is low (Maulidah & Prastiwi, 2019).

In positive accounting theory, namely the political cost hypothesis which explains the relationship between companies and the government related to taxation, large companies are likely to choose accounting policies to reduce reported profits, such as accelerating expenses or delaying revenue recognition. In this research, it is not in line with this hypothesis because the results of the research do not show that companies tend to reduce current profits into the future with other variables. The results of this research contradict with the research of Afrina et al. (2022) which states that capital intensity has a positive effect on corporate tax aggressiveness. However, the results of this research are in line with Maulidah & Prastiwi (2019) research which also states that capital intensity has a negative effect on tax aggressiveness.

The effect of inventory intensity on tax aggressiveness in energy sector companies listed on the Indonesia Stock Exchange in 2018-2022.

The results of this research do not support the fourth hypothesis that inventory intensity has a negative but insignificant effect on tax aggressiveness. The existence of a negative influence between inventory intensity and tax aggressiveness resulting from the amount of inventory intensity is expected to increase the number of company sales transactions so that the maximum profit target can be achieved by the company in that period and not used to carry out tax aggressiveness (Metta & Ickhsanto, 2022). The insignificant relationship between the company's inventory intensity and corporate tax aggressiveness may be due to the fact that the sample companies tend to have an inventory intensity level in the average range of 0.04896 which means that the company has a very low amount of inventory from its total assets. Thus, the company does not depend on inventory to carry out tax aggressiveness. Although the choice of company recording method used can affect the value of corporate tax liabilities, the model has not been able to be used to detect this.

In positive accounting theory, namely the political cost hypothesis that explains the relationship between companies and the government related to taxation, large companies are likely to choose accounting policies to reduce reported profits, such as accelerating expenses or delaying revenue recognition. In this research, the theory does not support companies that increase inventory. This is because if the company keeps inventory for too long, it will cause a decrease in value in accounting and the decrease should not be expensed in the income statement. Therefore, in determining the amount of taxable income in tax calculations, inventory is still calculated by calculating the acquisition price without impairment. The results of this research contradict with the research of Adisamartha & Noviari (2015) which states that inventory intensity has a positive effect on tax aggressiveness. However, the result of this

PROCEEDING ICEBESS - SEP 2024
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research is in line with the research of Nugraha & Rusliansyah (2022) which also states that inventory intensity has no effect on tax aggressiveness.

CONCLUSION

This research shows the results that liquidity has a positive but insignificant effect on tax aggressiveness, leverage has a positive but insignificant effect on tax aggressiveness, capital intensity has a negative and significant effect on tax aggressiveness, and inventory intensity has a negative but insignificant effect on tax aggressiveness. Based on these results, this research is useful for economic science in relation to the factors that influence tax aggressiveness which can be used as a reference for further research. The limitation of this research is that it cannot represent the entire energy sector companies listed on the IDX because the sample used did not reach 50% of the total population. In addition, the independent variables used in this research are not able to explain the factors that influence the dependent variable as indicated by the results of R Square (R^2) which is only 14.3%. Future researchers are expected to improve the limitations of this research by examining other factors related to tax aggressiveness and using other proxies for each variable. In addition, future researchers are also expected to expand the sample used by increasing the number of years of research or using other sector companies in order to produce comprehensive research.

REFERENCE

Adisamartha, I. B. P. F., & Noviari, N. (2015). Pengaruh Likuiditas, Leverage, Intensitas Persediaan, dan Intensitas Aset Tetap Pada Tingkat Agresivitas Wajib Pajak Badan. E-Jurnal Akuntansi Universitas Udayana, 13(3), 972–1000.

Afrina, I., Abbas, D. S., Hidayat, I., & Mubbarok, A. Z. (2022). Pengaruh Profitabilitas, Komisaris Independen, Capital Intensity dan Leverage Terhadap Agresivitas Pajak. Jurnal Riset Ilmu Akuntansi, 1(4), 71–90.

Afrizal. (2018). Accounting Theory (Teori Akuntansi) (Haryadi & W. E. Putra, Eds.). Salim Media Indonesia.

Andhari, P. A. S., & Sukartha, I. M. (2017). Pengaruh Pengungkapan Corporate Social Responsibility, Profitabilitas, Inventory Intensity, Capital Intensity, dan Leverage Pada Agresivitas pajak. E-Jurnal Akuntansi Universitas Udayana, 18(3), 2115–2142.

Arief, T. (2022, September 7). TAX RATIO RENDAH Target Rasio Pajak Pesimistis. Suryani Suyanti & Associates. https://www.ssas.co.id/tax-ratio-rendah-target-rasio-pajak-pesimistis/

Aulia, D., & Suparyati, A. (2023). Pengaruh Likuiditas, Profitabilitas, Leverage dan Biaya Operasional Terhadap Agresivitas Pajak Pada Sektor Transportasi dan Logistik Yang Terdaftar Di BEI Periode 2011 -2021. Student Scientific Creativity Journal (SSCJ), 1(1), 152–161.

Brigham, E. F., & Houston, J. F. (2018). Dasar-Dasar Manajemen Keuangan (Edisi 14). Salemba Empat.

Ervina, N., Zuhra, S., Werastuti, D. N. S., Amani, T., Agustina, P. A. A., Wahidahwati, Tenriwaru, Rohmatunnisa’, L. D., Murniati, A., Suharsono, R. S., Saleh, L., Hanafie, H., & Dura, J. (2022). Teori Akuntansi (S. Bahri, Ed.). Media Sains Indonesia.

Fahrani, M., Nurlaela, S., & Chomsatu, Y. (2018). Pengaruh Kepemilikan Terkonsentrasi, Ukuran Perusahaan, Leverage, Capital Intensity, dan Inventory Intensity Terhadap Agresivitas Pajak. Jurnal Ekonomi Paradigma, 19(02), 52–60.

Fredlina, A., & Dinata, I. P. H. B. (n.d.). Tax Planning, Tax Avoidance, dan Tax Evasion: Serupa Tapi Tak Sama. Puspapknstan. Retrieved April 22, 2024, from

E-ISSN : 2528 - 671X

https://puspapknstan.org/tax-planning-tax-avoidance-dan-tax-evasion-serupa-tapi-tak-sama/

Goh, T. S., & Erika. (2022). Monograf Kinerja Keuangan Perusahaan dan Agresivitas Pajak (Edisi Pertama). Indomedia Pustaka.

Handayani, N. T., Marundha, A., & Khasanah, U. (2024). Pengaruh Manajemen Laba, Profitabilitas, dan Likuiditas terhadap Penghindaran Pajak (Studi Empiris pada Perusahaan Sektor Properti dan Real Estate yang Terdaftar di BEI pada Tahun 2018-2022). Jurnal Economina, 3(2), 197–218. https://doi.org/10.55681/economina.v3i2.1191

Herlinda, A. R., & Rahmawati, M. I. (2021). Pengaruh Profitabilitas, Likuiditas, Leverage, dan Ukuran Perusahaan Terhadap Agresivitas Pajak. Jurnal Ilmu Dan Riset Akuntansi (JIRA), 10(1), 1–18. http://jurnalmahasiswa.stiesia.ac.id/index.php/jira/article/view/3738

JayantoPurba, C. V, & Kuncahyo, H. D. (2020). Pengaruh Profitabilitas, Likuiditas, dan Leverage, Terhadap Agresivitas Pajak pada Perusahaan Manufaktur Sektor Lainnya yang Terdaftar di BEI. Bisnis-Net Jurnal Ekonomi Dan Bisnis, 3(2), 158–174. https://doi.org/https://doi.org/10.46576/bn.v3i2.1005

Kurniawan, E., & Ardini, L. (2019). Pengaruh Likuiditas, Leverage, Profitabilitas, Ukuran Perusahaan, Capital Intensity Terhadap Agresivitas Pajak. Jurnal Ilmu Dan Riset Akuntansi, 8(9), 1–19.

Maulana, I. A. (2020). Faktor-Faktor Yang Mepengaruhi Agresivitas Pajak Pada Perusahaan Properti dan Real Estate. KRISNA: Kumpulan Riset Akuntansi, 11(2), 155–163. https://doi.org/10.22225/kr.11.2.1178.155-163

Maulidah, H. A., & Prastiwi, D. (2019). Pengaruh Corporate Social Responsibility, Intensitas Modal, dan persaingan Terhadap Agresivitas Pajak Perusahaan. AKUNESA: Jurnal Akuntansi Unesa, 8(1).

Metta, W. C., & Ickhsanto, W. (2022). Pengaruh intensitas modal, intensitas persediaan, pertumbuhan penjualan dan profitabilitas terhadap agresivitas pajak. Jurnal Ilmiah Akuntansi Dan Keuangan, 4(11). https://journal.ikopin.ac.id/index.php/fairvalue

Nugraha, F., & Rusliansyah, R. (2022). Pengaruh corporate social responsibility, intensitas modal dan intensitas persediaan terhadap agresivitas pajak. Jurnal Ilmu Akuntansi Mulawarman, 7(1), 67–76.

Nurasiah, S., & Riswandari, E. (2023). Pengaruh Konservatisme Akuntansi, Kualitas Audit dan Agresivitas Pajak Terhadap Nilai Perusahaan. Reviu Akuntansi Dan Bisnis Indonesia, 7(1), 219–231. https://doi.org/10.18196/rabin.v7i1.16814

Prastowo, D. (2011). Analisis Laporan Keuangan Konsep dan Aplikasi (Edisi Ketiga). Unit Penerbit dan percetakan Sekolah Tinggi Ilmu Manajemen YKPN.

Pratiwi, D. A., & Ardiyanto, M. D. (2018). Pengaruh Struktur Kepemilikan Terhadap Agresivitas Pajak. Diponegoro Journal Of Accounting, 7(1). http://ejournal-s1.undip.ac.id/index.php/accounting

Ramli, R. R., & Sukmana, Y. (2024, January 3). "Tax Ratio" RI Turun Jadi 10,21 Persen pada 2023, Ini Penyebabnya. Kompas.Com. https://money.kompas.com/read/2024/01/03/133000026/-tax-ratio-ri-turun-jadi-10-21-persen-pada-2023-ini-penyebabnya

Sari, C. D., & Rahayu, Y. (2020). Pengaruh Likuiditas, Leverage, Ukuran Perusahaan, dan Komisaris Independen Terhadap Agresivitas Pajak. Jurnal Ilmu Dan Riset Akuntansi, 9(2), 1–19.

Sugianto, D. (2019, July 5). Mengenal soal Penghindaran Pajak yang Dituduhkan ke Adaro. DetikFinance. https://finance.detik.com/berita-ekonomi-bisnis/d-4612708/mengenal-soal-penghindaran-pajak-yang-dituduhkan-ke-adaro

Thian, A. (2022). Analisis Laporan Keuangan. Penerbit Andi.

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

Wicaksono, S. A., Asyik, N. F., & Wahidahwati, W. (2023). Faktor-Faktor Yang Mempengaruhi Agresivitas Pajak. Reviu Akuntansi Dan Bisnis Indonesia, 7(2), 350–367. https://doi.org/10.18196/rabin.v7i2.17893

Wulansari, T. A., Titisari, K. H., & Nurlaela, S. (2020). Pengaruh Leverage, Intensitas Persedian, Aset Tetap, Ukuran Perusahaan, Komisaris Independen Terhadap Agresivitas Pajak. JAE (Jurnal Akuntansi Dan Ekonomi), 5(1), 69–76.

CREATING WORK COMMITMENT AND WORK ENGAGEMENT IN EXPORT-IMPORT STAFF WITH SUPERVISORY SUPPORT, EMPOWERMENT AND WORK STRESS

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ABSTRACT

This study aims to determine the effect of supervisory support, empowerment, and work stress on work engagement through work commitment as a mediating variable. An empirical study was conducted on export-import staff employees at companies in KBN Cakung Jakarta using a questionnaire. The novelty of this research is that this is the first research to be conducted on export-import staff at KBN, and the results will be able to provide a positive impact on the company and society. This study is a descriptive study with a population of 143 staff employees at companies in KBN Cakung Jakarta. The sample selected was 100 employees obtained through cluster sampling, stratified sampling, and proportional random sampling techniques. The analysis method is path analysis processed with the SPSS version 20.0 program. The results of this study indicate that supervisor support and empowerment effectively have a positive and significant effect on work engagement directly. As well as a positive and significant direct effect between supervisor support and empowerment on work commitment, while the work stress variable has a negative and significant effect directly on work commitment and work engagement. The indirect effect of supervisor support and empowerment on work engagement variables through work commitment has a positive and significant effect. As well as the indirect effect of work stress on work engagement through work commitment has a negative and significant effect. Based on the results of this study, it can be obtained that the variables of supervisory support, empowerment, and work stress have a direct significant effect on work commitment and have an impact on employee work engagement in the export-import staff section. And have an indirect impact on supervisory support and empowerment of work engagement through.

Keywords: Superiory Support, Empowerment, Work Stress, Work Commitment, Work Engagement

INTRODUCTION

To achieve organizational and human resource goals, initial capital is needed. The quality of their work is highly dependent on how the company manages these employees properly and correctly. One of them is how the company can provide support to its employees so that it allows for the formation of high employee commitment (Farchan, 2018). So it is necessary to form a good commitment to employees to be able to create a condition that is indeed needed by the company to complete all matters related to their work while still prioritizing the existence of a comprehensive work commitment for employees (Oktariani et al., 2017).

Employee engagement is a concept developed from positive psychology and positive organizational behavior. (Harter, 2020) and (Albrecht et al., 2017) describe the theory of the relationship and involvement that occurs closely physically, cognitively, and emotionally between a person and their role in a job, which is then referred to as employee engagement. In line with the definition above, Federman (Goyette et al., 2019) views employee engagement as

PROCEEDING ICEBESS - SEP 2024
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a level at which a person commits to an organization so that it can determine how a person behaves and how long he will stay in his position.

According to Marciano (Marciano, 2010) an engaged worker will be committed to the goal, use all his abilities to complete the task, maintain his behavior while working, ensure that he has completed the task well according to the goal, and is willing to take corrective steps or evaluation if necessary. Furthermore (Kumar and Kapoor, 2020) added that employee engagement has several advantages, namely increasing productivity, increasing profits, increasing efficiency, reducing turnover, reducing absenteeism, reducing fraud, increasing customer satisfaction, reducing work accidents, and minimizing employee complaints. Employees who are referred to as the determining element of the company's progress will certainly play a very important role as the company's mainstay in the future in facing market competition. Employees in realizing all of that must first be able to have good engagement (Suhardoyo, 2022).

This employee engagement crisis shows that there is a gap between the reality that occurs and the company's expectations, that employees should be able to maximize their potential and do their jobs well. Internal employee engagement is needed to make all of that happen, but in reality, what is found is that most employees underestimate their work. Many employees do not work according to the company's standard operating procedures (SOP), employees work as they please, employees do not pay attention to the SOP in each of their work divisions and many employees do not understand the SOP of their respective divisions. This can result in the results of their work not being able to achieve the targets or standards set by the company. The above problems can be found in KBN Cakung employees. Observations made by researchers from January 31, 2022, there were employees of the General Unit during working hours, and employees were found busy opening Facebook and Twitter accounts. Some employees play games at their respective computer desks. Employees spend a lot of their working time playing, not doing their jobs properly. The enthusiasm of the employees seems very low towards their work, employees do not fully concentrate on their work.

Violations committed by these employees have occurred frequently, according to data obtained by researchers from the security department in each company that employee violations in 2022 showed that 65% of employee violations were in the form of violations of being late for work, 15% violations of completeness in clothing, 10% violations of not coming to work without permission and 10% violations of playing truant when working hours are in progress. In addition to conducting observations and interviews, researchers also conducted a preliminary study. The preliminary study was conducted by researchers on February 4, 2023, by giving a questionnaire containing 12 items related to the theory of employee engagement to 30 employees, with the results showing that out of 30 employees, 3 people had high employee engagement (work engagement) and 27 employees had low employee engagement (work engagement), this is contrary to the expectation that employees should have high work engagement and can work with sincerity and bring out their maximum abilities for the company.

Support from superiors (super Less than optimal supervisory support is one of the factors that affect employee commitment and employee engagement in the company to be low. With low superior support, employees will not be able to complete their work properly and correctly. According to (Robbins, 2017), supervisory support refers to a system of shared understanding held by members of an organization that distinguishes the organization from other organizations that receive support. Meanwhile, according to (Astuti, 2019) supervisory support is a form of assumption that is owned, and implicitly accepted by the group, and determines how the group feels, thinks, and reacts to a diverse environment. In supporting the commitment of an organization, the role of a superior who is also a leader cannot be ignored. The effectiveness of an organization is determined by the role of a guiding leader who will always support in achieving the goals, vision, and mission of an organization that has been set (Parashakti, R. D., Haryadi, A., & Nashar, 2018). The influence of a leader can provide social effects in the form of a personal approach, authentic style, and two-way communication. A leader provides direction to his subordinates and instructions to his subordinates so that later his followers can accept and implement the goals and objectives of a company. A leader in a company is an individual who sets targets and motivates to achieve the targets and goals of an organization.

Currently, workers in a company are facing changes in empowerment for each employee to work according to their abilities, which if the employee is unable to complete their work will have an impact on the workload, increase pressure that requires better job skills and long working hours (Cooke, 2012). These pressures ultimately have an impact on job stress from the demands of workers from a company which will always be an obstacle in completing work (Consiglio et al., 2016). Employee engagement in the organization has direct implications for several outcomes of a company. Employee engagement is a phenomenon that can provide various changes in a company.

(Hawa and Nurtjahjanti, 2018), Stated that the attitude of employees toward the organization where they work is a commitment. This is also stated explicitly by who argue that organizational engagement is an individual attitude that identifies themselves with the goals of the organization in which they work. In general, employees believe that giving an attachment to their work is the center of the employee's life (Assidik, 2018).

METHOD, DATA, AND ANALYSIS

The population in this study was all staff of the export-import division in the industry in the Cakung Nusantara bonded zone, totaling 143 staff of the export-import division spread across eleven industries, namely five garment industries. The number of samples determined was 100 people based on the Slovin approach (Sugiyono., 2014). The selection of samples in this study used random sampling and then proportional stratified random sampling. The data analysis method used was path analysis which was used to estimate the causal relationship between variables that had been previously determined based on theory.

The independent variables measured in this study consisted of 5 variables, namely superwisory support (X_1), empowerment (X_2), and work stress (X_3), the dependent variables consisted of work commitment (Y_1) and wok engagement (Y_2).
Figure 1 The complete research model is described as follows:

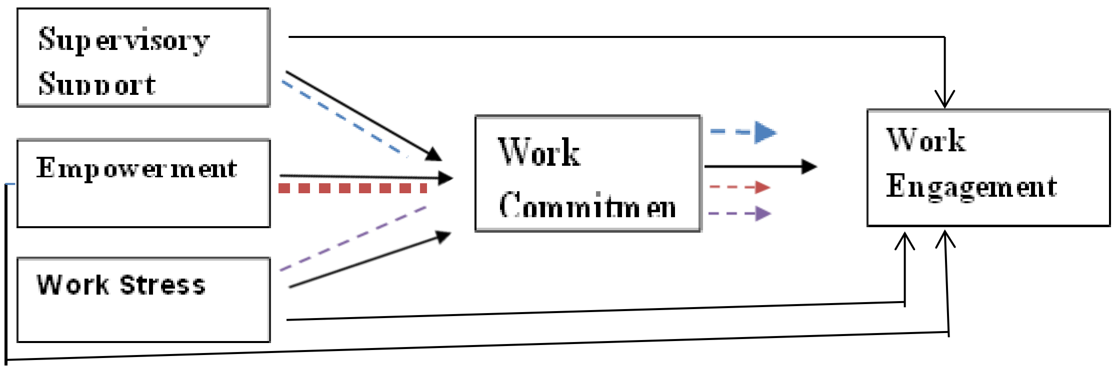

Figure 1. Research Model

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RESULT AND DISCUSSION

Characteristics of Respondents The number of export-import employees is quite large, which is 100 people, The characteristics of the respondent population in this study are distinguished based on gender, education, and length of service. More comprehensively regarding the description of respondents in this study, namely those characterized by the research sample of employees in the industry in the Cakung Nusantara Bonded Zone occupy the largest proportion, which is around 68%, women are 68, 32% are 32, while men. High school education level is 40% is 40, D-3 is 25% is 25 while S1 is around 35% is 35, and finally the length of service between 2-5 years is 15% is 15, the length of service 6-10 years is 24% is 24 while the most are with a proportion of 61% is more than 10 years is 61 So from this it is taken as a sample of all.

So based on the calculations, the results obtained are in Table 1 below:

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Table 1. Part Analysis Result

Independent Variable	***Intervening Variable***	***Dependent Variable***	***t***	***P***	***Direct Effects***	***Indirect Effects***	***Total Effects***
Supervisory Support (X1)	(Y1)	-	2,538	0,015	0,226	0,155	0,289
	(Y1)	(Y2)	3,844	0,000	0,254		
Empowerment (X2)	(Y1)	-	7,290	0,000	0,570	0,153	0,591
	(Y1)	(Y2)	6,246	0,000	0,428		
Work Stress (X3)	(Y1)	-	-6,173	0,032	-0,569	-0,145	-0,485
	(Y1)	(Y2)	-5,876	0,000	-0,440		
-	(Y1)	(Y2)	4,123	0,000	0,396	-	-

Source: data processing results, 2023

1. **Path Analysis Based On Direct Effect**

a. Supervisory support variable on work commitment

Based on Table 1. the direct relationship between supervisor support and employee commitment is obtained by a t-count value of 2.538. The value of the p column (Table 1) is 0.015 <0.05 and the t-count value of 2.538> 1.660 (table t value) is accepted and HO so that Hypothesis 4 is accepted which means that the path analysis coefficient is significant. The magnitude of the path coefficient of the supervisor support variable on employee commitment is 2.226. Supervisory support has a strong level of relationship with each increase or increase of 1 unit of supervisory support will be able to increase 0.226 units of employee commitment directly

b. Supervisory Support variable on work engagement

Based on Table 1, the direct relationship between supervisory support and work engagement is obtained by a t-count value of 3.844. The value of the p column (Table 1) is 0.000 < 0.005 and the t value is 3.844> 1.660 (t-table value). So H1 is accepted and H0 is rejected so that hypothesis 1 (H1) is accepted which means that the path analysis coefficient is significant. The magnitude of the path coefficient of the supervisory support variable on employee performance is 0.254. Based on the results of the path analysis, a strong direct influence value was found between supervisory support on work engagement so that every increase of 1 unit of supervisory support can increase work engagement by 0.254 units of work engagement directly

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

c. Empowerment variable on work commitment

Based on the results of the analysis in Table 1, there is a direct relationship between the empowerment variable and employee commitment, the t value is 7.290. The value of the p column (Table 1) is 0.000 <0.05, and the t value is 7.290>1.660 (t-table value) so H1 is accepted and H0 is rejected so that Hypothesis 2 is accepted which means that the path analysis coefficient is significant. The magnitude of the path coefficient of the empowerment variable on commitment is 0.570. The effect of empowerment on work commitment can be seen to have a strong level of relationship, namely that every increase of 1 unit of empowerment can increase 0.570 units of work commitment directly

d. Empowerment variable on work engagement

Based on the results of the analysis in Table 1, there is a direct relationship between the empowerment variable and work engagement , the t value is 6.246. The value of the p column (Table 1) is 0.000 <0.05, and the t value is 6.246>1.660 (t-table value) so H1 is accepted and H0 is rejected so that Hypothesis 2 is accepted which means that path analysis coefficient is significant. The magnitude of the path coefficient of the work empowerment variable on work engagement is 0.428. The effect of work empowerment on work engagement can be seen to have a strong level of relationship, namely, every increase of 1 unit of work empowerment will be able to increase 0.428 units of work engagement directly

e. Work stress variable on work commitment

Based on the results of the analysis in Table 1, there is a direct relationship between work stress and work commitment, the calculated t value is -6.173. The value of the p column (Table 1) is 0.032 <0.05, so H1 is accepted and H0 is rejected so that Hypothesis 6 (H6) is accepted, which means that the path analysis coefficient is significantly negative. The magnitude of the path coefficient of the work stress variable on work commitment is -0.569. This can be seen that the level of causal relationship is that every increase of 1 unit of work stress can directly reduce -0.569 units of work commitment.

f. Work stress variable on work engagement

Based on the results of the analysis in Table 1, the direct relationship between work stress and work engagement is obtained with a calculated t-value of -5.876. The value of the p column (Table 1) is 0.000 <0.05, so H1 is accepted and H0 is rejected so that Hypothesis 3 is accepted which means that the path analysis coefficient is significantly negative. The path coefficient of the work stress variable on work engagement is -0.440. This means that the level of strong relationship is that every 1 unit increase in work stress can directly reduce -0.440 units of work engagement.

g. Work commitment variable on work engagement

Based on the results of the analysis in Table 1, the direct relationship between work commitment and work engagement obtained a t-count value of 4.000. The value of the p column (Table.1) is 0.000 <0.05 and the t-count value is 4.123> 1.660 (t-table value), so H1 is accepted and H0 is rejected so that Hypothesis 7 is accepted which means that the path analysis coefficient is significantly positive. The magnitude of the path coefficient of the work commitment variable on work engagement is 0.396. It can be seen that the level of strong relationship where every 1 unit increase in work commitment will be able to increase 0.396 units of work engagement directly.

2. Path Analysis Based On Indirect Effects

a. Supervisory Support variable on work engagement through work commitment

Based on the results of the analysis in Table 1, the effect of the supervisor support variable on work engagement through commitment is 0.155, so there is an indirect positive effect between the supervisory support variable on work engagement through work commitment. For the indirect effect of the supervisor support variable on work engagement through commitment, it can be described that every increase of 1 unit of supervisory support can increase 0.155 units of work engagement indirectly through commitment.

b. Empowerment variable on work engagement through work commitment

Based on the results of the analysis in Table 1, the effect of the empowerment variable on work engagement through work commitment is 0.153, so there is an indirect positive effect between the empowerment variable on wok engagement through commitment. Thus, there is an indirect relationship where the empowerment variable is influenced by the work engagement variable through the commitment variable has an indirect effect where every increase of 1 unit of competency can increase 0.153 units of work engagement indirectly through commitment.

c. Work stress variable on work engagement through work commitment

Based on the results of the analysis in Table 1, the effect of the work stress variable on work engagement through commitment l is -0.145, so there is an indirect negative effect between the work stress variable on work engagement through commitment. The relationship between work stress and work engagement through commitment can be described that if there is an increase of 1 unit of work stress, it can reduce -0.145 units of work engagement indirectly through commitment.

3. Path Diagram For The Model

The overall calculation results between variables that describe the empirical causal relationship between variables X_1, X_2, and X_3 to Y_1 and Y_2 can be seen in Figure 2 below. The figure shows the empirical causal relationship of the variables of superior support, empowerment, and work stress to work commitment and work engagementt. Figure 2

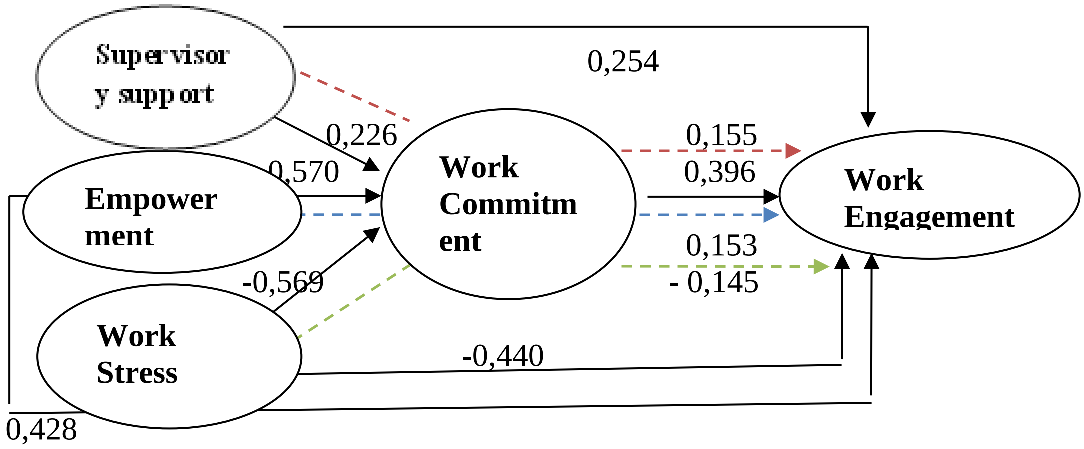

Figure 2. Empirical Causal Relationship of Variables

Discussion of Research Results

a. Supervisory Support Variable on Work Commitment

An increase of one unit of t-value in the direct relationship of supervisory support will increase one unit of t-value in organizational commitment which has an impact on the implementation of effective supervisory support which will affect the commitment of the organization he leads. Supervisory support has an orientation towards employee development and capabilities so that it can improve their competence and realize a great commitment to the company where they work. Supervisory support will realize that the success of the organization he leads will be greatly determined by the success of the export-import staff in carrying out their duties. This is by the results of a study by (Rinda and Muzakki, 2021), Supervisory support has a positive and significant effect on organizational commitment with an R-Square value of

PROCEEDING ICEBESS - SEP 2024
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0.9123 (91.23%). As well as supervisor support, and working conditions have a positive and significant effect on affective commitment at the Fusia Restaurant, Surabaya.

b. Supervisory support variable on Work Engagement

Supervisory support contributes 3.834 to lecturer performance, thus export import staff will feel ownership and pride in the company where they work. Literature studies that provide empirical exposure that supervisory support contributes directly to performance have been studied by (Rinda and Muzakki, 2021). Where Supervisory support has a positive and significant effect on work engagement with an R-Square value of 0.8997 (89.97%) (Nafiudin and Anadari, 2022)support from superiors will have an impact that is easy to implement. So supervisory support greatly influences work engagement in companies in the Cakung Nusantara bonded zone.

c. Empowerment Variable on Work Commitment

Organizational commitment will increase along with the increasing influence of the empowerment variable. In this relationship, empowerment is worth 7.190 on organizational commitment. Export-import staff is the operationalization of the driving force of activities in the company. Employee empowerment is the most important thing as the main capital in an educational organization. This is by research (Atmaja and Puspitawati, 2018), employee empowerment has a positive influence on organizational commitment. This result is by his statement that employee empowerment has a positive and significant effect on organizational commitment in Amanusa Nusa Dua Hotel employees. This means that proper employee empowerment will increase employee organizational commitment.

d. Empowerment Variables on Work Engagement

Empowerment of export-import staff has a positive influence on increasing work engagement by 6.146. The role of work empowerment has an impact on the ability of export-import staff employees to act professionally in carrying out their duties and responsibilities in their capabilities. Professional employees are those who master, follow developments, can develop, and are responsible for discipline can interact with their work professionally, provide broad, deep, and up-to-date information containing elements of novelty needed by the community, create a conducive work atmosphere for the development of attitudes that create a careful and precise assessment system, monitoring, monitoring and evaluation that is measured validly (Susanti and Oskar, 2018). This study succeeded in proving the significance of the influence of lecturer empowerment which will lead to work engagement. This has also been studied by several previous researchers who also stated that empowerment shows that empowering leadership behavior has a positive effect on work engagemen (Mansoor Hussain, 2020).

e. Work Stress Variables on Work Commitment

The work stress factor is also a problem in the organization. The results of the research analysis show that export-import staff employees have played their roles well by playing an effective and efficient role, which is a factor that minimizes the job stress of export-import staff in the company. If work stress is high, it will affect employee commitment so that many jobs are unable or even delayed. The next result is that the work piles up and increases. Research that is in line with this (Widiyana, 2021) states that work stress has a negative and significant effect on work commitment. So that to reduce the workload that results in work stress, it must be maintained so that work stress does not increase and can maintain work commitment. Research (Simamora et al., 2019), showed that work stress hurts organizational commitment.

f. Work Stress Variables on Work Engagement

Each export import staff employee works according to their role in the company, meaning that each employee has a group of tasks that must be carried out by existing rules by existing operating standards, and guideline procedures. The results of the research analysis show that export-import staff have played their roles well by playing an effective and efficient

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

role, which is a factor that minimizes employee job stress. For this reason, it is necessary to manage work stress for export import staff in the company properly so that it does not decrease and cause work stress. With a high work demand influence value, work stress is -5.876 on employee work engagement, so work stress experienced by employees can be inversely proportional to employee performance. Literature reviews discussing the topic of job stress that has a direct effect on work engagement have also been studied by several previous researchers who discussed the topic of job stress has a direct impact on work engagement has been studied by (Pranitasari et al., 2021) work stress hurts employee work engagement at PT Pos Indonesia North Jakarta by - 6.3%.

g. Wok commitment variables to work engagement

This study also examines the organizational commitment of export-import staff which contributes that with the work commitment of export-import staff, it will be able to provide direct implications for several outcomes of an educational organization. Empirical studies that discuss the topic of work commitment studies that have a direct effect on employee wok engagement have been studied, among others (Yusnita and Megawati, 2021) affective commitment has a positive and significant effect on work engagement. So to provide high commitment, it needs to be supported by maximum work engagement as well.

h. Supervisory support variable on work engagement through work commitment

The influence given by supervisory support on work engagement through work commitment is said to be quite good based on the indirect effect value of 0.155. This indirect influence can create feelings of trust, pride, and the ability of export-import staff employees to achieve the best work engagement and realize trust in supervisory support. These results are by research conducted by (Susanti and Oskar, 2018) and (Roczniewska et al., 2022).

i. Empowerment variable on work engagement through work commitment

The indirect effect value of empowerment on work engagement through commitment shows a strong and significant influence. Empowered export import staff have a sense of self-determination, namely being free to determine choices about how to do their work. Through wok commitment, an employee will feel the harmony between personal goals and the organization which leads to increased commitment. These results are from research conducted by (Herdiman and Tirtoprojo, 2024).

j. Work stress variable on wok engagement through work commitment

The direction of the negative relationship indicates that the greater the work stress will result in decreased or reduced work engagement and work commitment, and vice versa. Low stress levels will affect the improvement of the physical and psychological condition of a staff which also affects performance. Research (Aveline and Kumar, 2017) shows that work stress affects organizational work engagement and the relationship is through wok commitment. These results are also supported by research (Bakker and Demerouti, 2008) which found that there is a significant relationship between work stress and organizational commitment, and showed that organizational commitment has a significant effect on employee work engagement.

CONCLUSION

Supervisory support does not contribute directly to work commitment and work engagement, these results are expected so that leaders should focus more on factors that can affect work engagement both directly and indirectly, especially focusing on supervisory support. Organizational and operational, so that supervisory support can formulate and provide more effective solutions if there are indications of decreased commitment and work engagement in the company at KBN Cakung.

Based on the results of the path analysis, work stress also contributes less to work commitment and work engagement so it should be prioritized to improve employee

PROCEEDING ICEBESS - SEP 2024
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competence and expertise. Empowerment has quite significant results so it is necessary to develop and empower employees to be able and willing to work according to their abilities. Based on the results of this study, it can be concluded that the variables of supervisory support, empowerment, and work stress have a significant effect on work commitment and have an impact on employee work engagement in the export-import staff section.

REFERENCE

Assidik, G.K., 2018. Utilization of Social Media as an Alternative Learning Media Based on Interactive and Contemporary Digital Literacy. Semin. Nas. SAGA Univ. Ahmad Dahlan 1, 242–246.

Astuti, A.K., 2019. The Role of Supervisor Support for Employees. JRMB 14, 1–13.

Atmaja, N.P.C.D., Puspitawati, N.M.D., 2018. Effect Of Physical Work Environment Through Productivity Employees Job Satisfaction As An Intervening Variable. Int. J. Business, Econ. Law, 17, 98–104.

Aveline, S., Kumar, R.M., 2017. Employee Engagement And Effects Of Work Life Balance In Software Industries In Chennai 116, 459–466.

Bakker, A.B., Demerouti, E., 2008. Towards A Model Of Work Engagement. Career Dev. Int. 13, 209–223. Https://Doi.Org/10.1108/13620430810870476

Consiglio, C., Borgogni, L., Tecco, C. Di, Schaufeli, W., 2016. What Makes Employees Engaged With Their Work? The Role Of Self-Efficacy And Employee's Perceptions Of Social Context Over Time. Career Dev. Int. 21.

Cooke, F., 2012. Work – Life Balance In China ? Social Policy , Employer Strategy And Individual Coping Mechanisms Work – Life Balance In China ? Social Policy , Employer Strategy And Individual. Asia Pacific J. Hum. Resour. · 50, 6–22. Https://Doi.Org/10.1111/J.1744-7941.2011.00005.X

Farchan, F., 2018. HRM Strategy A Way to Create Organizational Performance in Achieving Competitive Advantage. Risâlah, J. Educator. And Stud. Islam. 4, 42–52. Https://Doi.Org/10.5281/Zenodo.3551998

Goyette, M., Mann-Feder, V., Turcotte, D., 2019. Youth Empowerment And Engagement : An Analysis Of Support Practices. REP 64, 31–50.

Harter, 2020. Employee Engagement Continues Historic Rise Amid Coronavirus. Febr. 6, 2020.

Hawa, M.A., Nurtjahjanti, H., 2018. Relationship Between Work-Life Balance and Employee Loyalty at PT. Hanil Indonesia in Boyolali 7, 424–429.

Herdiman, Tirtoprojo, S., 2024. The Influence Of Psychological Empowerment On Work Engagement With The Mediating Role Of Organizational Commitment In Wera Community Health Center Employees. Int. J. Manag. Sci. Inf. Technol. 4, 104–112.

Kumar, A., Kapoor, S., 2020. Employee Engagement Amidst COVID-19 Pandemic: A Challenge Or Opportunity For Indian Organisations. Int. J. Adv. Sci. Technol. 29, 1980–1987.

Mansoor Hussain, A.G., 2020. Interactive Effect Of Work Place Spirituality And Job Autonomy With Organizational Based Self -Esteem On Organizational Learning Culture. Int. J. Psychosoc. Rehabil. 24, 793–807. Https://Doi.Org/10.37200/IJPR/V24I6/PR260078

Marciano, P.L., 2010. More Advance Praise For Carrots And Sticks Don ' T Work Build A Culture Of Employee Engagement With The Principles Of RESPECT. Mcgraw-Hill/Irwin, A Business Unit Of The Mcgraw-Hill Companies, Inc., 1221 Avenue Of The Americas, New York, NY, 10020, United States Of America.

Nafiudin, Anadari, 2022. The Influence of Compensation Satisfaction and Supervisory Support on Employee Engagement (Study on Manufacturing Company Employees in Banten

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

Province). J. Manajmen 1, 76–85.

Oktariani, D., Hubeis, A.V.S., Sukandar, D., 2017. Job Satisfaction of Generation X and Generation Y Towards Work Commitment at Bank Mandiri Palembang Introduction. J. Appl. Business and Management, 3, 12–22. Https://Doi.Org/10.17358/JABM.3.1.12

Parashakti, R. D., Haryadi, A., & Nashar, M. (2018)., 2018. Effect Of Styles And Leadership Work Discipline To Employee Performance (Case Study Of PT. Telecommunication Indonesiatbk Dki Jakarta), In: In The 2018 International Conference Of Organizational Innovation. Pp. 419–429.

Pranitasari, D., Rini, C., Kusumawardani, W., Kerja, E., 2021. The Influence of Work Stress and Work Environment. Management Media. Services 9, 49–69.

Rinda, A., Muzakki, P., 2021. Scientific Journal of Management and Business Perceived Organizational Support on Organizational Commitment and Employee Performance Scientific Journal of Management and Business. J. Ilm. Management and Business. 22, 111–120.

Robbins, M., 2017. The 5 Second Rule: Transform Your Life, Work, And Confidence With Everyday Courage. Savio Republic.

Roczniewska, M., Smoktunowicz, E., Calcagni, C.C., Schwarz, U.V.T., Hasson, H., Richter, A., 2022. Beyond The Individual : A Systematic Review Of The Effects Of Unit-Level Demands And Resources On Employee Productivity , Health , And Well-Being 27, 240–257.

Simamora, V., Mustika, M.D., Sjabadhyni, B., 2019. Effects Of Flexible Work Arrangements On Ethical Decision Making: Job Satisfaction As A Mediator. J. Psikol. Talent. 4.

Sugiyono., 2014. Qualitative Quantitative Research Methods and R&D. Alfabeta, Bandung.

Suhardoyo, 2022. Implementation Of Strategies To Increase Competitive Advantage And Company Survival Post Pandemic Covid-19 In The Industrial Revolution 6 . 0. Int. J. Sci. Technol. Manag. 3, 1453–1459.

Susanti, E., Oskar, D.P., 2018. Branding Strategy in Building MSME Brand Equity (Case Study: Padang City Souvenir Center). IKRAITH Ekon. 1, 116–130.

Widiyana, E.O., 2021. The Influence of Job Stress, Workload, Work Conflict and Compensation on Employee Work Commitment at PT. Intidragon Suryatama Mojokerto. J. Ilmu Manajemen.1, 33–42.

Yusnita, E., Megawati, 2021. On Work Engagement With Affective Commitment As A Mediating Variable (Study On Nurses Of Meuraxa Regional General Hospital, Banda Aceh City). J. Ilm. Mhs. Ekon. Manaj. 3, 94–104.

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GENERATION Z'S INTEREST IN SHARIA SAVINGS: SEEN FROM THE INFLUENCE OF DIGITALIZATION, ECONOMIC CONDITIONS, AND SHARIA FINANCIAL LITERACY

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ABSTRACT

Sharia saving is something that not many generations of Z have done. This study aims to examine the role of the mediation of sharia financial literacy on the relationship between digitalization and economic conditions on sharia saving. This research model designs that digitalization and economic conditions affect sharia shaving, either directly or indirectly with sharia financial literacy as the mediating variable. The instrument used was in the form of a 19-item questionnaire sheet that had been tested for validity by content by 3 experts through expert judgement and calculated by Aiken. The hypothesis of this research model was empirically tested with survey data of 365 samples taken by purposive sampling. The results of data analysis using the structural equation of the lest square particle model (SEM-PLS) show that digitalization has a positive and significant effect directly on sharia financial literacy and sharia saving, and economic conditions have a positive and significant effect directly on sharia financial literacy and sharia saving. Sharia financial literacy is also able to mediate the relationship between digitalization and economic conditions, towards sharia saving with positive and significant results. The total influence on the interest of generation z to do sharia saving is 61.8%.

Keywords: digitalization, economic condition, sharia financial literacy, sharia saving

INTRODUCTION

The growth of Islamic banking currently continues to show better development. This is evidenced by the total assets of Islamic banking which reached IDR 892.17 trillion or grew by 11.21% (yoy) (OJK, 2022). Islamic banking itself has quite a fundamental difference from conventional banking. Islamic banking is banking that applies the principles and mechanisms of the sharia system, such as *mudaraba*, *musharaka*, *ijara*, *istina*, and others (Ahmad, et al., 2020). In addition, Islamic banking has quite high stability because it does not use an interest system, but profit sharing, so that Islamic banking has quite effective risk management compared to conventional banking (Nguyen, 2021). The rapid development of Islamic banking is one of the reasons for the contribution of the community in saving. Saving is an activity of setting aside money not to be consumed, but rather deposited in banks to be managed and distributed in order to move the wheels of the economy (Wang, et al., 2023).

Currently, saving in Islamic banking is one of the attractive options in the midst of the rise of conventional banking products. Encouraging the use of Islamic banking products can encourage the realization of kaffah Muslims considering that the majority of Indonesia's population is Muslim (Statista, 2023). Generation Z is the dominant population in this country who was born between 1997 and 2012 with a total of around 74.93 million people or 27.94% of the total population (GoodStats, 2023). This is a promising opportunity for the growth of Islamic banking if Generation Z has a great interest in using these Islamic banking products. The factors that can affect the interest in saving sharia in generation Z include digitalization, economic conditions, and sharia financial literacy.

The first factor that affects the interest of generation Z in saving sharia is digitalization. Digitalization is a process of transferring media from analog to digital by using technology to increase the effectiveness and efficiency of work or business (Larassati & Fauzi, 2022). Furthermore, digital finance is an innovative product that combines the principles of technology with finance that is able to increase the efficiency and effectiveness of banking in providing banking products to consumers (Li & Zhang, 2024). Digital transformation in banking can be seen from the decrease in the number of ATMs and the increase in smartphone use, where the decrease in ATM use in May 2023 was 4.82 million and in May 2024 increased to 3.86 million (BI 2024). A positive trend occurred in the use of smartphones in Indonesia from 65.87% of users in 2021 to 67.88% in 2022 (BPS 2024). This is a considerable opportunity in developing Islamic banking product services so that the expansion of banking services can be more global (Mawardi, et al., 2024). In addition, this digitalization makes it easier for banking consumers to access banking product services flexibly (Menne, et al., 2022).

The next factor is economic conditions. One of the benchmarks of economic conditions is income. Income is the amount of material received by the community in accordance with the type of work done by each community (Wang-Ly & Newell, 2024). Indonesia is a country with an upper middle country position with an average income of USD4787.9 in 2022 and increasing to USD4940.5 in 2023 (World bank, 2023). Meanwhile, the percentage of poor people in Indonesia in 2023 is 9.36%, down 0.18% from the previous year (BPS, 2023). With the improving economic conditions, it is hoped that the public, especially Generation Z, can allocate their finances to save in Islamic banking.

Islamic financial literacy is an understanding of sharia concepts that are applied in making decisions in accordance with sharia principles to achieve benefits (Antara, et al., 2016). Data from the Financial Services Authority revealed that the Islamic financial literacy index in Indonesia increased from 8.98% to 9.14% in 2022 (yoy) and the Islamic financial inclusion rate also increased from 9.12% to 12.12% in 2022 (yoy) (OJK, 2022). Research conducted by Resti Fadhilah Nurrohmah (2020) revealed that the level of Islamic financial literacy has a positive effect on interest in saving sharia money. This is strengthened by research from Bahru Ilmi Dafiq et al. (2022) that the level of Islamic financial literacy has a significant effect on interest in saving sharia money. This indicates that the better the level of Islamic financial literacy, the more interest of Generation Z in sharia savings products can increase.

Seeing this phenomenon, namely digitalization, good economic conditions, and increasing Islamic financial literacy, it is hoped that the public, especially Generation Z, can have an interest in saving sharia that is getting better. Therefore, research related to the influence of digitalization, economic conditions, and Islamic financial literacy as mediating variables on interest in sharia savings is urgently carried out. This is because sharia savings is one way to increase the contribution to economic growth, especially the sharia economy in Indonesia.

METHOD, DATA, AND ANALYSIS

This study is descriptive quantitative research used to examine the influence of digitalization and economic conditions through sharia financial literacy on Generation Z's interest in sharia saving. The purposive sampling technique was used to sample 356 students taken by purposive sampling. The instrument used was a 19-item questionnaire sheet whose content validity had been tested by 3 experts through expert judgment and calculated using Aiken (Aiken, 1985). The instrument was also confirmed reliable after being tested for the Cronbach Alpha reliability coefficient. A valid and reliable instrument is used to see how influential the Influence of Digitalization (D) and Economic Conditions (EC) through Sharia Financial Literacy (SFL) is on Generation Z's interest in Sharia Saving (SS).

Research Methodology

SEM-PLS path analysis is used to see the relationship through outer model and inner model tests. The research model in this study is presented in Figure 1.

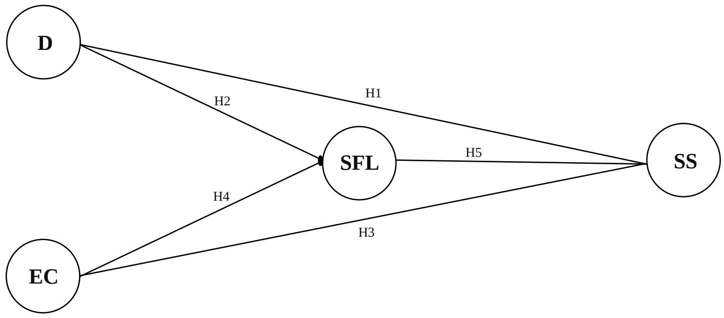

Figure 1**.** Research Model

Based on figure 1, this study has 5 research hypotheses which include:

H_1 : Digitalization has a positive effect on Sharia Saving
H_2 : Digitalization has a positive effect on Sharia Financial Literacy
H_3 : Economic Conditions has a positive effect on Sharia Saving
H_4 : Economic Conditions has a positive effect on Sharia Financial Literacy
H_5 : Sharia Financial Literacy has a positive effect on Sharia Saving

Using SEM-PLS, hypothesis testing findings can be obtained concurrently with the reduction of structural flaws (Hair, 2022). To explain the relationship between latent variables and their indicators, SEM-PLS analysis was carried out in two stages: (1) evaluation of the measurement model, or outer model, and (2) evaluation of the structural model, or inner model, which explains the relationship between latent variables/constructs.

RESULT AND DISCUSSION

Generation z's view of the decision to save in Islamic banks can be seen from the instruments that have been tested for validity in this way by 3 experts, to ensure that the instruments are reliable according to experts (Nurrahman et al, 2022; Mardapi, 2017). The results of Aiken's calculation analysis are presented in Table 1.

Table 1. Content Validity Test Result

No	*V. Value*	*Criteria*	*No*	*V-value*	*Criteria*
1	0.92	Valid	11	0.83	Valid
2	0.92	Valid	12	0.92	Valid
3	0.83	Valid	13	0.83	Valid

PROCEEDING ICEBESS - SEP 2024
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No	*V. Value*	*Criteria*	*No*	*V-value*	*Criteria*
4	0.75	Valid	14	0.83	Valid
5	0.83	Valid	15	0.92	Valid
6	1.00	Valid	16	1.00	Valid
7	0.83	Valid	17	0.92	Valid
8	0.92	Valid	18	0.83	Valid
9	0.92	Valid	19	0.92	Valid
10	0.83	Valid			

Table 1 is the result of the content validity test which shows that the 19 instruments used are all valid, because the v-value ranges from 0.75 - 1.00 > 0.6 The instrument is then used to retrieve data. The results of the analysis using the partial least square model structural equation (SEM-PLS) were used to present the relationship between the variables of Digitalization (D), Economic Conditions (EC), and Sharia Financial Literacy (SFL) as seen from the perception of generation z towards their interest in choosing Sharia Saving (SS). To ensure that there is a good structural model, it can be seen from the results of the validity of discrimination and reliability. The results of the validity of discrimination are presented in Table 2.

Table 2. *Discriminant Validity*

Fornell-Larcker Criterion	1	2	3	4
1. Digitalization (D)	**0.722**			
2. Economic Conditions (EC)	0.555	**0.737**		
3. Sharia Financial Literacy (SFL)	0.663	0.524	**0.830**	
4. Sharia Saving (SS)	0.656	0.560	0.742	**0.719**

Table 2 presents the results of the validity of discrimination by comparing the square root of AVE with the correlation between constructions. The square root of AVE in the diagonal column is fulfilled or it can be said that all variables in this study are valid because they exceed the correlation between constructions or > 0.7 so that the criteria for the validity of discrimination (Hair, 2022) After the results of the validity of the discrimination were declared valid, then the reliability criteria were analyzed and the construction validity assessment was carried out by knowing the value of the Alpha Cronbach Coefficient and the Composite Reliability Coefficient and the Average Variance that were removed. The results of the reliability construction are shown in Table 3.

Table 3. Hasil *Construct Reliability*

Constructs	*Cronbach Alpha*	*Composite Reliability*	*Average Variance Extracted*
1. Digitalization (D)	0.771	0.843	0.521
2. Economic Conditions (EC)	0.787	0.854	0.544
3. Sharia Financial Literacy (SFL)	0.849	0.898	0.686
4. Sharia Saving (SS)	0.768	0.836	0.517

Based on Table 3, it is known that the variables meet the reliability coefficient criteria with Cronbach Alpha with values (0.768–0.849 > 0.6) and *Composite Reliability* (0.836–0.898 > 0.6), and Average *Variance Extacted* values (0.517–0.686 > 0.5). Based on these values, it can be concluded that all variables meet reliable criteria because they have variable values of more than 6 (Hair, 2022) Furthermore, the results of the calculation of the influence or relationship between the variables regarding the structural model and the results of the interactive effect are presented in Table 4 and the estimated structural model of the path in Figure 2.

Table 4. *Structural model and interactive effect result*

Hypothesized paths	*β*	*T Statistics*	*p-value*	*Conclusion*
D → SS	0.229	5.476	0.000	H_1 is supported
D → SFL	0.538	14.256	0.000	$H_2$is supported
EC → SS	0.170	3.476	0.001	H_3 is supported
EC → SFL	0.225	4.830	0.000	H_4 is supported
SFL → SS	0.501	9.590	0.000	H_5 is supported

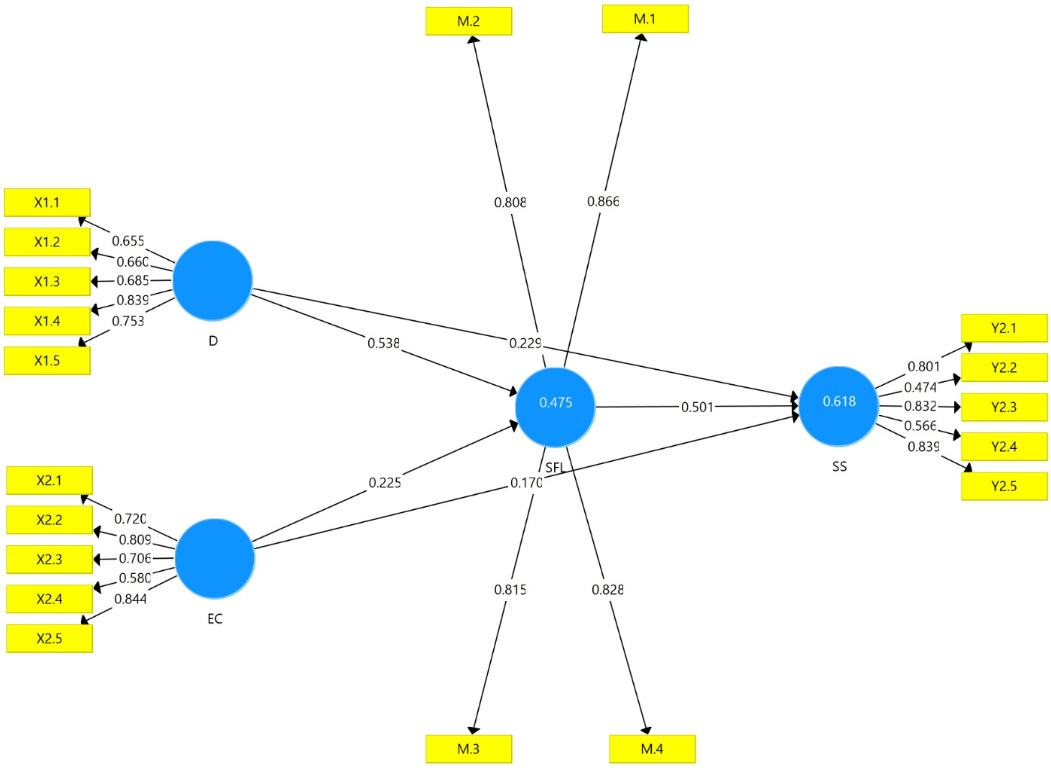

Figure 2. Structural model estimates

Table 4 presents the structural model and the results of the interactive effects of hypothesis testing in the form of path coefficients and significance listed in the structural model estimates in figure 2. Based on these results, it is known that all hypotheses are supported. Digitalization has a positive effect on interest in saving sharia and Islamic financial literacy with standard coefficients of 0.182 and 0.535 (significant at alpha 0.000<0.05) which means that H1 and H2 are supported. Digitalization can make Islamic financial products more transparent, accessible, and user-friendly, thereby increasing their attractiveness and use among customers, especially generation z (Ali et al, 2021; Hassan et al., 2022). In sharia savings, digital banking platforms make it easier for customers to access sharia savings accounts flexibly anywhere, increasing convenience thereby encouraging more people to save Digital platforms can offer a wealth of education, such as articles, videos, and webinars, to help users understand sharia-compliant financial principles (Solehudin et al, 2024).

The results of SEM-PLS in Table 4 and Figure 2 also show that economic conditions have a positive effect on sharia savings with a standard coefficient of 0.170 (significant at alfa 0.001<0.05), and have a positive effect on sharia financial literacy at 0.225 (significant at alfa

PROCEEDING ICEBESS - SEP 2024
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0.000<0.05) which means that H2 and H3 are supported. Basically, even though challenging economic conditions can increase sharia savings because with good economic conditions, especially in stable economic stability, people are confident to save and their money is not reduced due to inflation or other financial risks (Hudaya & Firmansyah, 2023) This condition can also increase Islamic financial literacy because individuals are looking for better financial management strategies. The presence of economic instability can encourage individuals to seek better financial management strategies (Friedline et al., 2021), which leads to greater interest in financial literacy, especially to know the principles of Islamic finance

The analysis then continues by looking at the role of sharia financial literacy in carrying out its role as a mediator between the influence of digitalization and economic conditions on sharia saving for Generation Z. The results of testing the mediating effect of sharia financial literacy are presented in Table 5.

Table 5. ***Result of Testing the mediating effect of SFL***

Structural paths	*β*	*T Statistics*	*p-value*	*Conclusion*
1. D → SFL → SS	0.271	7.991	0.000	Significant
3. EC → SFL → SS	0.113	4.563	0.000	Significant

Based on the results of the SFL mediation effect test in Table 5, it is known that the results of the indirect effect test show significance. These results show support for SFL's theory regarding digitalization and economic conditions for generation Z savings in Sharia Banks. This study shows that there is empirical evidence that shows that the influence of digitalization will increase the understanding or literacy of Islamic finance which in turn affects the decision of generation Z to save in Islamic banks. In addition, the existence of good economic conditions will affect the literacy or understanding of generation Z about finance in accordance with sharia principles (Osman, 2024). This will influence generation Z to save in Islamic banks

The test results show that the direct effects of D and EC on SS are significant. This shows that the mediating effect of SFL is a partial mediating variable that occurs when the direct effect and the indirect effect are both partial Partial mediation explains that there are mediation variables other than those examined by this study. The results of this study provide practical significance that can be used in the decision to save at Islamic banks. The existence of technological developments and good economic conditions can be used as innovations in managing finances because it can increase public literacy related to Islamic finance so as to affect the awareness of Generation Z in saving and investing in Islamic banks (Lin & Ma, 2022; Feng et al., 2022)

CONCLUSION

The results of this study provide empirical evidence that supports the hypothesis, namely that SFL can mediate the relationship between digitalization, economic conditions, and sharia saving. Digitalization has a positive effect on sharia saving and sharia financial literacy. The influence of digitalization will increase Islamic financial literacy, which in turn affects Generation Z's decision to save in Islamic banks. Then, the existence of good economic conditions will affect the literacy or understanding of Generation Z regarding Islamic finance. Empirical evidence shows the mediating role of SFL variables in the relationship between digitalization and economic conditions on sharia savings seen from the perception of Generation Z.

The main contribution of this research is to develop research variables that include Digitalization (D) and Economic Conditions (EC) by providing empirical evidence regarding the influence of sharia financial literacy mediation on digitalization relationships and economic conditions on sharia saving using a mediation model.

PROCEEDING ICEBESS - SEP 2024
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There are several limitations to this study. Research on the influence of sharia financial literacy mediation on digitalization relationships and economic conditions on sharia is still relatively new, so this research can be considered exploratory. Despite the limitations, this study seeks to overcome the limitations of empirical research on the influence of financial literacy mediation on digitalization relationships and economic constraints on savings sharia.

REFERENCE

Ahmad, S., Lensink, R., & Mueller, A. (2020). The double bottom line of microfinance: A global comparison between conventional and Islamic microfinance. *World Development*, *136*, 105130. https://doi.org/10.1016/j.worlddev.2020.105130

Aiken, L.R. (1985). for the and of *Educational and Psychological Measurement*, *45*(1), 131-142. http://doi.org/10.1177/0013164485451012.

Antara, P.M., et al. (2016). Bridging Islamic Financial Literacy and Halal Literacy: The Way Forward in Halal Ecosystem. *Fifth International Conference on Marketing and Retailing (5TH INCOMaR) 2015*, 196 – 202.

Bank, W. (2023). *GPD per capita (current US$) - Indonesia*. World Bank.

BI. (2024). *Statisitik sistem pembayaran dan infrastruktur pasar keuangan Indonesia (SPIP)*.

BPS. (2023). *Profil kemiskinan di Indonesia Maret 2023*.

BPS. (2024). *Proporsi Individu yang Menguasai/Memiliki Telepon Genggam Menurut Provinsi (Persen), 2021-2023*.

Candra Sari, R., Rika Fatimah, P. L., Ilyana, S., & Dwi Hermawan, H. (2022). Augmented reality (AR)-based sharia financial literacy system (AR-SFLS): a new approach to virtual sharia financial socialization for young learners. *International Journal of Islamic and Middle Eastern Finance and Management*, *15*(1), 48–65. https://doi.org/10.1108/IMEFM-11-2019-0484

Dafiq, B. I., Hidayati, A. N., & Habib, M. A. F. (2022). Pengaruh literasi keuangan, literasi digital, digital marketing, brand image dan word of mouth terhadap minat generasi z pada bank syariah. *Fair Value: Jurnal Ilmiah Akuntansi Dan Keuangan*, *4*(11), 4971–4982. https://doi.org/10.32670/fairvalue.v4i11.1856

Feng, S., Zhang, R., & Li, G. (2022). Environmental decentralization, digital finance and green technology innovation. *Structural Change and Economic Dynamics*, *61*, 70-83. https://doi.org/10.1016/j.strueco.2022.02.008

GoodStats. (2023). *Sensus BPS: Saat Ini Indonesia Didominasi Oleh Gen Z*. GoodStats. https://data.goodstats.id/statistic/sensus-bps-saat-ini-indonesia-didominasi-oleh-gen-z-n9kqv

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2021). *Partial Least Squares Structural Equation Modeling (PLS-SEM) Using R: A workbook*. Springer.

Hair, J. F., Sarstedt, M., & Ringle, C. M. (2021). Partial Least Squares Structural Equation Modeling. In *Handbook of Market Research* (pp. 1–47). Springer International Publishing. https://doi.org/10.1007/978-3-319-05542-8_15-2

Hassan, & Misrina. (2021). Impact of Fintech on work from home & mobile banking operations: Evidence from Islamic banking sector during Covid-19 in Sri Lanka. *International Journal of Business, Technology and Organizational Behavior (IJBTOB)*, *1*(6), 433–446. https://doi.org/10.52218/ijbtob.v1i6.141

Laporan Perkembangan Keuangan Syariah Indonesia. (n.d.). www.ojk.go.id

Larassati, N., & Fauzi, A. (2022). Strategi Meningkatkan Kualitas Layanan Melalui Digitalisasi Perbankan di BSI Trade Center Kota Kediri. *Jurnal At-Tamwil: Kajian Ekonomi Syariah*, *4*(2), 202–217. https://doi.org/10.33367/at.v4i2.1473

Li, Q., & Zhang, X. (2024). Digital finance development in China: A scientometric review. *Heliyon*, *10*(16), e36107. https://doi.org/10.1016/j.heliyon.2024.e36107

Lin, B., & Ma, R. (2022). How does digital finance influence green technology innovation in China? Evidence from the financing constraints perspective. *Journal of environmental management*, *320*, 115833. https://doi.org/10.1016/j.jenvman.2022.115833

Mawardi, I., Al Mustofa, M. U., Widiastuti, T., & Ghozali, M. (2024). The influence of institutional quality, economic freedom, and technological development on Islamic financial development in OIC countries. *Journal of Open Innovation: Technology, Market, and Complexity*, *10*(2), 100279. https://doi.org/10.1016/j.joitmc.2024.100279

Menne, F., Surya, B., Yusuf, M., Suriani, S., Ruslan, M., & Iskandar, I. (2022). Optimizing the Financial Performance of SMEs Based on Sharia Economy: Perspective of Economic Business Sustainability and Open Innovation. *Journal of Open Innovation: Technology, Market, and Complexity*, *8*(1), 18. https://doi.org/10.3390/joitmc8010018

Nguyen, Q. K. (2021). Oversight of bank risk-taking by audit committees and Sharia committees: conventional vs Islamic banks. *Heliyon*, *7*(8). https://doi.org/10.1016/j.heliyon.2021.e07798

Nurrahman, A., Cahyani, M. D., Nurfatmawati, L., & Wibowo, H. (2023). Developing The Instrument of E-Learning Evaluation: Study at Vocational School. *Journal of Office Administration : Education and Practice*, *3*(3), 163–174. https://doi.org/10.26740/joaep.v3n3.p163-174

OJK. (2022). Survei nasional literasi dan inklusi keuangan tahun 2022. *OJK*.

Statista. (2023). *Share of Indonesian population in 2023, by religion*. Statista. https://www.statista.com/statistics/1113891/indonesia-share-of-population-by-religion/

Wang-Ly, N. & Newell, B. R. (2024). Income volatility and saving decisions: Experimental evidence. *Journal of Behavioral and Experimental Finance*, *43*.

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ANALYSIS OF THE IMPLEMENTATION OF CIRCULAR ECONOMY IN HOME ECONOMICS IN WASTE BANKS IN THE SPECIAL REGION OF YOGYAKARTA

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ABSTRACT

The waste problem is a crucial problem because waste will have a negative impact on the environment and health if not handled seriously. The complexity of handling plastic waste has increasingly given rise to brilliant breakthroughs, one of which is the circular economy. This type of research is descriptive by describing or explaining phenomena systematically. The research approach used is a qualitative approach with the aim of describing various conditions, phenomena, and social situations that occur in society. The subjects in this research is waste banks in the Special Region of Yogyakarta. The data analysis techniques start from data reduction, data presentation, and drawing conclusions. The results of the study show that the working hours at the waste bank in DIY are different and erratic. The working mechanism mostly starts from depositing garbage, sorting by officers, and depositing into middleman. The programs are mostly in the form of socialization and education. The types of waste managed are mostly inorganic waste. Waste banks in DIY have also implemented circular economy principles, such as reduce, reuse, recycle, and manufactured. In carrying out its operations, waste banks in Yogyakarta face several factors that support or hinder them. With the existence of various programs carried out at the waste bank in the Special Region of Yogyakarta, it is hoped that it will be able to become a new insight related to the application of the circular economy in home economics.

Keywords: economy circulars, home economic, waste bank.

INTRODUCTION

The waste problem in Indonesia is increasingly becoming a serious problem and occurs on a wide scale. Indonesia occupies the second position as the world's largest producer of plastic waste after China (Hendar, et al., 2022). According to data from the National Waste Management Information System (SIPSN) of the Ministry of Environment and Forestry (KLHK) in 2022, input results from 202 districts/cities throughout Indonesia show that the national waste pile reached 21.1 million tons. The Sustainable Waste Indonesia Institute (SWI) said that of the total, 5% or 3.2 million tons is plastic waste (Indonesia.go.id, 2023). The source of waste comes from the household sector with the largest percentage, namely 38.62%, followed by the commercial sector at 23.83%, and other sectors, such as markets, public facilities, offices, and other sectors (MENLHK, 2023).

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The problem of plastic waste will have a negative impact on the environment and health if not handled seriously. This is because plastic waste cannot decompose naturally and takes hundreds of years to be decomposed and degraded (non-biodegradable) by microorganisms, even when decomposing, these plastic particles will pollute the soil and water in it (Dewi, Y. & Raharjo, T., 2019). Plastic contains various chemicals in the production process such as phthalate and bisphenol-A (BPA) compounds (Marliza, H., et al., 2021). Both chemicals have the potential to trigger endocrine-disrupting chemicals (EDC) or endocrine system (hormone) disorders which can ultimately cause serious problems, such as breast cancer, female and male infertility, self-puberty, tumors, and metabolic disorders (Konieczna, A., et al., 2015). Efforts to reduce the amount of waste by stockpiling and burning it are not the right thing because hoarding garbage will cause soil pollution and burning will produce toxic gases that can pollute the air and cause respiratory problems (Koswara, S., 2014).

The complexity of handling plastic waste has increasingly given rise to brilliant breakthroughs, one of which is the circular economy. The circular economy is a strategy in facing environmental challenges by reducing waste and pollution and fostering a healthy and resilient society by utilizing resources efficiently and returning used resources to the production cycle (Sanchez-García, E., et al., 2024). The circular economy model is very different from the linear economy that practices take-use-discard. The application of the circular economy collects and sorts used goods, then recycles and produces them for reuse, and so on until they form an efficient and useful cycle (Bhubalan, K., et al., 2022). In practice, the circular economy is suitable as a solution in dealing with the current plastic waste problem. In addition, the implementation of the circular economy can provide benefits from various aspects. According to the Ministry of National Development Planning/Bappenas (2021), the economic benefits from the implementation of the circular economy are generating an additional GDP of IDR 593-638 trillion by 2030, environmental benefits in the form of waste reduction in each sector of 18-52% by 2030, and social benefits in the form of the creation of 4.4 million new jobs by 2030. These benefits can really be felt if the circular economy is implemented seriously and sustainably.

Currently, the circular economy is widely implemented by waste banks. In its application, the community can sort waste which can later be sold to third parties or reused in daily life (Purwanti, I., 2021). In addition, the implementation of the 5R program (Reduce, Reuse, Recycle, Replace, and Replant) is also implemented and becomes a business that has quite good prospects (Yuliwati, E., et al., 2022). The implementation of the circular economy in the waste bank will have a positive and sustainable impact on the economy, considering that waste is something that is produced by the community every day.

This research will analyze the implementation of circular economy in home economics in waste banks in the Special Region of Yogyakarta. Home economics is an effort to apply economics in the scope of the family or the scope of small organizations, such as waste banks. This study will examine how waste banks apply economics to effectively and efficiently use resources, including resources that are no longer used, such as waste produced by households.

METHOD, DATA, AND ANALYSIS

Type of Research

This type of research is descriptive by describing or explaining phenomena systematically. The research approach used is a qualitative approach with the aim of describing various conditions, phenomena, and social situations that occur in society. The type of data used in this qualitative research is in the form of narrative data with the results of descriptive data research. This study uses case studies that emphasize the actual phenomenon. Primary data collection was obtained through interviews and observations. Interviews are conducted to explore unique aspects and obtain more detailed cases (Creswelll, 2013). The type of research

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E-ISSN : 2528 - 671X

used in this study is an exploratory model to explore case phenomena to analyze the influence of the implementation of home economics on the concept of circular economy of waste banks in Yogyakarta.

Research Subject and Object

The subject of this study is the managers and customers of waste banks in the Special Region of Yogyakarta. Meanwhile, the object of this research is an analysis of the implementation of home economics on the concept of circular economy in the Special Region of Yogyakarta.

Research Variables

There are two variables in this study, including free variables and bound variables. The independent variable in this study is home economics. Meanwhile, the variable tied to this study is the circular economy.

Place and Time of Research

This research was carried out on waste banks in the Special Region of Yogyakarta. The research was conducted for three months in July-September 2024.

Tools and Materials

The tools and materials used in this study include notebooks, pens, audio recorders, cameras and devices.

Research Procedure

This qualitative research is carried out in steps that are broadly through the preparation stage, the implementation stage, and then the data analysis stage. First, the preparation stage is the initial stage that needs to be carried out in research. The steps taken are at this stage, namely determining the subject and object to be researched, determining the time for research, making an application for a research permit, making interview guidelines and observation guidelines. Second, implementation stage. At this stage, observations and interviews are carried out on the subjects being studied. The observation of the research is carried out by the researcher with direct observation to the place to be studied to analyze the implementation of home economics on the concept of circular economy in waste banks. This technique was also chosen to create a thorough conversation and confirm the issues circulating with the speakers. Third, data analysis stage. In the final stage, analysis of the data from interviews and observations is carried out. In addition to the primary data, secondary data is also used in this study. Secondary data is in the form of books and journals about the object being studied.

Data Analysis Techniques

The data analysis technique used in this research uses the Miles and Huberman model which explains that data analysis is carried out continuously interactively (Miles and Huberman, 1992). The activities in the Miles and Huberman model data analysis techniques include the following:

a. Data reduction is a process of selecting, simplifying, and transforming data from the results of data collection in the field. Thus the educated data will provide a clearer and structured explanation.
b. Data Presentation
   After the data is reduced, then data analysis is carried out with narrative text. Good data presentation is the main way in a valid qualitative analysis with matrix, network and graph types. This is designed to combine information arranged in a cohesive framework so that the phenomena that occur in the implementation of home economics in the application of circular economy can be known.
c. Drawing conclusions
   Drawing conclusions is also called verification. Data analysis with data reduction, data presentation, and conclusion drawing must start from the beginning. In addition, the existing conclusions will be used as a basis to provide concrete recommendations for the

implementation of home economics in the implementation of the circular economy in the Special Region of Yogyakarta. Semmatically, the process of data analysis with the Miles and Huberman model can be seen in the following figure.

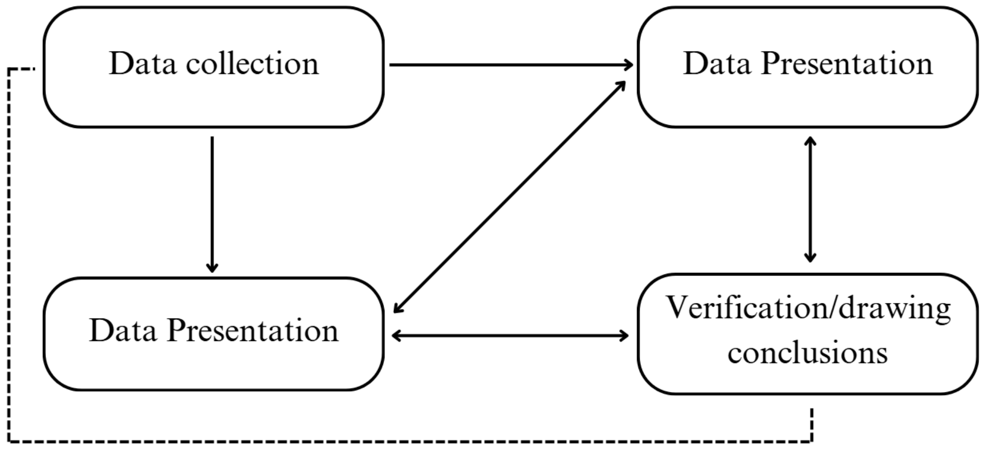

Figure 1. Data Analysis with the Miles and Huberman Model

RESULT AND DISCUSSION

The Circular Economy Concept that has been implemented by waste banks in DIY

The concept of circular economy is increasingly being applied in various regions, including in the Special Region of Yogyakarta. Waste collection activities from the community, sorting, processing, and selling waste are a series of activities that are carried out regularly and consistently. These activities were found in five waste banks in Yogyakarta, namely the Waste Bank of the Waste Working Group in Gunung Kidul Regency, the Karanglo Asri Waste Bank in Sleman Regency, the Melati Waste Bank in Kulon Progo Regency, the Salakan Bersemi Waste Bank in Bantul Regency, and the Surolaras Waste Bank in Yogyakarta City. In supporting the ongoing collection and sale of waste, the waste bank is managed by its owners and employees. However, it was not found in the city of Yogyakarta because the waste bank was managed by administrators who had been divided into several parts. In terms of wage receipt, the system implemented in each district/city in Yogyakarta is different. The wage system is directly determined per month with a fixed wage, determined based on the amount of profit from waste sales, and does not take wage allocations from waste sales, but from educational and training activities carried out.

In encouraging economic activity in the community, the waste bank savings program was triggered. This program has been implemented in five districts/cities in Yogyakarta. The waste bank savings system is implemented in the form of measuring the amount of waste. Based on this, the nominal amount that will be received by customers who deposit waste will be determined which will later be continued in the saving process. However, if something urgent happens, such as the customer's need for money to meet their needs or other reasons, the customer is allowed to take money from the sale of waste in cash. Customers can also take their savings at any time if they are in need. At the end of the period, the customer appreciation program was implemented, but only in the city of Yogyakarta. The form of appreciation is by giving gifts to customers as the most active customers. This is able to increase customer motivation in saving.

The programs implemented by the waste bank to the community are also increasing. Many waste banks in Yogyakarta have run waste management education programs to educate and empower the community. In addition to education, many direct training activities are also carried out. The education and training activities also aim to get additional opinions for waste banks through the determination of program rates. The form of these programs includes making

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

crafts from inorganic waste into decorations or products with functional value. In addition, organic waste education is also carried out by practicing composting. The program not only runs from internal to external, but not infrequently external also visits the waste bank directly to practice waste processing into products with high use value and selling value.

Implementation of Circular Economy in Waste Banks in DIY

The waste collection process from the community to the middlemen in waste banks in the Special Region of Yogyakarta (DIY) takes place through several stages. In some locations, such as Bank Sampah Melati, the mechanism involves scheduled waste pickups by the waste bank. The waste that has been picked up or deposited by the community is then sorted by type, such as organic and inorganic waste. Organic waste is usually processed directly at the waste bank, while inorganic waste that has a selling value is channelled to middlemen. In other waste banks, such as those in Gunung Kidul and Sleman, people are asked to deposit waste independently, where the waste that is submitted must have been sorted first. Once collected, the waste is weighed and sold to middlemen. Some waste banks also give the community the option to get cash payments or keep the proceeds of the waste sales in the form of savings.

In the implementation of circular economy in DIY waste bank, there are four main principles applied: Reduce, Recycle, Reuse, and Remanufacture. Reduce, or reducing the use of materials that are difficult to recycle, is still not implemented optimally. Inorganic waste that cannot be sold is usually burned, especially in areas like Bantul, as a way to reduce waste volume. Recycle, or recycling waste to produce goods with new value, has started to be implemented, albeit on a small and simple scale. Some waste banks, such as the one in Sleman, recycle organic waste into fertilizer, while inorganic waste is used to make handicrafts. However, these recycled products are generally only used as education for the community and are produced only when there is demand. Reuse, or the reuse of items that are still suitable for use, has also been implemented. For example, antiques or items that are still in good condition are separated for sale at flea markets, such as at Pasar Klithikan, where they are sold per unit rather than by weight. The principle of Remanufacture, which is using parts of products that are still functioning to make new products with similar functions, is still rarely applied in DIY waste banks due to the limitations of adequate waste processing tools and technology.

The implementation of circular economy in waste bank activities in DIY has several significant supporting factors. One of them is the enthusiasm of the community in supporting waste management programs. In some areas, people actively deposit their waste into waste banks without disposing of it elsewhere, which makes the volume of waste managed by waste banks quite large. In addition, waste banks also receive support from the government, especially from the Environmental Agency, which plays a role in providing facilities and regulations to support waste management. Waste banks that already have a good operational system are also a supporting factor that facilitates the implementation of the circular economy.

However, there are some significant barriers to this implementation. One of the main obstacles is the limited waste processing equipment, which results in the recycling and remanufacturing process not being maximized. In addition, the marketing of processed waste products also remains a major challenge. Many of the products produced, especially from recycling, do not have a stable market so they cannot provide optimal economic value for waste banks. Another obstacle is the lack of public awareness and participation, especially among the younger generation, which causes the management of waste banks to be mostly carried out by older community groups. The COVID-19 pandemic is also one of the inhibiting factors that has stopped the activities of several waste banks, especially in terms of waste collection and processing.

PROCEEDING ICEBESS - SEP 2024
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Impact Obtained from the Implementation of Circular Economy in DIY Waste Bank

The implementation of the circular economy in the sampak bank has a very significant positive impact, especially on reducing environmental impacts. The implementation of the circular economy encourages the concept of *reuse* , *reduce* and *recycle* , which will also reduce the amount of waste disposed of by the community to the Final Disposal Site (TPA). Waste banks play an important role with their activities to collect and sort waste that still has economic value such as paper, metal and plastic to be recycled. This can be an alternative to reduce the volume of waste and extend the life of the existing landfill in Yogyakarta.

By recycling the waste used, the implementation of the circular economy also helps in reducing the need to extract new natural resources such as the reuse of used cooking oil used from frying waste carried out by waste banks in the Gunungkidul area. This will of course help reduce the extraction of data sources and reduce environmental damage due to indiscriminate oil disposal.

With the implementation of a circular economy in the waste bank, it will also open up new jobs for the people living around it. The circular economy in the waste bank can create new economic opportunities such as additional income from the waste they collect and deposit into the waste bank. In addition, the community also has a job as a livelihood to be able to work at the local waste bank as a manager or employee. This will of course help in encouraging environmental awareness but will also help strengthen the local economy.

CONCLUSION

The waste problem is increasingly becoming a serious problem if it is not handled optimally. This problem will trigger negative impacts on the environment and health. Efforts to overcome this problem are one of them through the waste bank. The existence of this waste bank aims not only to treat waste but also to be able to boost economic activity even from the waste produced by the community every day. The research conducted in five districts/cities in Yogyakarta is enough to provide knowledge and understanding related to the operation of waste banks in Yogyakarta. The mechanism for collecting, sorting, processing, and selling waste is a series of activities that continue to be carried out continuously. The waste bank savings program has also existed in every waste bank so that the community, especially customers, can have savings that can be taken at any time if needed. In its operations, waste banks in DIY also apply circular economy principles, such as reduce, reuse, recycle, and manufactured whose application is adjusted to the conditions of each waste bank. The existence of a waste bank in Yogyakarta not only solves the waste problem, but also participates in efforts to improve the economic side of the community, such as increasing community income, and even utilizing unemployed people to be recruited as employees who can later have an income. The concept of a circular economy that is constantly rotating makes this operation a sustainable unit that provides meaningful positive value for various parties in all areas of life.

REFERENCE

Bappenas. 2021. Manfaat Ekonomi, Sosial, dan Lingkungan dari Ekonomi Sirkular di Indonesia. *In Ja Nuary*. 202.

Bhubalan, K. et al. 2022. Leveraging blockchain concepts as watermarkers of plastics for sustainable waste management in progressing circular economy. *Environmental Research, 213*, 1–15. https://doi.org/https://doi.org/10.1016/j.envres.2022.113631

Dewi, Y. & Raharjo, T. 2019. Aspek hukum bahaya plastik terhadap kesehatan dan lingkungan serta solusinya. *Jurnal Kosmik Hukum, 19* (1): 22–44.

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

Hendar, *et al.* 2022. Diplomasi lingkungan Indonesia melalui ASEAN dalam menanggulangi marine plastic debris. *Padjadjaran Journal of International Relations (PADJIR)*, *4* (2): 201–214. https://doi.org/10.24198/padjir.v4i2.40721

Indonesia. 2023. *Masalah kita adalah sampah*. Indonesia.go.id.

Konieczna, A., *et al.* 2015. Health risk of exposure to bisphenola (BPA). *Rocz Panstw Zakl Hig*, *66* (1): 5–11.

Koswara, S. 2014. *Bahaya di balik kemasan plastik*. Citra Aditya Bhakti.

Marliza, H., *et al.* 2021. Edukasi bahaya penggunaan plastik bagi kesehatan. *Jurnal Pustaka Mitra*, *1* (1): 10–14.

MENLHK, S. 2023. *Sumber sampah*. Sipsn.Menhlk.go.id.

Purwanti, I. 2021. Konsep dan implementasi ekonomi sirkular dalam program bank sampah (Studi kasus: Keberlanjutan Bank Sampah Tanjung). A*maNU: Jurnal Manajeemen dan Ekonomi*. 4 (1): 89-98.

Sanchez-García, E., *et al.* 2024. Revolutionizing the circular economy through new technologies: A new era of sustainable progress. *Environmental Technology & Innovation*, *33*, 1–23. https://doi.org/https://doi.org/10.1016/j.eti.2023.103509.

Yuliwati, E., *et al.* 2022. Ekonomi sirkular dalam konsep pengelolaan sampah 5R: Riset dan implementasi pengelolaan lingkungan berbasis masyarakat. SNPPM-4 (Seminar Nasional Penelitian dan Pengabdian kepada Masyarakat). pp. 1-5. Lampung.

PROCEEDING ICEBESS - SEP 2024
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ADAPTATION OF DIGITAL INNOVATION: ANALYSIS IMPLEMENTATION OF INTERNET OF THINGS (IOT) IN EDUCATION TO ACHIEVE SUSTAINABLE ECONOMIC GROWTH

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ABSTRACT

The current educational transformation has changed the education system from being based on physical to online or digital. Therefore, how the presence of IoT as part of the digital transformation can be an opportunity to realize quality human resources for economic growth needs to be discussed. This is because the integration of learning with IoT can provide a different learning experience for students through its multi-platform system so that it can be used in various applications in life. In addition, improving the quality of human resources must be considered so that economic growth continues and reduces the spread of inequality. This study also presents the digital adaptation carried out in the education sector using IoT and its relationship to sustainable economic growth. This is something that has not been widely discussed in previous studies. The method used in this study is SLR (systematic literature review). The quantitative data used is the latest data taken from official websites such as the Central Statistics Agency and Statistia.com. While qualitative data is obtained by identifying and reviewing all literature related to the dynamics of the development of digital education with the development of a sustainable economy through journals or scientific articles both on a national and international scale. The results of this study are that the application of IoT in the field of education is very diverse, where the integration encourages inclusivity and flexibility in the learning process and supports more meaningful learning such as smart class systems, gamification, and wearable technology. In addition, education is an important element for the development of human capital where improvements in a good education system can affect economic growth, increase productivity, and increase community income so that it can support a sustainable economy. Thus, it can be said that the HDI is a strong requirement and foundation in seeing economic development in Indonesia. On the other hand, a progressive HDI is also in line with improvements in education in Indonesia.

Keywords: digitalization of education, internet of things, sustainable economic growth

INTRODUCTION

The era of technological development has been felt by many countries in various corners of the world. Indonesia is one of the countries that continues to try to adapt to these changing conditions. This statement is supported by the fact regarding the ICT Development Index released by BPS in 2023 that Indonesia can reach 5.85 for ICT use. This number has increased from the previous year where in 2021 it only reached 5.76 (Badan Pusat Statistik, 2023b).

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

Based on these data, it can be seen that the increase in the ICT Development Index is 0.09 where the growth is 1.56%. This condition needs to be maintained and even improved in various sectors, especially in education. This is because the education sector influences a person's skills and is an important part of building ICT and the economy in a country. One of the efforts of the education sector in an effort to realize and adapt in the digital era is by integrating ICT both in planning, processes, or evaluation of learning. The innovations that can be carried out are also very diverse, one of which is by utilizing the Internet of Things (IoT). The current educational transformation has changed the education system from being physically based to online or digital. Therefore, the existence of IoT as part of the digital transformation allows devices to be connected to each other via the internet network and at the same time becomes an opportunity to increase effective and efficient learning (Syabila Ariyanti, Zamzam Mustofa, 2024).

Effective and efficient learning will later have an impact on students both directly and indirectly, especially for the continuation of their life processes. This is because the integration of learning with IoT can provide a different learning experience for students through its multi-platform system so that it can be used in various applications in life (Mardiana et al., 2024). IoT as an innovation in technology can also provide a more personal, adaptive learning experience, and focus on the needs of students (Karyadi, 2023). When the Human Resources (HR) owned by a country are of high quality, it will also affect the process of economic growth and development which can be achieved more easily. Nugraheni (2021) also said that education also supports the improvement of Indonesian human resources in order to build the nation so that improving quality in order to compete with human resources from other countries is very necessary.

This improvement in the quality of human resources must be truly considered so that economic growth continues and reduces the spread of inequality. Through education, educators are entrepreneurs because they have led their students to continuously innovate throughout their lives (Nagel, 2020). It can be said that the correlation formed between education and technology can later produce quality human resources and have an impact on economic growth. When the quality of human resources as a multiplier of economic development resulting from the education process is of a higher level and quality, the quality of human resources will also increase (Frederich et al., 2023). Then, if these conditions have been achieved, it can also encourage the realization of the 4th Sustainable Development Goals (SDGs), namely quality education and the 8th, namely decent work and economic growth. Thus, this study was conducted to determine the extent of the integration of technology, especially IoT, as an innovation in the field of education and its correlation to sustainable economic growth.

METHOD, DATA, AND ANALYSIS

The research method used in writing this article is the SLR (systematic literature review) method. This method is an approach used systematically to analyze, evaluate, and collect all information needed to study the dynamics of the development of digital education with the development of a sustainable economy (Guntur, 2021). The process carried out in SLR is to identify and review all literature as a form of searching and selecting literature related to the dynamics of the development of digital education with the development of a sustainable economy. The next step is to analyze the literature that has been identified. This method has a high level of cruciality to help researchers present relevant data based on secondary data to identify problems and topics that need to be discussed (Devina Norlita, 2023).

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

RESULT AND DISCUSSION

Integration of technology in education

Digitalization of education is a new step as a form of adaptation in the digital era. The integration of technology in the education sector has begun to be developed and encourages increased effectiveness and efficiency of learning with various applications and innovative systems (Ekowati et al., 2023). Post-pandemic, changes in the field of education have occurred in a revolutionary way where the learning process has been shifted online or face-to-face. Therefore, every related element must adapt to the existing changes, one of which is by utilizing technology. Learning that was initially carried out conventionally must transform to use more modern technology. This will also have an impact on the realization of a superior, quality, and technology-literate generation (Maksum & Fitria, 2021).

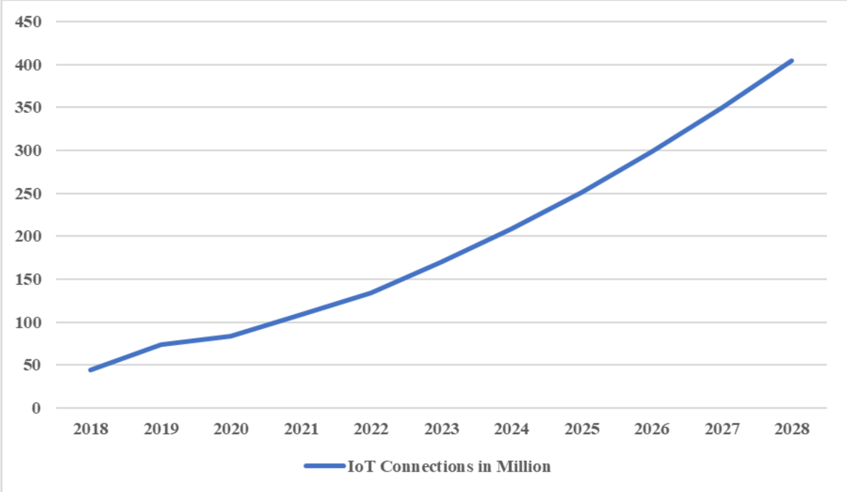
Digitalization of education is also not limited to the use of technology alone, but there is also the integration of technological innovation in all learning processes (Demmanggasa et al., 2023). Students are ultimately expected to be able to develop higher skills than just being device users. In addition, the use of this technology allows students to have an interactive and collaborative learning experience so that they have the opportunity to gain a broader perspective. Not only that, the learning environment that is formed can also encourage the development of students' skills throughout their lives (Susanto Putro & Agung Nugroho, 2023). Then, the digitalization of education can also encourage inclusivity for students with diverse backgrounds so that limitations do not become significant obstacles. Students will also increasingly explore their abilities to the maximum and help build society through the knowledge they have and have an impact on economic growth.

The learning process is certainly inseparable from the various devices used. The integration of this technology helps create learning media that attracts students to understand the learning material. In addition, the media as a learning aid also plays a role in shaping the climate, conditions, and learning environment (Trisiana, 2020). Therefore, the use of technology in this case is an important thing to do. On the other hand, each student has different abilities or potentials and is related to interests. Digital-based learning can build the idea that not meeting teachers with students is a challenge, students are difficult to control, and it is possible for many technical obstacles to occur during the learning process. However, this will actually provide opportunities for students to have no limits in learning, practice responsibility, self-management, problem solving, practice critical thinking, and even explore special abilities (Tantri, 2021). Through technology, the learning process allows for various options such as websites to provide stimulus, applications or video conferences for delivering materials, to giving assignments that can also be integrated digitally. In addition, artificial intelligence, one of which is the Internet of Things (IoT), can provide a learning experience for students in Indonesia as a learning medium that allows learning to be carried out more flexibly.

Implementation of IoT in Education

The application of technology in education is currently increasingly innovative along with the Internet of Things (IoT). IoT is an interaction between various devices in a telecommunications network that allows data retrieval and information exchange (Dara Sawitri, 2023). Based on data obtained from the statistia.com website, it is stated that the number of IoT connections in Indonesia has reached 134 million connections in 2022, where the data has increased from the previous year by 108.5 million connections and is expected to continue to increase to reach around 404 million in 2028. This number is an opportunity that needs to be supported by preparing human resources who are literate in technology and proficient in digital literacy. More clearly, the data is presented in the following graph.

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X



***Picture* 1. IoT Connections in Indonesia**
Source: (Statista, n.d.)

According to Mohammed Ali & Nihad (2021) IoT has proven to be a relevant platform for teaching concepts in computer science such as web programming, sensor learning, embedded system programming, and higher course learning. In education, IoT can be used to transform physical textbooks into e-books that can be accessed more flexibly with an internet network. This capability is a transformation in the field of education, especially in forming a learning environment that is not only responsive but also adaptive through mobile applications, wearable devices, and online platforms (Saputra et al., 2024). The application of IoT in education is very diverse. However, all have the same goal, namely to support more meaningful learning such as smart classroom systems, gamification, and wearable technology.

First, a smart classroom system is an IoT application in a learning environment that is enhanced using technology including computers, special software, audience response technology, and audio-visual capabilities. The system is used to determine whether the environment is relevant for learning about oxygen, CO2 levels in the air, temperature, noise, odor, and other environmental conditions (Meacham et al., 2018). Second, education through gamification, namely learning carried out with games as practice or to find out and train students' understanding. Through gamification, it will encourage students' concentration and motivation to be interested in studying topics from a material. It can be said that an intelligent education system has 3 fundamental bases including intelligent pedagogy, intelligent learners, and intelligent learning environments (Ajazmoharkan et al., 2017). Third, namely wearable technology, meaning technology that makes it easy for students or users to freely interact with the real world where they are connected over long distances and can exchange information without any obstacles. Examples of such applications include Virtual Reality (VR), Muse Headband, and Google Meet or Zoom. VR makes it easy to access places that are difficult to reach and access in real life, such as learning about archeology or outer space, which will be easier when using VR technology. Then the Muse Headband is used to measure brain activity through sensors and send the data obtained to smartphones via wireless connectivity. This makes it easy for teachers to know the extent of students' focus in learning. Meanwhile, Google Meet or Zoom is used in the teaching and learning process to conduct distance learning without having to meet in one room (Subrahmanyam, 2020).

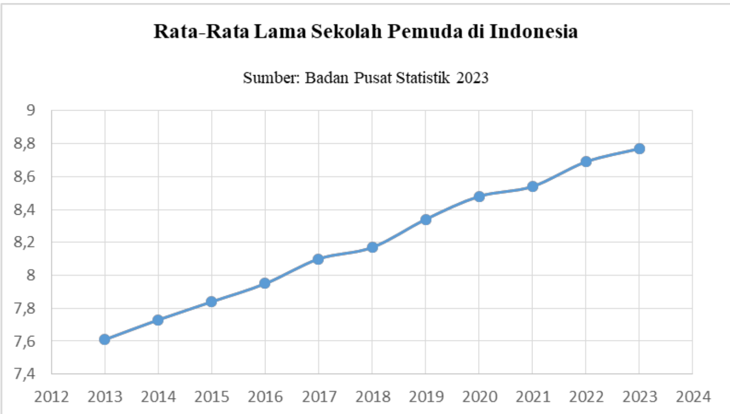
Furthermore, according to Zaini (2024) another application of IoT in education is location-based learning where when students are close to learning resources, information will be sent by beacon/RFID to smartphone devices. In addition, automatic data collection using IoT devices can be used to administer attendance, participation, and progress of students in the learning process so that it can become important information needed by teachers and parents. Thus, it can be said that the adaptation of technology carried out through the application of IoT also develops skills in technology that are useful for students in the future, problem solving, and collaboration. When the learning process is successful, the knowledge that students gain at school can be implemented in their lives so that it can encourage an increase in the quality of human resources. Then, it is possible to give rise to various innovations in various fields that have the potential for economic growth.

Digital Education and Sustainable Economy Study

Education is a very important investment and must be owned by a country. The quality of education is one of the benchmarks for determining the quality of human resources in the future (Hanifah et al., 2023). Education is capital and an important component in increasing efficiency in all processes in all fields. This is because education has a strategic position in advancing a country gradually in the long term. On the other hand, the development of appropriate education can increase a country's capacity to innovate new technologies and knowledge and facilitate the transfer of knowledge towards the country's goals in advancing all fields (Donald et al., 2024).

Related to educational studies, this field is one of the seventeen fields in the 2030 Sustainable Development Goals (SDGs) where education has an important role (Hardian et al., 2021). The importance of education is a concern for the government where the government includes it in the law which states that every citizen has the right to receive a decent education (Safitri et al., 2022). The law is the 1945 Constitution Article 31 paragraph 1 which states "Every citizen has the right to receive an education". This legal basis explains that all Indonesian citizens have the right to receive a decent education that can benefit individuals and the development of a country.

Regarding the adequacy of education, it can be seen that the average length of schooling in Indonesia experiences progressive development every year. This shows an improvement in the education system in Indonesia. The increasing average length of schooling indicates that the human development index continues to increase and the improvement of the education system in Indonesia (Putera et al., 2022). The average length of schooling in Indonesia can be seen in the following graph.



***Picture* 2. Average Length of Schooling for Youth in Indonesia**
Source: Badan Pusat Statistik (2023)

Improvement of education systems and facilities cannot be separated from the existing developments and dynamics. This is because as time progresses, the need for education becomes more complex and fluctuating. This is also coupled with the Industrial Revolution 4.0

PROCEEDING ICEBESS - SEP 2024
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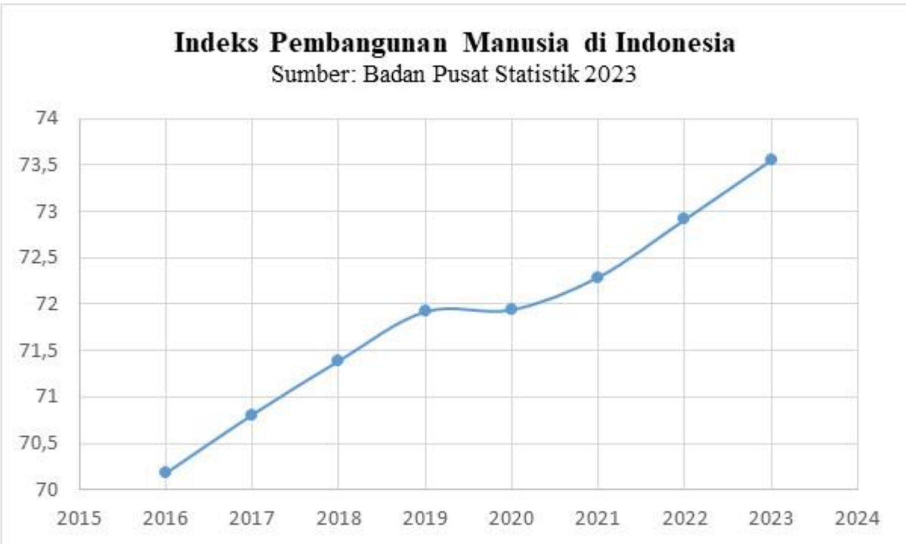
which indicates that there is the use of technological engineering, intelligence, internet of things as the basis for movement and all human activities and connectivity in various fields (Prasetyo & Trisyanti, 2018). In the Industrial Revolution 4.0 Era, it focuses more on the 4C expertise (creativity, collaboration, critical thinking, and communication) so that there needs to be learning innovation based on creativity and the involvement of various parties. On the other hand, according to et al. (2019), in the era of technological progress of the industrial revolution 4.0, the skills that must be possessed are digital literacy, emotional intelligence, entrepreneurship, leadership, communication, problem solving, global citizenship, and team working. All of these skills can be prepared with a learning pattern that is developed according to the times.

Digital transformation in education is one of the conditions that must be developed to meet the needs of the current era. The existence of the internet of things is very influential in creating smart classes based on e-learning (Shiddiqi et al., 2021). The implementation of IoT-based smart classes can be a solution in facing the challenges of the times in the Industrial Revolution 4.0 Era. IoT is a means of providing opportunities to change the paradigm of traditional education into modern, interactive, up-to-date, and relevant learning (Akbar et al., 2024). These opportunities can be utilized to support all aspects and fields of life.

Education is the key to developing other fields to advance the Indonesian nation. One field that is closely related to education is the economy. The economy as a component of development has a very strategic position in developing a country, especially developing countries. Indonesia as a developing country needs development that is in line with significant economic development (Su et al., 2023). On the other hand, education as the key to facing future development can be seen from the perspective of developing competent human resources. Human resource development is one way to achieve economic diversification (Dudzevičiūtė & Šimelytė, 2018). The Triple Bottom Line concept consisting of the pillars of profit, social welfare, and environmental preservation is an idea in sustainable economic development.



***Picture* 3. Human Development Index from 2016-2023**
Source: Badan Pusat Statistik (2023)

Picture **4. Level of Education Completion According to Level of Education in Indonesia**
Source: Badan Pusat Statistik (2023)

The two figures above indicate that the human development index has increased over time. This is also coupled with the average length of schooling in Indonesia and the level of completion of education according to education level which shows good progress along with the increase in the human development index. Chakraborty and Maity (2020) explain that education is an important element in developing human capital so that without investment in human capital, sustainable economic development will not run well. This opinion suggests that human resources and education are closely related. With these conditions, it can be seen that improving a good education system can have an impact on economic growth, increasing productivity, and increasing people's income so that it can support a sustainable economy well (Singh et al., 2022).

CONCLUSION

Education is the key to the development of human civilization. Without good education, development in a country will not run well. In the Industrial Revolution 4.0 Era, all aspects of life have begun to be integrated with technology where education is one aspect of life that is inseparable from digital transformation. The use of IoT technology as a supporting component for smart classes is the main signal in the development of education in Indonesia. Improvement of the education system has a strong influence on the economic system in Indonesia. This influence can be seen from the progressive level of the human development index. The Human Development Index is a strong requirement and foundation for seeing economic development in Indonesia. A progressive Human Development Index is also in line with improvements in education in Indonesia. Therefore, suggestions and recommendations that can be given are to improve the education system well and follow the development trends of the times. This is because the education system that is developed depends on future needs. Therefore, improving human resources through education can be done so that the concept of sustainability in the economic sector can run well in Indonesia.

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REFERENCE

Ajazmoharkan, Z., Choudhury, T., Gupta, S. C., & Raj, G. (2017). Internet of Things and its applications in E-learning. *3rd IEEE International Conference On* , 1–5. https://doi.org/10.1109/CIACT.2017.7977333

Akbar, J., Dethan, J. F. N., Rudy, Arijanto, R., Daniawan, B., & Leo, A. (2024). Implementasi Internet of Things(IoT) dalam Pelatihan Siswa Multimedia SMK Setia Bhakti. *Jurnal Abdimas Berdaya : Jurnal Pembelajaran, Pemberdayaan Dan Pengabdian Masyarakat*, *7*(1), 55–62.

Badan Pusat Statistik. (2023a). *Indeks Pembangunan Manusia dari tahun 2016-2023*. Badan Pusat Statistik.

Badan Pusat Statistik. (2023b). *Indeks Pembangunan Teknologi Informasi dan Komunikasi*. Badan Pusat Statistik.

Badan Pusat Statistik. (2023c). *Rata-Rata Lama Sekolah Pemuda di Indonesia*. Badan Pusat Statistik.

Badan Pusat Statistik. (2023d). *Tingkat Penyelesaian Pendidikan Menurut Jenjang Pendidikan di Indonesia*. Badan Pusat Statistik.

Chakraborty, I., & Maity, P. (2020). COVID-19 outbreak: Migration, effects on society, global environment and prevention. *Science of the Total Environment*, *728*. https://doi.org/10.1016/j.scitotenv.2020.138882

Dara Sawitri. (2023). Internet Of Things Memasuki Era Society 5.0. *KITEKTRO: Jurnal Komputer, Informasi Teknologi, Dan Elektro*, *8*(1), 31–35. https://jurnal.usk.ac.id/kitektro/article/download/28578/17882

Demmanggasa, Y., Sabilaturrizqi, M. K., Mardikawati, B., Ramli, A., & Arifin, N. Y. (2023). Digitalisasi Pendidikan Akselerasi Literasi Digital Pelajar Melalui Eksplorasi Teknologi Pendidikan. *Communnity Development Journal*, *4*(5), 11158–11167. https://journal.universitaspahlawan.ac.id/index.php/cdj/article/view/22045

Devina Norlita, etc al. (2023). SYSTEMATIC LITERATURE REVIEW (SLR) : Pendidikan Karakter di Sekolah Dasar. *Jurnal Ilmu Sosial, Pendidikan, Dan Humaniora*, *2*(1).

Donald, W. E., Baruch, Y., & Ashleigh, M. J. (2024). Construction and operationalisation of an Employability Capital Growth Model (ECGM) via a systematic literature review (2016–2022). *Studies in Higher Education*, *49*(1). https://doi.org/10.1080/03075079.2023.2219270

Dudzevičiūtė, G., & Šimelytė, A. (2018). EDUCATION AND ECONOMIC DEVELOPMENT IN THE SELECTED EUROPEAN UNION COUNTRIES. *European Journal of Sustainable Development*, *7*(2). https://doi.org/10.14207/ejsd.2018.v7n2p14

Ekowati, M. A. S., Nindyatama, Z. P., Wening, S., & Dananti, K. (2023). Pengembangan Sistem Kelas Cerdas Berbasis Internet of Things (IoT) untuk Proses Pembelajaran Tingkat SMP di Kota Surakarta. *JITU : Journal Informatic Technology And Communication*, *7*(1), 20–33. https://doi.org/10.36596/jitu.v7i1.1015

Frederich, R., Nurhayati, & Purba, S. F. (2023). Peranan Pendidikan Dalam Meningkatkan Pertumbuhan Ekonomi Di Indonesia. *Jurnal Ilmiah Ekonomi Bisnis*, *28*(1), 123–136. https://doi.org/10.35760/eb.2023.v28i1.7227

Guntur, M. (2021). Konsep Dasar Analisis Data Kualitatif. In *Sekolah Tinggi Theologia Jaffray* (Vol. 17, Issue 33).

Hanifah, U., Septiani, Y., & Panjawa, J. L. (2023). Pengaruh Pendidikan Terhadap Pertumbuhan Ekonomi di Indonesia Tahun 2015-2021. *Prosiding SEMINAR NASIONAL & CALL FOR PAPER*, *2*, 262–271.

Hardian, M., Hidayah, Y., Suryaningsih, A., & Ardian Feriandi, Y. (2021). Gagasan Pendidikan Politik Bagi Generasi Muda (Sebuah Kajian Literatur). *Briliant: Jurnal Riset Dan Konseptual*, *6*(3). https://doi.org/10.28926/briliant.v6i3.653

Hastin Riva Nugraheni, N. S. (2021). *Kontribusi Pendidikan Dalam Pembangunan Ekonomi*. *6*(1), 1–11.

Karyadi, B. (2023). Pemanfaatan Kecerdasan Buatan Dalam Mendukung Pembelajaran Mandiri. *Educate: Jurnal Teknologi Pendidikan*, *8*(2), 253–258. https://doi.org/10.32832/educate.v8i02.14843

Maksum, A., & Fitria, H. (2021). Transformasi dan Digitalisasi Pendidikan di Masa Pandemi. *Seminar Nasional Pendidikan Program Pascasarjana Universitas PGRI Palembang* , 121–127.

Mardiana, Y., Kalsum, T. U., Prahasti, P., Sallaby, A. F., & Iskandar, A. P. (2024). Pemanfaatan Internet of Thing dalam dunia pendidikan Sekolah Menegah Atas Negeri 1 Kepahiang. *Jurnal Dehasen Untuk Negeri*, *3*(1), 19–22. https://doi.org/10.37676/jdun.v3i1.5486

Meacham, S., Stefanidis, A., Gritt, L., & Phalp, K. (2018). Internet of Things for Education: Facilitating Personalised Education from a University's Perspective. *Thwenty Third International Conference on Technology in Education*, *August*, 69–82.

Mohammed Ali, S. I., & Nihad, M. (2021). Internet of Things for Education Field. *Journal of Physics: Conference Series*, *1897*(1). https://doi.org/10.1088/1742-6596/1897/1/012076

Nagel, P. J. F. (2020). Peningkatan SDM Indonesia yang Berdaya Saing melalui Pendidikan di Era Transformasi Digital dan Teknologi yang Berkelanjutan. *Prosiding Seminar Nasional Sains Dan Teknologi Terapan*, *1*(1), 31–38. http://ejurnal.itats.ac.id/sntekpan/article/view/1212

Prasetyo, B., & Trisyanti, U. (2018). Revolusi industri 4.0 dan tantangan perubahan sosial. *IPTEK Journal of Proceedings Series*, *5*, 22–27. https://doi.org/https://dx.doi.org/10.12962/j23546026.y2018i5.4417

Putera, H. R., Ikatrinasari, Z. F., Purba, H. H., & Hernadewita, H. (2022). Usulan Perbaikan Pelayanan Pendidikan Menggunakan Metode QFD dengan Pendekatan Variabel SERVQUAL. *JISI: Jurnal Integrasi Sistem Industri*, *9*(2). https://doi.org/10.24853/jisi.9.2.123-131

Safitri, A. O., Yunianti, V. D., & Rostika, D. (2022). Upaya Peningkatan Pendidikan Berkualitas di Indonesia: Analisis Pencapaian Sustainable Development Goals (SDGs). *Jurnal Basicedu*, *6*(4). https://doi.org/10.31004/basicedu.v6i4.3296

Saputra, A. M. A., Marlina, M., & ... (2024). Peran Internet of Things (Iot) Dalam Transformasi Pendidikan. ... *Pendidikan ...*, *7*, 4963–4970. http://journal.universitaspahlawan.ac.id/index.php/jrpp/article/view/27532%0Ahttp://journal.universitaspahlawan.ac.id/index.php/jrpp/article/download/27532/19173

Shiddiqi, A. M., Ijtihadie, R. M., Ahmad, T., Wibisono, W., Anggoro, R., & Santoso, B. J. (2021). Penggunaan Internet dan Teknologi IoT untuk Meningkatkan Kualitas Pendidikan. *SEWAGATI*, *4*(3). https://doi.org/10.12962/j26139960.v4i3.7980

Singh, H. P., Singh, A., Alam, F., & Agrawal, V. (2022). Impact of Sustainable Development Goals on Economic Growth in Saudi Arabia: Role of Education and Training. *Sustainability (Switzerland)*, *14*(21). https://doi.org/10.3390/su142114119

Statista. (n.d.). *Total number of Internet of Things (IoT) connections in Indonesia from 2018-*

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

2024. Statista.

Su, L., Agudamu, Liu, Y., & Zhang, Y. (2023). China's new urban clusters strategy for coordinated economic growth: Evidence from the sports industry. *PLoS ONE*, *18*(10 October). https://doi.org/10.1371/journal.pone.0292457

Subrahmanyam, V. V. (2020). Wearable Technology and its Role in Education. *Researchgate.Net*, *December*. https://www.researchgate.net/publication/346963213_Wearable_Technology_and_its_Role_in_Education

Susanti, E., Maulidah;, R., & Makiyah, yanti S. (2019). Peran Guru Fisika Di Era Revolusi Industri 4.0. *Difraction*, *1*(1).

Susanto Putro, A. N., & Agung Nugroho. (2023). Mapping the Journey of Internet of Things (IoT) Research: A Bibliometric Analysis of Technology Advancements and Research Focus. *West Science Interdisciplinary Studies*, *1*(08), 564–575. https://doi.org/10.58812/wsis.v1i08.181

Syabila Ariyanti, Zamzam Mustofa, A. M. (2024). *Ar Rasyid Journal of Islamic Studies*. *2*(1), 10–20.

Tantri, N. N. (2021). Memanfaatkan Digitalisasi Pendidikan dalam Pengembangan Potensi Siswa. *Prosiding Webinar Nasional IAHN-TP Palangka Raya, No. 3*, *1*, 135.

Trisiana, A. (2020). Penguatan Pembelajaran Pendidikan Kewarganegaraan Melalui Digitalisasi Media Pembelajaran. *Jurnal Pendidikan Kewarganegaraan*, *10*(2), 31. https://doi.org/10.20527/kewarganegaraan.v10i2.9304

Zaini, N. (2024). *Implementasi Internet of Things (IoT) pada Teknologi Pendidikan 5.0: Menghubungkan Peserta Didik dan Lingkungan Pembelajaran*. *2*(1), 357–362.

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KLEDO ACCOUNTING *SOFTWARE* IMPLEMENTATION AT MAKAIO SCOOTER

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ABSTRACT

The role of MSMEs is enormous in the growth of the Indonesian economy, but currently, one of the significant challenges for MSMEs is the digital literacy barrier. Most MSMEs still rely on manual or conventional accounting systems, which makes them prone to errors. Accounting digitization refers to using digital technology to automate and simplify accounting processes. Accounting *software* is capable of automating many financial processes. Kledo is one of the accounting *software* products founded in Yogyakarta. As one of Indonesia's popular cloud-based accounting software, Kledo is specifically designed to help small and medium businesses manage finances. This research uses a qualitative approach with a case study *research* type. The design used is single-case, focusing research on only one case. This research was conducted with the subject Makaio Scooter, one of the MSMEs in Sleman Regency that has been using Kledo *software* since 2021. Implementing Kledo accounting *software* at Makaio Scooter has succeeded in increasing efficiency in managing company finances. Recording and reporting finances becomes faster and more accurate, reducing the risk of errors.

Keywords: MSME, Accounting Information System, Financial Report, Cloud

INTRODUCTION

MSMEs (Micro, Small and Medium Enterprises) play a huge role in the Indonesian economy. In 2023, the number of MSME businesses reached around 66 million. The contribution of MSMEs reached 61% of Indonesia's Gross Domestic Product (GDP), equivalent to IDR 9,580 trillion. MSMEs absorb around 117 million workers (97%) of the total workforce. (KADIN, 2023). However, one of the significant challenges for MSMEs is the digital literacy barrier. Most MSMEs still rely on manual or conventional accounting systems that are prone to errors and often less efficient. The conventional accounting systems cause the MSMEs to lack the ability to produce reliable financial reports. An accounting information system is one of the steps in improving the quality of MSME financial reports.

Accounting digitization refers to using digital technology to automate and simplify accounting processes. It covers various aspects, from recording transactions, classifying data, and summarizing information to presenting real-time financial reports. With digitization, accounting processes that were previously done manually and were time-consuming can be done more quickly, accurately, and efficiently.

Accounting *software* is an example of digitization that supports financial recording, making it easier for users to manage company finances. Experts have developed various

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

accounting software applications, and currently, these applications can be used on computers and smartphones. The effective use of smartphones in various situations and conditions makes it the device for MSME players to carry out company operational activities, such as accounting records and bookkeeping. Implementing modern accounting *software* can solve the financial management problems faced by MSME players. Accounting *software* can automate many financial processes, improve data accuracy, provide real-time financial reports, and facilitate financial analysis.

Kledo is one of the accounting *software* products founded in Yogyakarta. As one of Indonesia's popular cloud-based accounting software, Kledo is specifically designed to help small and medium-sized businesses manage their finances. Kledo is perfect for businesses that want to improve the efficiency of financial management without having to spend big on more complex accounting software. Because it is cloud-based, Kledo can be accessed through various devices with an internet connection, making it easy to manage business from anywhere. Based on this explanation, this research examines how the implementation of Kledo *software* in one of the MSMEs in Sleman, Makaio Scooter.

Accounting

Accounting is the recording, classifying, summarizing, managing, and presenting of data, transactions, and events related to finance. The purpose of this process is so that the information produced can be easily understood by users and support decision-making and other purposes.. accounting is a service activity that provides quantitative information, especially finance-related information (Sugiri and Riyono, 2018: 1). This information is expected to be used in making economic and rational decisions.

Accounting Information System

According to B. Romney and Steinbart (2019: 3), a system is a series of two or more interrelated components to achieve a goal. These components consist of data collected and processed by the information system. Based on this concept, information is data processed to have meaning and can improve decision-making. The accounting information system is used to process data and transactions to provide the information users need to plan, control, and operate a business (Taufan Adi Kurniawan, 2020: 5).

According to Meiryani (2020: 35), the Accounting Information System (AIS) is a collection of elements or components that are integrated and work together to process financial data into financial information. Quality AIS produces quality financial information. Conversely, if the AIS is not qualified, the information it produces will not be qualified either.

Accounting information significantly influences business success, including MSMEs (Lestari & Hidayatulloh, 2019; Rianto, D. & Hidayatulloh, 2020). Using accounting information in the form of operating information, management information, and financial accounting information can help MSME actors plan their business, control business activities, make decisions when managing a business, and evaluate. This process is related to information technology, which is used to advance business (Kantun, Kartini, Tiara, & Herlindawati, 2020). Other studies have also found that AIS positively affects the performance of MSMEs (Esti Prastika & Edi Purnomo, 2019).

Accounting information systems aim and function to put forward company assets, produce all types of decision-making information, produce information in evaluating employee performance, and obtain information to prepare and evaluate company budgets and be able to obtain information needed to plan and control organizational activities (Rachmawati, Cahyono, & Nastiti, 2021; Riza & Maresti, 2020).

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

Software

Software is a set of programs that allow a computer to function. Without software, a computer cannot do anything. Advanced technology on a computer can only operate if given specific instructions, known as software. Accounting Software is a program that simplifies accounting procedures and records. This software can handle various accounting tasks, including sales, recording in the ledger, and preparing financial statements and trial balances (Wyanaputra (2018)

Kledo

Kledo accounting software is designed to help with accounting and financial management. Kledo offers various features such as transaction recording, financial report generation, inventory management, and expense tracking. With a user-friendly interface and easy integration, Kledo aims to simplify the accounting process for small to medium-sized businesses.

Kledo uses Amazon Web Service (AWS) servers, the world's most trusted cloud infrastructure Services. As for the financial reporting standards used by Kledo, they follow *Generally Accepted Accounting Principles* (GAAP). Kledo has obtained an ISO 27001 certificate for data security, following international standards for management security systems.

METHOD, DATA, AND ANALYSIS

This research uses a qualitative approach with the type of *case study research* (case study). The design used is single-case, focusing research on only one case. This research was conducted with the subject Makaio Scooter, one of the MSMEs in Sleman Regency that has been using Kledo *software* since 2021. The data collection methods used in this research are observation, interviews, and documentation related to implementing Kledo. Data collection was carried out in August 2024.

RESULT AND DISCUSSION

One of the Kledo users who successfully implemented accounting digitization is Makaio Scooter. Makaio Scooter is a small and medium enterprise (MSME) serving the community with quality motorcycle maintenance and repair services. As the business grew, the owner realized that sound financial management is vital to achieving long-term sustainability and success. Makaio has implemented structured and transparent financial reporting practices through digitalization to maintain financial health and optimize business performance. Financial reports are not just administrative documents but essential tools for measuring performance, identifying growth opportunities, and making strategic decisions that positively impact business development.

Previously, Makaio Scooter used records carried out manually, starting with collecting evidence and recording transactions to produce a simple income statement. In 2021, the recording process switched to using Kledo accounting *software*. The cost of using the *software* Makaio Scooter requires is two million one hundred fifty-two thousand two hundred twenty-two hundred rupees per year.

The steps of using this *software* include setting up company data, creating a list of accounts, and master data for customers, vendors, and employees. In addition, initial account balances, payables, receivables, and inventories are also inputted, along with transaction data such as sales, purchases, and debt repayments. This process allows financial statement analysis to be done more efficiently. When all transactions have been inputted, the system on Kledo will automate the creation of complete financial reports, ranging from financial, accounting, sales, purchase, and inventory reports.

E-ISSN : 2528 - 671X

Here are the differences in the process of recording transactions manually and using Kledo accounting *software*:

Manual recording of transactions

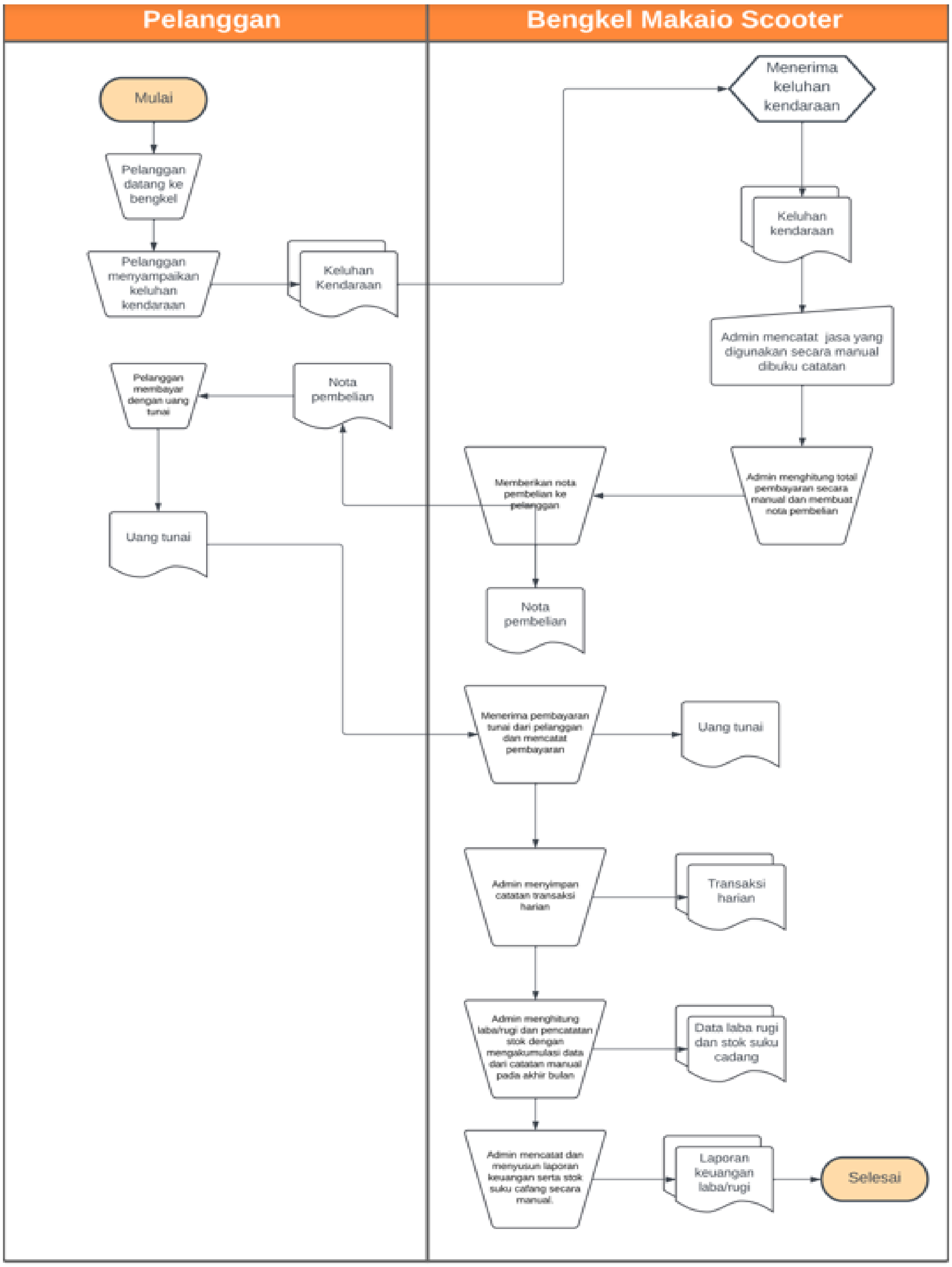

Figure 1. Flowchart Diagram of Manual Transaction Recording

Recording transactions using Kledo accounting *software*

E-ISSN : 2528 - 671X

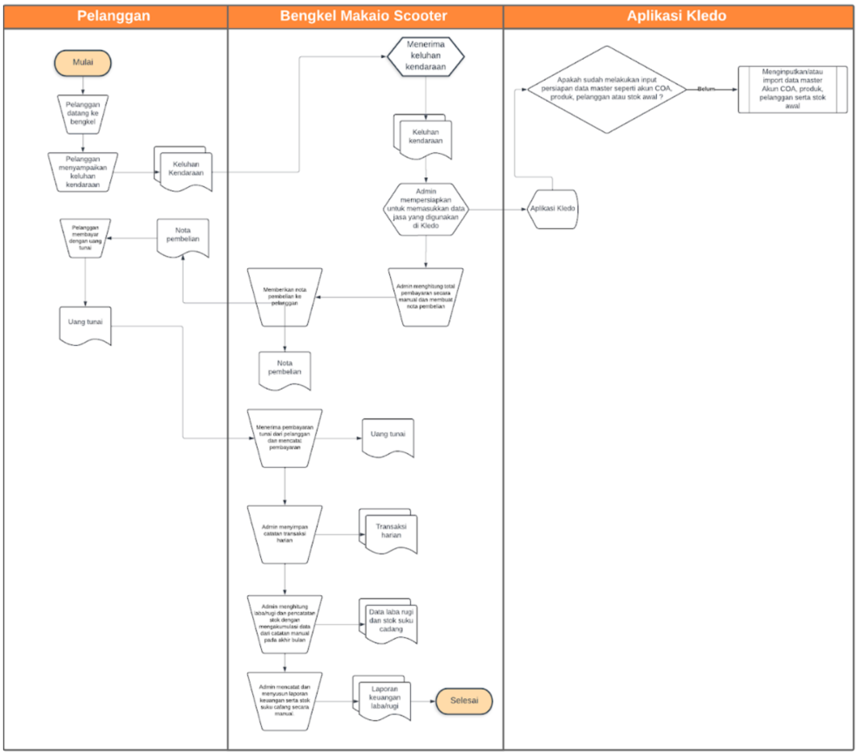

Figure 2. Flowchart Diagram of Transaction Recording Using Kledo

FINANCIAL STATEMENT ANALYSIS

After all transactions are inputted, a financial report will be formed. Financial reports such as profit/loss statements and balance sheet reports are formed, which later still have to be analyzed by the finance department or business owner. Financial statement analysis is the process of evaluating and interpreting company financial data in financial statements, such as balance sheets, income statements, cash flow statements, and statements of changes in equity. The goal is to understand financial performance, financial health, and potential risks or opportunities in the business.

To analyze this report, use the graphs provided by Kledo, where each financial report's graph illustrates the company's condition. The graph can be seen on the income statement, balance sheet, cash flow statement and statement of changes in capital.

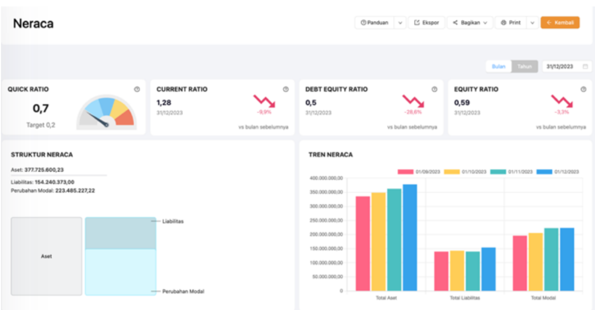

Figure 3. Balance Sheet Graph

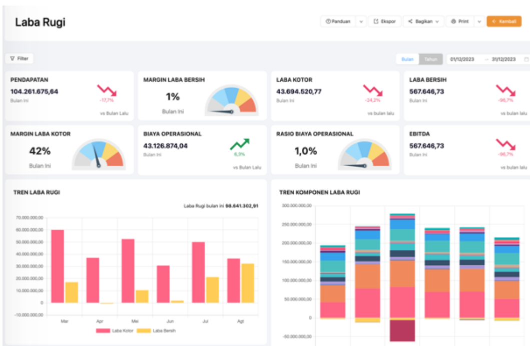

Figure 4. Income Statement Chart

E-ISSN : 2528 - 671X

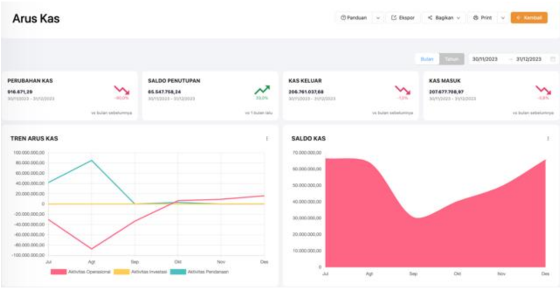

Figure 5. Cash Flow Statement Chart

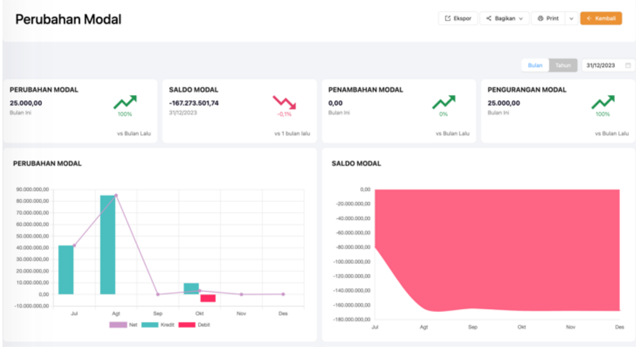

Figure 6. Chart of the Statement of Changes in Capital

CONCLUSION

1. **Improved Efficiency of Accounting Process**: Using Kledo accounting *software* at Makaio Scooter has successfully improved the company's financial management efficiency. The financial recording and reporting process has become faster and more accurate, reducing the risk of manual errors.
2. **Ease of Access and Use**: Kledo provides a user-friendly interface so the accounting team at Makaio Scooter can efficiently operate the *software*. The software also reduced the need for extensive training for new staff.
3. **Integration and Scalability**: Kledo *software* supports integration with other systems used by Makaio Scooter, such as inventory management and sales, which helps make more integrated business decisions. In addition, the *software* has good scalability, allowing for adding features or modules as the business grows.
4. **Operational Cost Savings**: By automating many accounting processes, Makaio Scooter can reduce operational costs by reducing labor requirements for repetitive administrative tasks.
5. **Challenges and Solutions**: While there were some initial challenges, such as staff adaptation to the new technology and system customization, the solutions implemented, including intensive training and technical support from the Kledo team, have helped overcome these obstacles.

Table 1. Comparison Table of Financial Statement Preparation Before and After Makaio Using Kledo

Indicators of Success	Before the Use of Accounting Software	After the Use of Accounting Software
Form of financial statements before and after the use of Kledo	Financial reports produced tend to be less detailed and less complete.	Financial statements become complete and comprehensive, providing a clear and detailed picture of the company's financial condition.
Time spent on reporting	Financial reporting before using Kledo took quite a long time, often requiring a protracted process.	Financial reporting becomes much faster and more efficient and can generated automatically.
Ease of Reporting by owner	Reporting is already considered easy.	Reporting has never been easier, minimizing complexity and simplifying the management of financial reports.

Indicators of Success	Before the Use of Accounting Software	After the Use of Accounting Software
The thoroughness of the report	The financial statements produced are sufficiently thorough	Report accuracy improved for the better
Data security by the owner	Financial data is considered less secure.	Data security increased to moderately secure, with an audit feature to monitor user data changes and a separate password system for each user.
Costs used to produce reports	Relatively low cost	This cost increases to be quite expensive, proportional to the features and convenience this software offers.

The use of Kledo accounting *software* at Makaio Scooter significantly impacts efficiency, effectiveness, and compliance in the company's financial management. The benefits gained are more significant than the challenges faced during the implementation process.

REFERENCE

Jurnal, H., Septianto, R., Haninun, H., ZainalAbidinPagarAlamNo, J., & Lampung, B. (2023). Implementasi Software Akuntansi Dalam Upaya Meningkatkan Kinerja Pelaporan Keuangan (Studi Kasus CV. Agro Karya Utama) (Vol. 11, Issue 1).

KADIN. (2023). UMKM Indonesia. https://kadin.id/data-dan-statistik/umkm-indonesia/

Kantun, S., Kartini, T., Tiara, & Herlindawati, D. (2020). The analysis of using an IPOS 4.0 Accounting Information System (AIS) on Micro, Small and Medium Enterprises (MSMEs) in Jember Indonesia. IOP Conference Series: Earth and Environmental Science, 485(1). https://doi.org/10.1088/1755-1315/485/1/012146

Lisna Rahmadani, E., Sulistiani, H., & Hamidy, F. (2020). RANCANG BANGUN SISTEM INFORMASI AKUNTANSI JASA CUCI MOBIL (STUDI KASUS : CUCIAN GADING PUTIH). In Jurnal Teknologi dan Sistem Informasi (JTSI) (Vol. 1, Issue 1). http://jim.teknokrat.ac.id/index.php/sisteminformasi

Maulida, A., Farida, I., Karunia, A., & Harapan Bersama, P. (2021). Efektivitas dan Efisiensi Penggunaan Aplikasi Akuntansi UKM Terhadap Penyusunan Laporan Keuangan UMKM. Jurnal Akuntansi, 9(2), 194–199.

Meiryani. (2020). Kualitas Sistem Informasi Akuntansi Dan Faktor-faktor Yang Memengaruhi. Prenadamedia Group.

Prastika, N. E., & Purnomo, D. E. (N.D.). PENGARUH SISTEM INFORMASI AKUNTANSI TERHADAP KINERJA PERUSAHAAN PADA USAHA MIKRO KECIL DAN MENENGAH (UMKM) DI KOTA PEKALONGAN.

Rahmansyah, A. I., & Darwis, D. (2020). SISTEM INFORMASI AKUNTANSI PENGENDALIAN INTERNAL TERHADAP PENJUALAN (STUDI KASUS : CV. ANUGRAH PS). Jurnal Teknologi Dan Sistem Informasi (JTSI), 1(2), 42–49. Http://Jim.Teknokrat.Ac.Id/Index.Php/JTSI

Romney, M. B., & Steinbart, P. J. (2015). Sistem Informasi Akuntansi (13th Ed.).

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

Said Bachmid, F., Kunci, K., Informasi, S., & Informasi Akuntansi , S. (2017). PELATIHAN AKUNTANSI BERBASIS SISTEM INFORMASI AKUNTANSI. In Jurnal Dharma Bhakti Ekuitas (Vol. 01, Issue 02). Http://Www.Tribunnews.Com/Bisnis/2015/1

Sugiri, S., & Riyono, B. (2022). Akuntansi Pengantar 1 (11th Ed.). Upp Stim Ykpn.

Taufikurrahman, T., Nisrina, A. Y., Sutrisno, A. I., Meiyantika, A. S., Pranata, H. A., & Bintari, P. F. (2023). ANALISIS EFEKTIVITAS APLIKASI PENCATATAN KEUANGAN SEBAGAI SARANA PENGELOLAAN KEUANGAN PADA UMKM "FINZA COOKIES AND CAKE" DI DESA MRANGGONLAWANG KECAMATAN DRINGU KABUPATEN PROBOLINGGO. ECOTECHNOPRENEUR : Journal Economics, Technology And Entrepreneur, 2(02), 90–96. Https://Doi.Org/10.62668/Ecotechnopreneur.V2i02.685

Wyanaputra, J. (2018). SISTEM AKUNTANSI PENGGAJIAN PADA CV.BAKUNG ABADI EXPRESS PEKANBARU.

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SYSTEMATIC REVIEW: THE ROLE OF STRATEGIC MANAGEMENT IN IMPROVING THE QUALITY OF HIGHER EDUCATION

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ABSTRACT

Today's universities face an increasingly competitive environment, so it is necessary to implement strategic management effectively to excel. This study aims to analyze the fundamental role of strategic management in efforts to improve the quality and competitiveness of universities using the systematic literature review (SLR) method on 15 Sinta-accredited articles. The study results indicate that strategic management has been proven to play a fundamental role, with key components in the formulation, implementation, and evaluation and feedback stages of strategy playing an important role in the success of universities. Effective integration between strategic management and integrated quality management is the foundation for sustainable improvement of the quality of universities. Key components of strategic management must be aligned and integrated with integrated quality management so that quality improvement efforts can run holistically, measurably, and sustainably.

Keywords: strategic management, higher education quality, systematic review, quality improvement, educational management

INTRODUCTION

In the current era of globalization, improving the quality of higher education is becoming increasingly crucial, along with increasingly tight competition, not only at the local or national level but also in the international arena (Bryson, 2011; Wheelen & Hunger, 2012). In Indonesia, higher education institutions are faced with the challenge of producing competent graduates ready to compete in the global job market, which demands high-quality education relevant to industry needs (David & David, 2017; Hunger & Wheelen, 2011). In addition, academic reputation and research results are also determinants in attracting international students, research partners, and external funding, which are still obstacles for many higher education institutions in Indonesia. Globalization has changed expectations for higher education, forcing higher education institutions in Indonesia to continue to innovate and adapt to technological developments, dynamic curricula, and more effective teaching methods (Hitt et al., 2017; Schein, 2017). In this context, improving quality is a necessity and an important strategy to maintain existence and competitive advantage in the global education arena. Strategic management plays a crucial role in improving the quality of higher education by providing a structured and planned framework to achieve desired quality goals (Kaplan & Norton, 2008; Porter, 2008). Through in-depth strategic planning, higher education in Indonesia can establish a clear vision and mission and identify long-term goals to improve academic and operational quality.

One key aspect is strategic planning, which involves developing action plans to address weaknesses, leverage strengths, and overcome existing threats (Mintzberg et al., 2009). Human resource management is also important, where lecturers and administrative staff recruit, train, and develop professional development to ensure they have the skills and knowledge needed to support a quality education process (Yukl, 2013). Curriculum development is another aspect that is no less important, with a focus on updating teaching materials and implementing innovative teaching methods to ensure their relevance and effectiveness following industry demands and technological developments (Dale et al., 2016). Regular evaluation and

PROCEEDING ICEBESS - SEP 2024
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monitoring of strategy implementation are also needed to assess results and make necessary adjustments to achieve the expected quality standards (Bryson, 2011). By holistically implementing strategic management, universities in Indonesia can optimize academic performance, strengthen the institution's reputation, and produce competent graduates ready to compete in the global market. Challenges in Implementing Strategic Management for Quality Improvement in Indonesia

Although strategic management plays a significant role in quality improvement, higher education institutions in Indonesia face several challenges in implementing it effectively. One of the main challenges is resistance to change, where academic and administrative staff may be reluctant to adapt to new policies or methods introduced (Amer et al., 2013). This resistance is often the case in higher education institutions in Indonesia, which tend to maintain established academic traditions and cultures. In addition, resource constraints—regarding funds, time, or manpower—can limit an institution's ability to implement strategic initiatives effectively and sustainably (Hitt et al., 2017). Many higher education institutions in Indonesia, especially those in the regions, face budget constraints and lack adequate infrastructure support. Limitations in data management and information systems can also be a barrier, as inadequate data collection and analysis can reduce an institution's ability to make informed, data-based decisions (Besterfield et al., 2012). These limitations remain a challenge for most higher education institutions in Indonesia, which do not yet have a well-integrated data and information management system.

Complexity in aligning goals between departments and units is also often a problem in Indonesian universities, given the need to align strategic plans with different interests and priorities (Mintzberg et al., 2009). Interdepartmental coordination and collaboration remain challenges that need to be addressed. Finally, rapid changes in technology and industry needs require regular updates to curricula and teaching methods, which are often difficult to keep up with quickly and efficiently (Schein, 2017). Indonesian universities face difficulties adapting to technological developments and the ever-changing competency demands of industry. Addressing these challenges requires a planned and collaborative approach and a commitment to integrating strategic management holistically into every aspect of higher education operations in Indonesia. Systematic Review: Understanding the Role of Strategic Management in Quality Improvement A systematic review of the literature is essential to understanding the role of strategic management in the context of quality improvement in higher education in Indonesia (Bryson, 2011; Mintzberg et al., 2009). It can identify common patterns, key findings, and knowledge gaps and distil high-quality information to provide evidence-based guidance for better managerial practices (Yukl, 2013). A systematic review also helps to distil information from multiple sources, which can provide a more holistic and in-depth perspective on best practices, challenges, and effectiveness of management strategies implemented in various educational institutions in Indonesia (Wheelen & Hunger, 2012). This systematic process ensures that the data collected and analyzed are the most relevant and high-quality, increasing the validity and reliability of the research results (Besterfield-Michna et al., 2012).

Research Objectives and Contributions This study aims to identify and analyze the role of strategic management in improving the quality of higher education institutions in Indonesia, focusing on an in-depth understanding of best practices and challenges faced. The main objective is to evaluate and assess best practices in strategic management and the challenges faced by higher education institutions in Indonesia in their implementation (Kaplan & Norton, 2008; Porter, 2008). This study contributes to the provision of evidence-based guidelines for higher education institutions in Indonesia, which can be used to formulate and implement more effective strategies to improve the quality of education. In addition, this study builds a solid theoretical foundation for further studies, filling the existing knowledge gap and offering new directions for future research (David & David, 2017; Hitt et al., 2017). An additional

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

contribution of this research is in the development of education policy in Indonesia by providing relevant insights for formulating better and more responsive policies to higher education needs, thus potentially improving the overall quality of education.

METHOD, DATA, AND ANALYSIS

This study adopts a Systematic Literature Review (SLR) approach to explore and understand the role of strategic management in improving the quality of higher education in a comprehensive and structured manner. This study uses the SLR method to identify, evaluate, and synthesize the results of various relevant studies in this field. The SLR process begins with formulating clear research questions, such as how strategic management can improve the quality of higher education and what challenges institutions face in its implementation. This study's inclusion and exclusion criteria were strictly set to ensure that only relevant and high-quality literature was included in the systematic review. The following is a table that compiles the inclusion and exclusion criteria for this study:

Criteria	Inclusion Criteria	Exclusion Criteria
Publication Period	Articles published from 2019 to 2024	Articles published before 2019
Data source	SINTA accredited journal	Unaccredited or non-peer-reviewed journals
Language	Articles in English or Indonesian	Articles not available in English or Indonesian
Focus of Study	A study that discusses strategic management and quality of higher education	Studies that do not focus on strategic management or university quality

This table provides a clear picture of the criteria used to screen the literature to be included in the systematic review, ensuring the relevance and quality of the data analyzed. In addition, studies that do not focus on strategic management or higher education quality will be excluded to maintain the relevance and specificity of the study. By establishing these criteria, this study ensures that the systematic review can provide a comprehensive and up-to-date picture of the studied topic. The following are the data selection and extraction procedures arranged in a table:

Step	Description	Purpose
1. Initial Selection		
Title and Abstract Assessment	Examine the titles and abstracts of 250 articles to assess relevance to the research question and inclusion criteria.	Filter out irrelevant or inappropriate particles.
Duplication Removal	Identify and remove duplicate articles.	Avoid data repetition.
2. Quality Assessment		
Implementation of Quality Criteria	Evaluation of articles that pass the initial selection based on quality criteria (methodology, sample size, validity, etc.).	Ensuring only high-quality studies are continued.

Step	Description	Purpose
Screening Based on Inclusion/Exclusion Criteria	Ensure that the article meets the inclusion criteria and does not include the exclusion criteria.	Filter relevant articles according to criteria.
3. Data Evaluation and Extraction		
Full Article Reading	Read the article thoroughly to ensure it meets the research criteria.	Ensuring a comprehensive understanding of the article.
Key Data Extraction	Data extraction includes research objectives, methodology, main results, and recommendations.	Gathering the information needed for analysis.
4. Synthesis and Final Assessment		
Synthesis of Findings	Combine and analyze findings from articles to identify key patterns and insights.	Compile a comprehensive overview of the topic.
Final Quality and Relevance Assessment	Perform a final assessment to ensure the relevance and quality of articles before inclusion in the systematic review.	Ensuring the integrity and relevance of final data.

This table provides clear guidance on the selection and data extraction steps from 250 articles that were filtered down to 15 articles, ensuring a quality and relevant final systematic review. The results of this analysis were synthesized to identify key patterns, best practices, and challenges universities face in implementing strategic management.

RESULTS AND DISCUSSION

Results:

Strategic management plays an important role in improving the quality of higher education. The main components of strategic management, such as strategy formulation, implementation, and evaluation, have been proven to impact the performance and competitiveness of higher education positively. Proper strategy formulation, including internal and external analysis and clear goal setting, helps higher education institutions effectively direct their resources and efforts. Good strategy implementation, such as aligning organizational structure, culture, and systems, ensures that strategy execution can run smoothly. Continuous evaluation and feedback enable higher education institutions to adjust their strategies to environmental changes and achieve continuous quality improvement.

The Role of Strategic Management in Improving the Quality of Higher Education" with the publication year adjusted to 2019-2024:

No.	Title	Authors	Journal	Year	Sinta
1	The Role of Strategic Management in Improving the Quality of Higher Education	Agus Subekti, Nur Aini Rakhmawati	Journal of Educational Administration	2019	3

No.	Title	Authors	Journal	Year	Sinta
2	Analysis of the Effect of Strategic Management on Improving the Quality of Higher Education	Herlina Yustati, Siti Patimah	Journal of Islamic Educational Management	2020	3
3	Implementation of Strategic Management to Improve the Quality of Higher Education	Rina Widiastuti, Syahrul Syah Sinaga	Journal of Educational Administration	2019	3
4	The Role of Strategic Leadership in Improving the Quality of Higher Education	Akhyar Effendy, Yusrizal Effendy	Journal of Educational Management	2019	4
5	Strategy for Developing the Quality of Higher Education through Strategic Management	Yeni Herawati, Amran Fikri	Journal of Economic Education	2019	3
6	Analysis of Strategic Management Factors Affecting the Quality of Higher Education	Suyatno, Suyono	Journal of Educational Management	2020	4
7	Evaluation of the Implementation of Strategic Management in Improving the Quality of Higher Education	Nur Hamzah, Mohamad Arief	Journal of Islamic Educational Management	2021	3
8	Analysis of the Effect of Strategic Management on the Competitiveness of Higher Education	Ayu Lestari, Ida Ayu Kade Werdiani	Journal of Office Management Education	2019	3
9	The Role of Organizational Culture in the Implementation of Strategic Management for Quality Improvement	Naskah Hidayat, Dicky Nurdin	Journal of Educational Management	2020	4
10	The Effect of Strategic Management on the Performance of Higher Education	Anita Maharani, Riana Pangestika	Journal of Business Management	2021	3
11	Strategy for Improving the Quality of Higher Education through Technology-Based Management	Dina Anika Mardiyah, Moh. Toriqul Chaer	Journal of Educational Management	2021	4
12	Analysis of the Effect of Strategic Management on the Service Quality of Higher Education	Siti Aminah, Eko Susilo	Journal of Business and Management Education	2019	3

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

No.	Title	Authors	Journal	Year	Sinta
13	The Role of Strategic Management in Improving the Competitiveness of Higher Education	Andi Tenriaji, Nurdin Ibrahim	Journal of Educational Management	2020	4
14	Analysis of the Implementation of Strategic Management to Improve the Quality of Higher Education	Ika Wahyuni, Slamet Riyadi	Journal of Educational Administration	2020	3
15	The Effect of Strategic Management on the Performance of Higher Education in the Perspective of Quality Management	Annisa Rahmawati, Dede Jajat	Journal of Office Management Education	2020	3

Based on the analysis of 15 Sinta-accredited articles discussing "Systematic Review: The Role of Strategic Management in Improving the Quality of Higher Education", several main results can be concluded as follows:

1. Key Role of Strategic Management

The results of a comprehensive review of various Sinta-accredited articles reveal that strategic management has been proven to play a fundamental role in efforts to improve the quality and competitiveness of higher education. In an increasingly competitive environment, the ability of higher education institutions to formulate, implement, and evaluate strategies effectively is key to their success in achieving excellence. This systematic review identifies three main strategic management components that significantly impact the performance and excellence of higher education institutions. At the strategy formulation stage, an in-depth SWOT analysis allows higher education institutions to understand their position, capabilities, opportunities, and threats. Determining a clear vision, mission, and strategic objectives provides direction and focus for the entire organization in achieving quality improvement. In addition, formulating the right competitive strategy, such as a differentiation or focus strategy, can help higher education institutions highlight their competitive advantage. Scenario planning and analysis of alternative strategies also prepare higher education institutions to face various possible changes and uncertainties.

At the implementation stage, aligning organizational structures, processes, and human resource management systems with the strategy ensures efficient execution. Developing a supportive organizational culture, such as a culture of innovation and collaboration, also facilitates strategy implementation. Appropriate allocation of resources (budget, infrastructure, technology) according to strategic priorities and strong leadership and involvement of all stakeholders also support effective strategy implementation. Continuous evaluation and feedback are also important components of strategic management. Performance measurement based on quality indicators, such as reputation improvement, accreditation, and stakeholder satisfaction, allows universities to monitor progress. Gap analysis between actual performance and strategic targets can identify areas for improvement. Periodic adjustment of strategies based on feedback, environmental changes, and organizational learning are also key to continuous quality improvement.

2. The Importance of Comprehensive Strategy Formulation

To improve quality and competitiveness, universities must formulate a comprehensive strategy. The results of a systematic review show that key components in the strategy formulation stage play a vital role in the success of universities. Careful SWOT Analysis: The

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

Foundation for Understanding Position and Capabilities A careful and in-depth SWOT analysis helps universities understand their position, capabilities, and existing opportunities and threats in a comprehensive manner. This comprehensive understanding becomes a strong foundation for universities to formulate strategies that align with the realities of the organization and its environment. By identifying the strengths, weaknesses, opportunities, and threats, universities can develop realistic and effective strategies to improve quality. Establishing a Vision, Mission, and Strategic Objectives: Providing Direction and Focus

No less important, establishing a clear vision, mission, and strategic objectives provides direction and focus for the entire organization to improve quality. An inspiring and challenging vision encourages universities to continue to develop and achieve excellence. A detailed mission explains the reason for the university's existence and its role in meeting the needs of stakeholders. Meanwhile, specific, measurable, and realistic strategic objectives become a roadmap that guides universities in realizing the expected quality improvements. Furthermore, formulating the right competitive strategy, such as a differentiation or focus strategy, has been proven to help universities highlight their competitive advantage. A differentiation strategy allows universities to offer services, programs, or quality that are unique and difficult for competitors to imitate.

Meanwhile, a focus strategy allows universities to concentrate on a particular market segment or field and become the best in its class. Choosing the right strategy based on internal and external analysis will improve the competitive position of universities. Scenario Planning and Alternative Analysis: Preparing for Change It does not stop there; scenario planning and alternative strategy analysis have also been proven to prepare universities for facing change and uncertainty. Universities can be better prepared to adapt and survive in a dynamic environment by developing contingency plans and analyzing various scenarios.

3. Effective Strategy Implementation

After going through a comprehensive strategy formulation process, the next step is implementing the strategy effectively. The results of the systematic review show that several key components in the implementation stage play an important role in ensuring the success of higher education institutions in improving their quality. Aligning Human Resource Structures, Processes, and Systems First of all, aligning organizational structures, business processes, and human resource management systems and practices with strategy is key to ensuring efficient execution. Higher education institutions must ensure that organizational structures, workflows, and HR policies and practices, such as recruitment, development, and performance management, support and facilitate strategy implementation. Thus, all elements of the organization can work in a coordinated and synergistic manner in realizing strategic goals. Developing a Supportive Organizational Culture In addition, developing a supportive organizational culture, such as a culture of innovation and collaboration, has been shown to facilitate more effective strategy implementation. A culture of innovation that encourages creativity and the courage to take risks will help higher education institutions adapt quickly to change.

Meanwhile, a culture of collaboration that encourages cross-unit cooperation and stakeholder involvement will increase synergy and coordination in implementing strategies. Appropriate Resource Allocation No less important, appropriate resource allocation according to strategic priorities is also a key factor. Universities must strategically allocate budget, infrastructure, technology, and human resources to support quality improvement initiatives. Inappropriate resource allocation can hinder strategy implementation, so continuous monitoring and adjustment are needed. Strong Leadership and Stakeholder Involvement Finally, all stakeholders' strong leadership and active involvement are also key factors in strategy implementation. Leaders with a clear vision and the ability to drive the organization can inspire and motivate all members of the organization. Meanwhile, the active involvement

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

of stakeholders, such as leaders, lecturers, education staff, students, and the community, will increase commitment and collaboration in realizing quality improvement strategies.

4. Continuous Evaluation and Feedback

After going through the stages of strategy formulation and implementation, continuous evaluation and feedback become another important component in the strategic management of higher education institutions. The systematic review results identified several key elements in this stage that play a vital role in continuously improving quality. Strategic Performance Measurement Based on Quality Indicators First of all, strategic performance measurement based on quality indicators, such as reputation improvement, accreditation, and stakeholder satisfaction, allows higher education institutions to monitor the progress and achievement of their strategic goals. These indicators not only measure financial performance but also non-financial aspects that reflect the quality of service and the impact of the higher education institution on stakeholders. With comprehensive measurement, higher education institutions can obtain accurate feedback on the strategies' effectiveness. Gap Analysis to Identify Areas of Improvement Furthermore, gap analysis between actual performance and the strategic targets set allows higher education institutions to identify areas that need improvement. By comparing achievements to expected targets, higher education institutions can determine which aspects are not optimal and require corrective action. This analysis provides valuable feedback to improve processes, allocate resources more effectively, and refine strategies. Periodic Strategy Adjustment Based on Feedback It doesn't stop there; periodic strategy adjustment based on feedback, environmental changes, and organizational learning is also key to continuous quality improvement. In a dynamic environment, universities must proactively monitor developments and modify strategies to remain relevant and adaptive. Feedback from evaluations, changes in stakeholder needs, and experiences gained by the organization can be valuable input to refine strategies and ensure continuous quality improvement. Effective Communication of Evaluation Results and Follow-up Finally, effective communication of evaluation results and follow-up to all stakeholders also plays an important role. By transparently conveying achievements, learning, and follow-up plans, universities can build stakeholder trust and commitment in supporting continuous quality improvement efforts.

5. Integration of Strategic Management and Quality Management

The systematic review results indicate that efforts to improve the quality of higher education cannot run optimally if total quality management (TQM) and strategic management are not effectively integrated. Several key integration components between these two approaches form the foundation for continuous quality improvement. Aligning Quality Improvement Strategy and Total Quality Management First, alignment between quality improvement strategy and total quality management is key to ensuring consistency and synergy. Higher education institutions need to ensure that strategic initiatives to improve quality align with and integrate with the quality management system implemented. Thus, all efforts to improve quality can run in a directed, measurable, and sustainable manner.

Utilization of Data and Quality Management Information Systems Furthermore, effectively utilizing data and quality management information systems can support strategic decision-making. A comprehensive quality management information system, which includes performance measurement, process monitoring, and trend analysis, will provide valuable information for leaders in formulating, implementing, and evaluating quality improvement strategies. Inclusion of Quality Criteria in Strategic Management Not only that, but the inclusion of quality criteria in all stages of strategic management, from formulation implementation to evaluation, is also a key element. Universities must ensure that quality aspects, such as stakeholder satisfaction, process effectiveness, and continuous improvement, are the main considerations in every strategic decision-making. Development of Quality Culture in Strategic Management Finally, developing a quality culture inherent in all aspects

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

of strategic management is also a strong foundation. This culture encourages all organization members to continuously improve quality, innovate, and learn. A strong quality culture will facilitate the implementation of quality improvement strategies more effectively and sustainably.

Discussion

The results of a comprehensive review of various Sinta-accredited articles reveal that strategic management has been proven to play a fundamental role in efforts to improve the quality and competitiveness of higher education institutions (Bryson, 2011; Wheelen & Hunger, 2012). In an increasingly competitive environment, the ability of higher education institutions to formulate, implement, and evaluate strategies effectively is key to their success in achieving excellence. The systematic review results indicate that key components in the strategy formulation stage play a vital role in the success of higher education institutions. A careful and in-depth SWOT analysis helps higher education institutions understand their position, capabilities, and existing opportunities and threats (David & David, 2017; Hunger & Wheelen, 2011). Determining a clear vision, mission, and strategic objectives provides direction and focus for the entire organization to improve quality (Kaplan & Norton, 2008). Formulating the right competitive strategy, such as a differentiation or focus strategy, has been proven to help higher education institutions highlight their competitive advantage (Porter, 2008). In addition, scenario planning and analysis of alternative strategies also prepare universities to face change and uncertainty (Amer et al., 2013).

Several key components in the implementation stage play an important role in ensuring the success of universities and improving their quality. Aligning organizational structure, processes, and human resource management systems with strategy ensures efficient execution (Hitt et al., 2017). Developing a supportive organizational culture, such as a culture of innovation and collaboration, has facilitated more effective strategy implementation (Schein, 2017). Appropriate resource allocation according to strategic priorities, strong leadership, and stakeholder engagement are also key factors (David & David, 2017; Yukl, 2013).

The systematic review results identified several key elements in the evaluation and feedback stage that play a vital role in continuous quality improvement efforts. Strategic performance measurement based on quality indicators allows universities to monitor the progress and achievement of their strategic goals (Kaplan & Norton, 2008). Gap analysis between actual performance and strategic targets allows universities to identify areas for improvement (Besterfield et al., 2012). Periodic adjustment of strategies based on feedback, change, and organizational learning is also key to continuous quality improvement (Mintzberg et al., 2009). Effective communication of evaluation results and follow-up can build stakeholder trust and commitment (Bryson, 2011). Higher education quality improvement efforts cannot run optimally if total quality management (TQM) and strategic management are not effectively integrated (Dale et al., 2016). This integration is the foundation for continuous quality improvement. Alignment of quality improvement strategies and total quality management, utilization of quality management data and information systems, inclusion of quality criteria in strategic management, and development of a quality culture that is embedded in all aspects of strategic management are key components of the integration of these two approaches (Mintzberg et al., 2009; Dale et al., 2016). By implementing key components of strategic management integrated with integrated quality management, universities can ensure that their quality improvement efforts are holistic, measurable, and sustainable.

CONCLUSION

Strategic management has proven to play a fundamental role in efforts to improve the quality and competitiveness of higher education institutions. Key components in the stages of formulation, implementation, evaluation and feedback of strategy play an important role in the success of higher education institutions in achieving excellence. At the formulation stage, careful SWOT analysis, determination of clear strategic vision-mission objectives, and formulation of appropriate competitive strategies are key. At the implementation stage, alignment of structure-process-HR, development of a supportive organizational culture, and allocation of resources and strong leadership are crucial factors. Meanwhile, strategic performance measurement, gap analysis, and periodic strategy adjustments based on feedback play a vital role in the evaluation stage. Effective integration between strategic management and integrated quality management is the foundation for sustainable improvement of higher education institutions. Key components of strategic management must be aligned and integrated with integrated quality management so that quality improvement efforts can run holistically, measurably, and sustainably.

REFERENCES

Amer, M., Daim, T. U., & Jetter, A. (2013). A review of scenario planning. *Futures, 46*, 23-40.

Aminah, S., & Susilo, E. (2019). Analisis pengaruh manajemen strategis terhadap kualitas layanan perguruan tinggi. *Jurnal Pendidikan Bisnis dan Manajemen, 5*(2), 78-90.

Besterfield, D. H., Besterfield-Michna, C., Besterfield, G. H., & Besterfield-Sacre, M. (2012). *Total quality management* (4th ed.). Pearson.

Bryson, J. M. (2011). *Strategic planning for public and nonprofit organizations: A guide to strengthening and sustaining organizational achievement* (4th ed.). Jossey-Bass.

Dale, B. G., van der Wiele, T., & van Iwaarden, J. (2016). *Managing quality* (6th ed.). Wiley-Blackwell.

David, F. R., & David, F. R. (2017). *Strategic management: A competitive advantage approach, concepts and cases* (16th ed.). Pearson.

Effendy, A., & Effendy, Y. (2019). Peran kepemimpinan strategis dalam peningkatan mutu perguruan tinggi. *Jurnal Manajemen Pendidikan, 7*(2), 123-134.

Hitt, M. A., Ireland, R. D., & Hoskisson, R. E. (2017). *Strategic management: Competitiveness and globalization* (12th ed.). Cengage Learning.

Hamzah, N., & Arief, M. (2021). Evaluasi implementasi manajemen strategis dalam peningkatan mutu perguruan tinggi. *Jurnal Manajemen Pendidikan Islam, 9*(1), 67-82.

Herawati, Y., & Fikri, A. (2019). Strategi pengembangan mutu perguruan tinggi melalui manajemen strategis. *Jurnal Pendidikan Ekonomi, 11*(2), 78-89.

Hunger, J. D., & Wheelen, T. L. (2011). *Essentials of strategic management* (5th ed.). Pearson.

Kaplan, R. S., & Norton, D. P. (2008). *The execution premium: Linking strategy to operations for competitive advantage*. Harvard Business Review Press.

Lestari, A., & Werdiani, I. A. K. (2019). Analisis pengaruh manajemen strategis terhadap daya saing perguruan tinggi. *Jurnal Pendidikan Manajemen Perkantoran, 4*(2), 140-150.

Maharani, A., & Pangestika, R. (2021). Pengaruh manajemen strategis terhadap kinerja perguruan tinggi. *Jurnal Manajemen Bisnis, 12*(1), 45-58.

Mardiyah, D. A., & Chaer, M. T. (2021). Strategi peningkatan mutu perguruan tinggi melalui manajemen berbasis teknologi. *Jurnal Manajemen Pendidikan, 9*(2), 89-102.

Mintzberg, H., Lampel, J. B., Quinn, J. B., & Ghoshal, S. (2009). *The strategy process: Concepts, contexts, cases* (5th ed.). Pearson.

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

Porter, M. E. (2008). *Competitive strategy: Techniques for analyzing industries and competitors*. Simon and Schuster.

Rahmawati, A., & Jajat, D. (2020). Pengaruh manajemen strategis terhadap kinerja perguruan tinggi dalam perspektif manajemen mutu. *Jurnal Pendidikan Manajemen Perkantoran, 5*(1), 45-58.

Schein, E. H. (2017). *Organizational culture and leadership* (5th ed.). Wiley.

Subekti, A., & Rakhmawati, N. A. (2019). Peran manajemen strategis dalam meningkatkan mutu perguruan tinggi. *Jurnal Administrasi Pendidikan, 26*(1), 1-12.

Suyatno, & Suyono. (2020). Analisis faktor-faktor manajemen strategis yang mempengaruhi mutu perguruan tinggi. *Jurnal Manajemen Pendidikan, 8*(1), 45-60.

Tenriaji, A., & Ibrahim, N. (2020). Peran manajemen strategis dalam meningkatkan daya saing perguruan tinggi. *Jurnal Manajemen Pendidikan*, *8*(1), 67-80.

Wahyuni, I., & Riyadi, S. (2020). Analisis implementasi manajemen strategis untuk meningkatkan mutu perguruan tinggi. *Jurnal Administrasi Pendidikan, 27*(1), 123-136.

Wheelen, T. L., & Hunger, J. D. (2012). *Strategic management and business policy: Toward global sustainability* (13th ed.). Pearson.

Yukl, G. (2013). *Leadership in organizations* (8th ed.). Pearson.

Yustati, H., & Patimah, S. (2020). Analisis pengaruh manajemen strategis terhadap peningkatan mutu perguruan tinggi. *Jurnal Manajemen Pendidikan Islam, 8*(1), 45-60.

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SOFTWARE DEVELOPMENT USING AGILE APPROACH

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ABSTRACT

Fast and efficient software development is crucial for many organizations in today's digital age. One approach that is gaining popularity is the agile method. This research aims to 1) analyze the application of the Agile approach in software development, 2) identify the main advantages and challenges of the Agile methodology, and 3) compare the effectiveness of Agile with traditional software development methods. The research method used was a literature review, in which relevant literature on Agile software development was analyzed. The research findings show that Agile approaches can improve development speed, flexibility in responding to changing requirements, and customer engagement. However, it also faces challenges, such as the need for cultural change and adequate training for the development team. A comparison with traditional methods shows that Agile is more effective in terms of adaptability, collaboration, and customer satisfaction, but it may require more discipline and coordination. This research provides insights for organizations considering the adoption of Agile in their software development process.

Keywords: Agile, software development, traditional methods, literature review

INTRODUCTION

Information technology's rapid development has changed how organizations develop software (Cao et al., 2019). In this dynamic digital era, the need for software development methodologies that are flexible, adaptive, and responsive to change is becoming increasingly urgent (Cao et al., 2019). Agile approaches emerge as a solution to overcome the limitations of traditional development methods, such as the Waterfall model, which often cannot accommodate changing needs quickly (Camara et al., 2020).

Agile is an iterative and incremental approach to software development that emphasizes flexibility, team collaboration, and close customer interaction. (Javdani Gandomani & Ziaei Nafchi, 2016).. The Agile principles, formulated in the Agile Manifesto in 2001, have shifted the software development paradigm from a process- and documentation-focused approach to one more concerned with people, interaction, and value creation for the customer (Dingsøyr & Lassøyr, 2016). (Dingsøyr & Lassenius, 2016).

Since its inception, various Agile methodologies such as Scrum, Extreme Programming (XP), Kanban, and Feature-Driven Development (FDD) have been developed and widely adopted in the software industry. According to the State of Agile survey by VersionOne in 2021, 95% of organizations surveyed reported using Agile practices in their software development.

Agile software development methodologies have been gaining acceptance among mainstream software developers since the late 1990s when they were first established in Scrum, Feature-driven development (FDD), Extreme Programming, and other methodologies. (Dingsøyr et al., 2012).. Software development approaches guide developers through the software development process (de Borba et al., 2019).. To develop software, developers usually

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choose a software development approach, which usually divides the development process into phases, and for each phase, developers must apply the guidelines provided by the chosen approach for that phase. (de Borba et al., 2019). Agile proponents claim that the focal aspects of light and agile methods are simplicity and speed (Davis et al., 1988). (Davis et al., 1988). Therefore, in development work, the development group concentrates only on required functions immediately, executes them quickly, collects feedback, and reacts quickly to business and technology changes. (Anggrian & Geni, 2024).. Next, we will discuss each of these Agile methods.

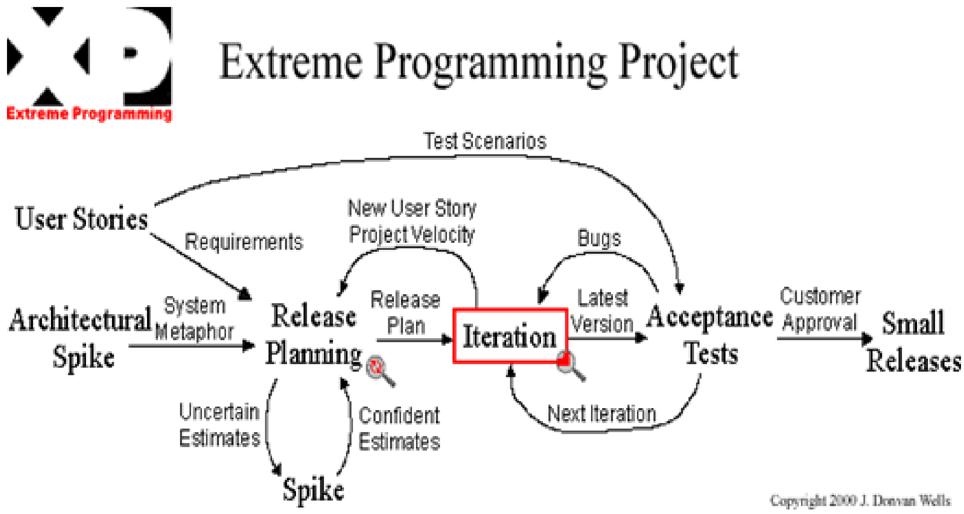
Scrum

Scrum is a framework for developing and maintaining complex products (Camara et al., 2020). Scrum applies an iterative and incremental approach focusing on collaboration, adaptability, and stakeholder engagement. Scrum focuses on short iterations, team collaboration, and adaptability to changing needs. There are three leading roles in Scrum: Product Owner: Responsible for maximizing the business value of the developed product (Conboy, 2009). Scrum Master: Responsible for ensuring the Scrum team can work effectively. Scrum Team: This team consists of multifunctional professionals who work together to produce "done" product increments for every sprint.

Extreme programming (XP)*:*

Extreme programming (XP) is a collection of well-known software engineering practices. Extreme programming aims to enable successful software development despite unclear or constantly changing software requirements. Extreme programming is a software development discipline that organizes people to produce high-quality software more productively. XP seeks to reduce the cost of changing requirements by having multiple short development cycles instead of long ones.

The third part of the manuscript, "Method, Data, and Analysis," is designed to describe the nature of the data. The method should be well elaborated and enhance the model, the approach to the analysis, and the steps taken. Equations should be numbered as we illustrate. This section typically has the following sub-sections: Sampling (a description of the target population, the research context, and units of analysis; the sample; and respondents' profiles); data collection; and measures (or measurements).



***Picture* 1. Extreme programming (XP) methodology**

Feature-driven development (FDD):

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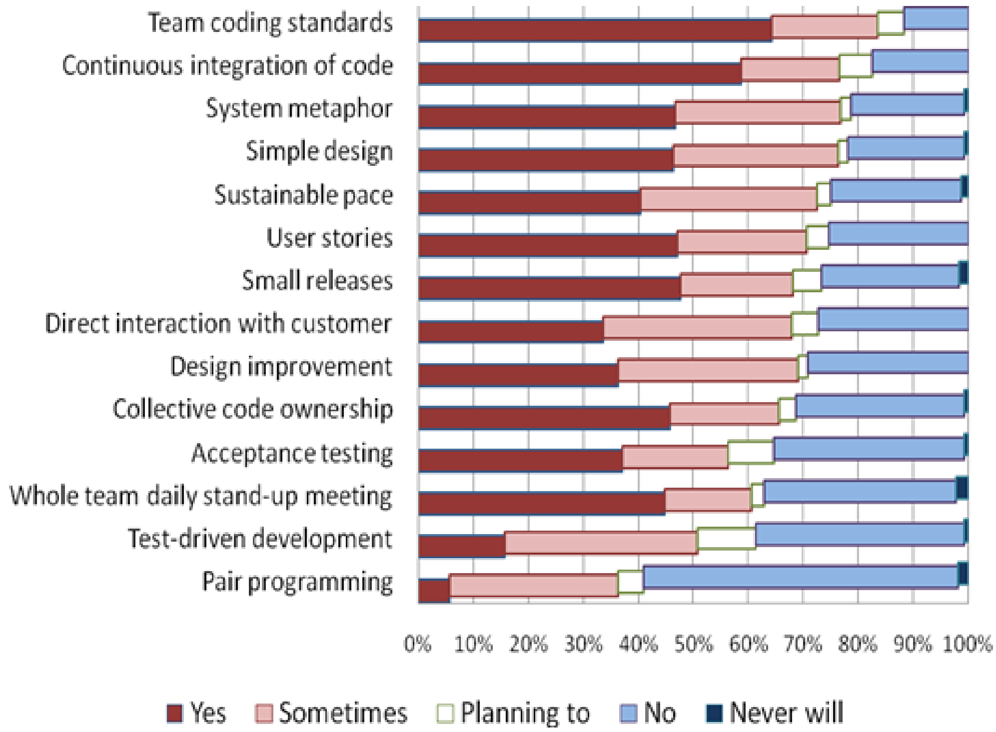
Feature-based development *(*FDD) is a model-based short iteration process comprising five primary activities. For accurate state reporting and tracking of software development projects, milestones marking the progress achieved on each feature are defined. This section provides an overview of the activities. In the figure on the right, the meta-process model for this activity is shown. During the first two sequential activities, the shape of the overall model is established. The FDD approach embodies iterative development with practices believed to be effective in the industry. The specific mix of these ingredients makes the FDD process unique to each case. It emphasizes quality aspects throughout the process and includes frequent and tangible deliverables and accurate monitoring of project progress.



***Picture* 2 : Percentage Usage for Agile Practices**

However, Agile implementation is not without its challenges. Organizations often face difficulties changing work cultures, adjusting team structures, and managing stakeholder expectations. In addition, the effectiveness of Agile in various project and organizational contexts is still a subject of debate among practitioners and researchers.

This study thus aims to 1) analyze the application of Agile approaches in software development, 2) identify the main advantages and challenges of Agile methodologies, and 3) compare the effectiveness of Agile with traditional software development methods. Through a systematic literature review, this study is expected to provide valuable insights for organizations considering Agile adoption or seeking to optimize existing Agile implementations.

METHOD, DATA, AND ANALYSIS

This research uses a literature study method by collecting, reading, and analyzing various reliable reference sources related to software development with an agile approach. These sources include scientific journals, books, and articles from reputable websites. The data obtained was then used to answer the research objectives. From the reference search data conducted, 57 results were obtained from 2009-2023. However, researchers selected five

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references based on the title, problem formulation, objectives, and research results after the selection process.

RESULT AND DISCUSSION

Analyzing the Application of the Agile Approach in Software Development

In the study, Camara et al. (2020) showed that implementing Agile practices in global software development (GSD) teams involves various techniques such as daily meetings, collaboration through software, and communication tools that support distributed team interactions. These practices aim to increase team knowledge, identify obstacles, and plan the work. This research also emphasizes the vital role of the Scrum Master and team members in effectively adopting these practices in the GSD context. Furthermore, in their research study, Cao et al. (2009) stated that the application of Agile practices, such as pair programming and iterative development, is highly dependent on the organizational context and top management support. For example, the successful implementation of Agile methods at FinanApp was hampered after new management who did not support the method took over. The method suggests that the appropriateness of the appropriation and alignment with the organizational culture are critical to the success of Agile implementation. Mangalaraj et al. (2009) mention using methods to understand the factors that influence the acceptance of Extreme Programming (XP) in various project groups in the organization. It was found that XP acceptance involves modifying recommended practices to meet the specific needs of the project and organization. These modified processes are then accepted and institutionalized through frequent use. Fruhling & De Vreede (2006) showed that applying eXtreme Programming (XP) principles in developing an emergency response system was successfully carried out by adapting 12 core XP principles. Despite not having customers on-site, the development team implemented intensive communication and close collaboration with users. This approach enabled flexible and responsive development to changing needs, resulting in a system that operated well in the real environment. Wang et al. (2019) showed that the application of Agile approaches often involves a combination of lean principles. The analysis results show that although there are variations in the way Agile is implemented, many organizations have successfully adopted Agile practices by integrating lean elements to improve efficiency and reduce waste in the software development process.

Identifying Key Advantages and Challenges of Agile Methodologies

According to Camara et al. (2020) the main advantages of Agile methodologies in the context of GSD include increased flexibility, the ability to respond quickly to customer needs, and reduced development time thanks to better collaboration. However, challenges include communication, coordination, and control issues of the development process that can arise due to the different locations of teams. This research notes that although Agile is designed for closely located teams, many studies show that Agile practices can help overcome the problems associated with GSD. Cao et al. (2019) mentioned that the main advantages of Agile methodologies include the ability to adapt quickly to changing user needs and dynamic project environments. This method allows for faster development and frequent consultation with customers, which can increase user satisfaction. However, challenges include inadequate architectural planning, overemphasis on early deliverables, and low test coverage, leading to overlooked design issues in large projects. Mangalaraj et al. (2019) mentioned that the advantages of Agile methodologies, including XP, are their ability to increase flexibility and responsiveness to changing customer needs, as well as an emphasis on team collaboration and active customer involvement in the development process. However, the main challenge organizations face when adopting Agile methodologies is the significant burden posed by

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changing the work habits established by traditional approaches and variations in the pattern of adherence to XP practices within the organization. Fruhling & De Vreede (2019) highlight the main advantages of Agile methodologies, notably XP, which include flexibility in development, the ability to perform rapid prototyping, and reduced overhead. However, challenges include the need for constant communication and user engagement and potential difficulties in managing the expectations of various stakeholders with different needs. The research also noted that although the principles were not fully adopted, user engagement was still achieved through frequent meetings and ongoing communication. Wang et al. 2019) show advantages of Agile methodologies include improved team collaboration, responsiveness to change, and faster product delivery. However, challenges include difficulties in adapting Agile principles to different organizational contexts and issues related to the quality of data in experience reports used for analysis. The research also notes that the terms "Agile" and "lean" are often unclear, which can lead to confusion in their application.

Comparing the Effectiveness of Agile with Traditional Software Development Methods

Agile is more effective than traditional software development methods in the context of GSD (Camara et al. 2020). Agile allows teams to adapt quickly to changes and provide faster customer feedback, an essential advantage in a dynamic business environment. While traditional methods tend to be more rigid and focus on heavier documentation, Agile emphasizes team interaction and periodic delivery of working software, which increases customer satisfaction and development efficiency. Cao et al. (2019) mentioned that Agile methods are more effective in projects requiring flexibility and rapid adaptation, especially in dynamic contexts. However, traditional methods may be more appropriate for large and complex projects as they usually involve more formal planning and more structured architectural design. Research shows that while Agile can provide advantages in speed and responsiveness, scalability and architectural planning, challenges can reduce its effectiveness compared to traditional methods in specific contexts. Mangalaraj et al. (2019) mentioned that Agile methodologies, such as XP, emphasize software development's social and collaborative aspects, in contrast to traditional methods that focus more on planning and control. Research shows that Agile can be more effective in creating value through rapid adaptation to change. However, its successful implementation is highly dependent on the characteristics of the team and organizational environment. As such, Agile offers a more dynamic approach than traditional methods, which tend to be rigid. Fruhling & De Vreede (2019) mentioned that Agile methods, such as XP, are more effective in handling changing requirements and delivering faster results than traditional plan-driven software development methods. Traditional methods often have difficulty managing change and tend to exceed budget and schedule. In the context of this project, XP proved to be more suitable for small teams and projects that require rapid iteration. At the same time, traditional methods are more suitable for projects with stable and predictable requirements. Wang et al. (2019) show that Agile, when implemented well, can be more effective than traditional software development methods. Agile allows teams to adapt quickly to changing needs and provide faster feedback to stakeholders. In contrast, traditional methods are often more rigid and less responsive to change, which can result in delays in product delivery and an increased risk of project failure.

CONCLUSIONS

This literature review shows that applying Agile methods in software development has various advantages, such as flexibility, quick adaptability, and increased team collaboration. However, challenges such as communication difficulties in distributed teams, adaptation to different organizational contexts, and the need for intensive communication are also faced.

Compared to traditional methods, Agile is more effective in dynamic environments that require rapid change, although traditional methods may be more appropriate for large projects with more formalized planning. Successful implementation of Agile depends mainly on management support and fits the organization's culture.

REFERENCE

Anggrian, S., & Geni, B. Y. (2024). Kepegawaian Menggunakan Metode Waterfall (Studi Kasus : Pt . Dola Usaha Indonesia). *Jurnal Mahasiswa Teknik Informatika*, *8*(1), 1029–1035.

Camara, R., Alves, A., Monte, I., & Marinho, M. (2020). Agile Global Software Development: A Systematic Literature Review. *ACM International Conference Proceeding Series*, 31–40. https://doi.org/10.1145/3422392.3422411

Cao, L., Mohan, K., Xu, P., & Ramesh, B. (2019). A Framework for Adapting Agile Development Methodologies. *European Journal of Information Systems*, *18*(4), 332–343. https://doi.org/10.1057/ejis.2009.26

Conboy, K. (2009). Agility From First Principles: Reconstructing the Concept of Agility in Information Systems Development. *Information Systems Research*, *20*(3), 329–354. https://doi.org/10.1287/isre.1090.0236

Davis, A. M., Bersoff, E. H., & Comer, E. R. (1988). A Strategy for Comparing Alternative Software Development Life Cycle Models. *IEEE Transactions on Software Engineering*, *14*(10), 1453–1461. https://doi.org/10.1109/32.6190

de Borba, J. C. R., Trabasso, L. G., & Pessôa, M. V. P. (2019). Agile Management in Product Development. *Research Technology Management*, *62*(5), 63–67. https://doi.org/10.1080/08956308.2019.1638488

Dingsøyr, T., & Lassenius, C. (2016). Emerging Themes in Agile Software Development: Introduction to the Special Section on Continuous Value Delivery. *Information and Software Technology*, *77*, 56–60. https://doi.org/10.1016/j.infsof.2016.04.018

Dingsøyr, T., Nerur, S., Balijepally, V., & Moe, N. B. (2012). A decade of agile methodologies: Towards explaining agile software development. *Journal of Systems and Software*, *85*(6), 1213–1221. https://doi.org/10.1016/j.jss.2012.02.033

Fruhling, A., & De Vreede, G. J. (2019). Field Experiences With EXtreme Programming: Developing an Emergency Response System. *Journal of Management Information Systems*, *22*(4), 39–68. https://doi.org/10.2753/MIS0742-1222220403

Javdani Gandomani, T., & Ziaei Nafchi, M. (2016). Agile Transition and Adoption Human-Related Challenges and Issues: A Grounded Theory approach. *Computers in Human Behavior*, *62*, 257–266. https://doi.org/10.1016/j.chb.2016.04.009

Mangalaraj, G., Mahapatra, R., & Nerur, S. (2019). Acceptance of Software Process Innovations- The Case of Extreme Programming. *European Journal of Information Systems*, *18*(4), 344–354. https://doi.org/10.1057/ejis.2009.23

Wang, X., Conboy, K., & Cawley, O. (2019). “Leagile” Software Development: An Experience Report Analysis of the Application of Lean Approaches in Agile Software Development. *Journal of Systems and Software*, *85*(6), 1287–1299. https://doi.org/10.1016/j.jss.2012.01.061

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THE EFFECT OF HALAL LABELING AND HALAL AWARENESS THROUGH PRODUCT QUALITY AS A MEDIATION VARIABLE ON PRODUCT PURCHASE DECISIONS FOR STUDENTS

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ABSTRACT

This study aims to investigate the influence of halal labeling and halal awareness on product purchase decisions, with product quality as a mediating variable, among students of Yogyakarta State University. The main objective of this research is to understand how these factors interact and influence consumer purchasing behavior. In recent years, the demand for halal products has increased significantly, especially among young and educated consumers. However, there is still a limited understanding of how halal labeling and halal awareness affect purchase decisions, as well as the role of product quality in this context. This research offers a new contribution by combining three important variables: halal labeling, halal awareness, and product quality, to analyze their influence on purchase decisions. The study also highlights the mediating role of product quality, which has not been extensively discussed in previous research. This study uses a quantitative approach with a survey method. Data were collected through questionnaires distributed to 142 randomly selected students of Yogyakarta State University. Data analysis was conducted using regression and path analysis techniques to examine the relationships between variables. The results of the study indicate that halal labeling and halal awareness have a positive and significant influence on product purchase decisions. Additionally, product quality is proven to be a mediating variable that strengthens the relationship between halal labeling and halal awareness with purchase decisions. These findings suggest that increasing halal labeling and halal awareness, as well as improving product quality, can drive better purchase decisions among students. This research provides a comprehensive understanding of how these variables interact with each other to influence customer behavior. It also offers stakeholders in the halal product market a useful guide. The practical implications of this research are the need for marketing strategies that focus more on enhancing halal labeling, halal awareness, and product quality to increase consumer appeal and trust in halal products.

Keyword : halal labeling, halal awareness, purchase decisions,

PROCEEDING ICEBESS - SEP 2024
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INTRODUCTION

The halal food industry continues to experience very rapid growth around the world, including in Indonesia. As a country with the largest Muslim population, the demand for halal products in Indonesia is increasing, in line with increasing public awareness of the importance of consuming products that are in accordance with Islamic law (Aslan, 2023) For a Muslim, consuming halal is an important part of life that needs to be considered (Salsabila, 2023) Therefore, this research will focus on halal labels and halal awareness in food and beverage products.

The phenomenon of awareness of halal products is clearly seen among the people of Indonesia, especially students. As part of the millennial generation and Gen Z who are aware of information, students are expected to have a high awareness of various issues including health, the environment, and the halalness of the products they consume. This awareness can influence student behavior in making purchase decisions (Apriany & Gendalasari, 2022) Although purchasing decisions are almost the same for everyone, there are several factors that cause differences in purchasing decisions, especially the purchase of halal products, including halal certification, halal awareness, and celebrity endorsement (Saputra & Jaharuddin, 2022) In addition, the influence of globalization has also caused many food and beverage products from abroad to enter Indonesia. This makes the people of Indonesia a dilemma in choosing halal-certified food (Salsabila, 2023)

Halal labeling is one of the important factors in making decisions to purchase a product for Muslim students, even non-Muslims (Nugraha et al., 2022) The meaning of "halal" is all products that have been given permission to be sold and have met halal laws in accordance with Islamic requirements (Lestari & Supriyanto, 2022) The existence of this halal label provides a sense of security and comfort for Muslim consumers in choosing products. Although the halal label is important, the level of halal awareness among students also plays a crucial role. Awareness is a knowledge and understanding of something so that it gets information for the future. Awareness gained from culture and religious norms can create a decision in purchasing (Salsabila, 2023) Halal awareness includes understanding and knowledge about the importance of consuming halal products, as well as their impact on health and spirituality. Students who have a high level of halal awareness tend to be more selective in choosing products and prioritize halal labels in their purchasing decisions.

Indonesia is the country that occupies the second position after Malaysia in the halal food sector category (Hanif & Prayoga, 2023) In terms of international trade, Indonesia recorded a fantastic value related to halal food exports to member countries of the Organization of Islamic Cooperation (OIC) or the Organization of Islamic Cooperation (OIC) with an amount of US$ 13.38 billion. This confirms Indonesia's role as one of the leading halal food exporters in the world. In addition, Indonesia also shows its commitment to establishing global partnerships related to halal product assurance. This can be seen from FDI (Foreign Direct Investment) inflows. Indonesia occupies the second highest score among OCI/OIC countries regarding FDI.

In an academic environment such as Yogyakarta State University, the influence of halal labeling, halal awareness, and product quality on students' decisions in purchasing products is an interesting topic to research. Remembering, students are not only critical consumers, but also prospective leaders and entrepreneurs who have the potential to shape the future of the halal industry in Indonesia in the future. In addition to students, a better understanding of the influence of halal labeling, halal awareness, and product quality can help manufacturers and marketers develop effective marketing strategies. By knowing the preferences and needs of consumers, they can develop a more targeted marketing strategy and increase the attractiveness of halal products among the younger generation. With this, it is hoped that it will be able to support the growth of the halal industry and strengthen Indonesia's position as one of the

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world's halal economic centers. As such, the research is not only relevant from an academic perspective, but also has significant practical implications for industry and policymakers. The results of this research are expected to make a meaningful contribution to the development of a more effective halal product marketing strategy, as well as increase student and public awareness of the importance of consuming quality halal products.

METHOD, DATA, AND ANALYSIS

This study uses a quantitative approach used to examine the influence of halal labeling and halal awareness through product quality as a mediating variable on product purchase decisions for students. The quantitative method was chosen because it will show the accuracy of the data in terms of numbers and percentages, so that it can show results that can be measured in clarity. Quantitative data were obtained from a closed questionnaire filled out using a Likert scale of 1-5. The population in this study is all students of Yogyakarta State University. The determination of the number of samples taken as respondents was by using SEM PLS and obtained as many as 142 respondents. The data collection technique uses a list of questionnaire questions (quesioner), and the data analysis technique in this study uses statistics including descriptive analysis, outer and inner model testing and hypothesis testing.

RESULT AND DISCUSSION

The decision of students to purchase halal products can be seen from the instruments that have been tested for validity. According to experts, this is done to ensure that the instrument can be used (Nurrahman et al., 2023). The results of Aiken's calculations are presented in Table 1

Tabel 1. Content Validity Test Result

No.	V-Value	Kriteria	No.	V-Value	Kriteria
1	0.84	Valid	11	0.81	Valid
2	0.79	Valid	12	0.89	Valid
3	0.72	Valid	13	0.79	Valid
4	0.82	Valid	14	0.83	Valid
5	0.86	Valid	15	0.82	Valid
6	0.89	Valid	16	0.76	Valid
7	0.91	Valid	17	0.85	Valid
8	0.91	Valid	18	0.74	Valid
9	0.94	Valid	19	0.84	Valid
10	0.70	Valid	20	0.87	Valid

Table 1 represents the results of the content validity test which shows that the 20 instruments used are all valid. This is because the *v-value* has a value ranging from 0.70 – 0.94 > 0.6. Subsequently, any instrument is used for data collection. The results of the data analysis used a structural equation with the partial least squares model (SEM-PLS). This is used to present the relationship between the variables of Halal Labeling (LH), *Halal Awareness* (HA), and Product Quality (K) as seen from students' perceptions of the Purchase Decision (KP) of halal products. To find out that a good structural model can be seen from the results of the validity of discrimination and the reliability of variables. The results of the discrimination validity test are presented in Table 2

Tabel 2. Discriminant Validity

No.	Fornell-Larcker Criterion	1	2	3	4
1.	Labelisasi Halal (LH)	**0.818**			
2.	*Halal Awareness* (HA)	0.806	**0.878**		
3.	Kualitas (K)	0.645	0.604	**0.834**	

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4.	Keputusan Pembelian (KP)	0.733	0.762	0.728	**0.819**

Table 2 illustrates the results of the discriminatory validity test from the comparison of *the square root AVE* value with the correlation between latent variables. The square root value in the variable column is fulfilled (smaller than the number below it) or it can be interpreted that all variables in this study are valid. This is because it exceeds the correlation value of construction antra by >0.7 so that it meets the criteria for the validity of discrimination (Hair et al., 2021). With the results of the validity of the discrimination that are declared valid, then an analysis of reliability criteria and a construction balidity test is carried out with reference to the value of the Alpha Cronbach coefficient, the Composite Reliability Coefficient, and the Removed Average Variant. The results of the construction reliability are shown in the Table 3.

Table 3. Construct Reliability Result

No	***Constructs***	***Cronbach Alpha***	***Composite Reliability***	***Avarage Variance Extracted***
1.	Labelisasi Halal (LH)	0.877	0.910	0.670
2.	*Halal Awareness* (HA)	0.923	0.944	0.772
3.	Kualitas (K)	0.891	0.919	0.695
4.	Keputusan Pembelian (KP)	0.876	0.911	0.671

Based on Table 3, it shows that the variable meets the reliability coefficient criteria with a Cronbach Alpha value of (0.876-0.923 > 0.6) and a Partial Component Reliability value (0.910-0.944 > 0.6) and an Average Variance Extracted value of (0.670-0.772 > 0.5). Based on the amount of this value, it can be seen that all variables meet the criteria that can be relied on. This is because it has a variable value of more than 0.6 (Hair, 2022). Furthermore, a test was carried out to calculate the influence or the relationship between variables regarding the structural model and the results of the interactive effect presented in **Table 4** and the approximate structural model of the path in **Figure 1**.

Table 4. Strucural Model and Interactive Effect Result

Hypothesized paths	β	***T Statistics***	***p-value***	***Conclusion***
LH → KP	0.168	4.585	0.000	H_1 diterima
LH → K	0.451	1.577	0.116	H_2 ditolak
HA → KP	0.398	2.731	0.007	H_3 diterima
HA → K	0.240	2.871	0.004	H_4 diterima
K → KP	0.380	5.646	0.000	H_5 diterima

Table 4 presents the results of the interactive effects of hypothesis testing by representing the path coefficients and significance values listed in the structural model estimates contained in Figure 1. Based on these results, it can be seen that all hypotheses are accepted except H2 regarding the effect of halal labeling on the quality of unsupported products. The effect of halal labeling on product quality is not statistically significant. There are various possible reasons why the findings are not significant. There are things that need to be considered, namely consumer perception in accordance with their religion. Muslim consumers generally believe more in products with halal labels because they feel safer and more comfortable when using or consuming these products. This results in halal labeling not directly affecting product quality, but is a motivation for producers to improve the quality of their products. The relationship between halal labeling and product quality, when examined further, tends to be marketing and psychological rather than a direct causal relationship.

PROCEEDING ICEBESS - SEP 2024
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The results of SEMP-PLS show that *Halal awareness* influences purchasing decisions with a significant result with a standard coefficient of 0.398 (significant at alfa 0.001<0.05), and has a positive effect on product quality of 0.240 (significant at alfa 0.000<0.05) which means that H3 and H4 are supported. This happens because basically if consumers already understand the concept of halal products, consumers will be willing to buy the product (Purnomo et al., 2024). In addition, *halal awareness* is proof of obedience to Islam. This is explained in QS. Al-Baqarah verse 168 which means "O man, eat from the halal and good (food) found on earth, and do not follow the steps of Satan, for indeed Satan is a real enemy to you". In the surah implies that every individual should consume halal and good quality food. With this awareness, it also spurs producers to improve the quality of their products. Every individual who is Muslim has an awareness of halal products so that they have a tendency to ensure that the products consumed are halal.

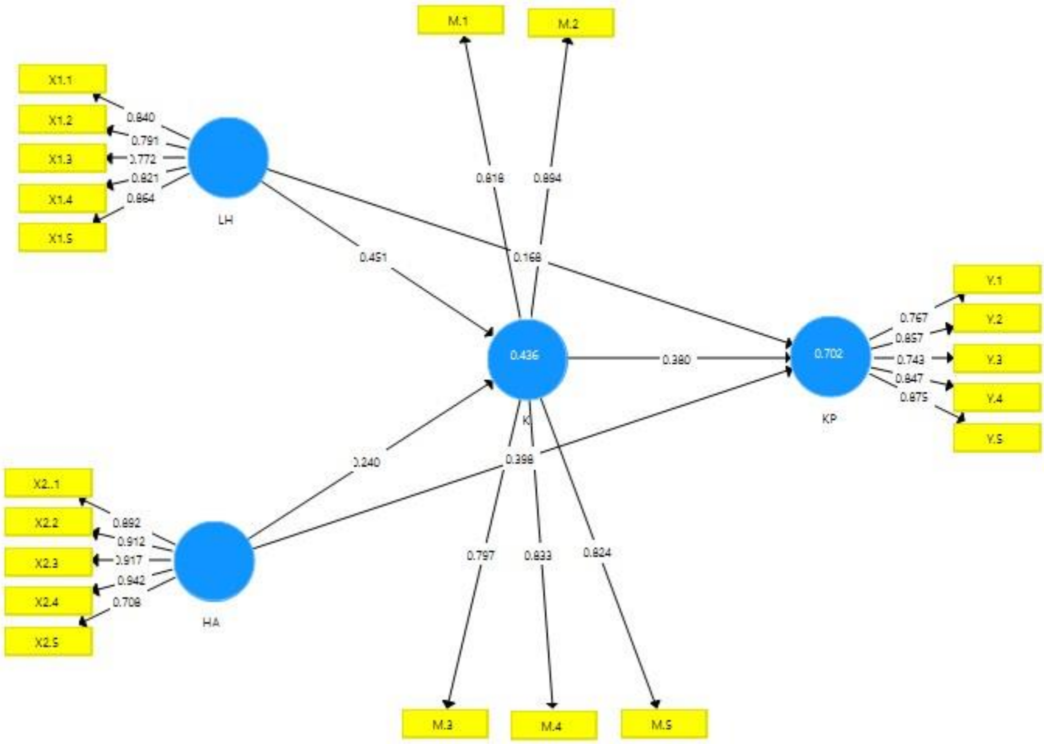

Figure 1. Structural Model Estimates

Halal labeling has a positive effect on product purchase decisions with a strandar coefficient of 0.168, (significant at 0.000 < 0.05). Students know that halal labeling describes that the product is guaranteed to be halal. This is because halal labeling is a guarantee provided by the Institute for the Assessment of Food, Drugs and Cosmetics of the Indonesia Ulema Council (LPPOM MUI) as an authorized institution in testing the halalness of products in accordance with Islamic law. As a country with the largest Muslim population in the world, of course, halal labeling is closely related to product marketing (Hadi & Mukhsin, 2024)

Furthermore, an analysis was carried out to determine the role of product quality in carrying out its role as a variable mediator between the influence of halal labeling and *halal awareness* on the decision to purchase halal products for students. The results of the product quality mediation effect test are presented in Table 5.

Tabel 5 Result of Testing The Mediating Effect of Kuality Product

No.	*Structural paths*	*β*	*T Statistics*	*p-value*	*Conclusion*
1	LH → K → KP	0.173	3.860	0.000	Signifikan

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

2	HA → K → KP	0.094	2.310	0.021	Signifikan

Based on the results of the test of the effect of product quality mediation (K) on Table 5, it is known that the results of the test of the indirect influence of halal labeling on the purchase decision of halal products through product quality of 0.173 with a p-value of 0.000 <significance level of 0.005, then halal labeling indirectly significantly affects the purchase decision of halal products through product quality, in other words product quality is able to mediate halal labeling on purchase decisions consumer halal products.

On the other hand, the results of testing the indirect influence *of halal awareness* on halal product purchase decisions of 0.094 with a p-value of 0.021 significance < a significance level of 0.05, then *halal awareness* indirectly affects the decision to purchase halal products through product quality, in other words product quality is able to mediate halal labeling on consumers' halal product purchase decisions.

CONCLUSION

The study concludes that all measurement instruments used to assess students' purchasing decisions for halal products are valid and reliable, based on rigorous validity and reliability tests. Using SEM-PLS, the research identifies significant relationships between Halal Labeling (LH), Halal Awareness (HA), Product Quality (K), and Purchasing Decisions (KP). **Halal labeling** positively influences purchasing decisions but does not significantly affect product quality, suggesting a psychological and marketing role. In contrast, **halal awareness** significantly impacts both purchasing decisions and **product quality**, with the latter acting as a key mediator. This highlights the critical role of **halal awareness and product quality** in shaping consumer behavior, especially in predominantly Muslim markets. Consequently, producers should enhance both halal labeling and product quality to better align with consumer expectations and drive purchasing decisions.

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PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

REFERENCE

Apriany, A., & Gendalasari, G. G. (2022). Pengaruh Kesadaran Merek Dan Citra Merek Terhadap Keputusan Pembelian Produk AMDK SUMMIT. *Jurnal Ilmiah Manajemen Kesatuan*, *10*(1), 105–114. https://doi.org/10.37641/jimkes.v10i1.1278

Aslan, H. (2023). The influence of halal awareness, halal certificate, subjective norms, perceived behavioral control, attitude and trust on purchase intention of culinary products among Muslim costumers in Turkey. *International Journal of Gastronomy and Food Science*, *32*. https://doi.org/https://doi.org/10.1016/j.ijgfs.2023.100726

Hadi, A., & Mukhsin, Dr. Moh. (2024). The Influence of Halal Labeling, Product Quality, and Price on Purchasing Decisions for Tteokbokki Products. *KnE Social Sciences*. https://doi.org/10.18502/kss.v9i16.16230

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2021). *Partial Least Squares Structural Equation Modeling (PLS-SEM) Using R: A workbook*. Springer.

Hanif, I., & Prayoga, A. (2023). *Peringkat Naik! Indonesia Raih Top 2 Pada Sektor Pangan Halal Dunia*. Halal.Unair.Ac.Id. https://halal.unair.ac.id/blog/2023/12/27/indonesia-raih-top-2-pada-sektor-pangan-halal-dunia/

Lestari, P. I., & Supriyanto, A. (2022). *Keputusan Pembelian Mi Samyang Pada Generasi Z: Ditinjau dari Labelisasi Halal, Halal Awareness, Harga, dan Promosi*. *01*(02), 12–22.

Nugraha, W. S., Chen, D., & Yang, S. H. (2022). The effect of a Halal label and label size on purchasing intent for non-Muslim consumers. *Journal of Retailing and Consumer Services*, *65*(December 2021), 102873. https://doi.org/10.1016/j.jretconser.2021.102873

Nurrahman, A., Cahyani, M. D., Nurfatmawati, L., Wibowo, H., & Analysis, C. F. (2023). *Developing E-Learning Evaluation Instruments : A Study in Vocational*. *3*(3), 163–174.

Purnomo, I. A., Pratikto, H., & Suharsono, N. (2024). The Influence of Halal Certification and Halal Awareness on Purchasing Decisions. *East Asian Journal of Multidisciplinary Research*, *3*(4), 1567–1578. https://doi.org/10.55927/eajmr.v3i4.8861

Salsabila, M. (2023a). Pengaruh Labelisasi Halal Terhadap Keputusan Pembelian Konsumen. *Youth & Islamic Economic Journal*, *04*(02), 22–28.

Salsabila, M. (2023b). Pengaruh Labelisasi Halal Terhadap Keputusan Pembelian Konsumen. *Youth & Islamic Economic Journal*, *04*(02), 22–28.

Saputra, A. A., & Jaharuddin. (2022). Pengaruh Sertifikasi Halal, Kesadaran Halal, dan Celebrity Endorse terhadap Keputusan Pembelan Produk Zoya. *Al Qalam: Jurnal Ilmiah Keagamaan Dan Kemasyarakatan*, *16*(4), 1521–1535.

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TECHNOLOGY INFRASTRUCTURE CHALLENGES IN THE DIGITAL ERA

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ABSTRACT

Introduction/Main Objectives: Social inequality is a deliberate result of urban areas having adequate internet access to technological knowledge while rural communities and affluent groups lack the necessary infrastructure and resources. Limited access to the internet is not high-speed and inadequate, increasing inequality and injustice in society. **Background Problems:** The development of the times makes humans must be ready for change. One of the things needed is technological infrastructure. **Novelty:** There is no research related to the importance of technology infrastructure in dealing with. **Research Methods:** This research uses a qualitative research type and literature study approach that conducts a literature review on recent developments in technology infrastructure, challenges in the digital age, and their impact on organizations. Literature studies can provide a robust framework and a deep understanding of the research topic. This data is obtained from various sources, such as articles, journals, and books. **Finding/Results:** List the empirical finding(s) and write a discussion in one or two sentences. **Conclusion:** The results and discussion in this study are to protect against cyber threats, and data protection must be a top priority for organizations, such as data encryption, firewalls, and sophisticated security software

Keywords: Internet, Digital technology, Data Security, Digital Era, Technology Infrastructure

INTRODUCTION

Technology is defined as the knowledge of how to fulfill specific human goals in a way that can be specified and reproduced. (Zhang et al., 2024). Technology development is a critical driver in the manufacturing industry's transition to a circular economy as a path to sustainability (Parolin et al., 2024). Not only does this technological transformation bring about profound changes in people's lives, but it also poses significant social challenges. One of the first emerging issues is the widening digital divide between individuals and communities. Access to technology and digital resources is unequal, especially for those from lower economic strata or remote areas. (Sudiantini et al., 2023).. The development of information and communication technology (ICT) has had a significant impact on human civilization. However, this development has been uneven, so the digital divide remains a severe problem. In Indonesia, the digital divide is particularly pronounced between more developed and less developed regions and between urban and rural areas. (Jayanthi & Dinaseviani, 2022022)..

The digital age brings complex challenges with increasingly sophisticated technological advancements. Although technology continues to evolve, inequality of access to technology remains a pressing issue, especially in developing countries where limited infrastructure and high costs hinder access to technology. This disparity can increase social tensions. People who do not have access to technology feel unequal in opportunities and information. In addition, overuse of technology can negatively impact mental and emotional health, such as digital addiction, feelings of anxiety, and depression. (Santoso et al., 2023).
The digital divide is a complex issue that arises from multiple factors, including socioeconomic disparities, geographic location, age, race, and gender. These gaps perpetuate inequality by limiting access to educational resources, employment opportunities, essential services, and civic participation. Bridging these gaps has become an urgent challenge as the digital world increasingly shapes our daily lives, and access to technology becomes a prerequisite for full engagement in society. (Haniko et al., 2023).

Digital technology has also revolutionized operations in various industries (Qi et al., 2024). Technology infrastructure plays a crucial role in ensuring the success of digital transformation and the development of the digital economy. (Aulia et al., 2023).. A reliable network enables fast and efficient access to databases and applications, while good connectivity allows users to access information from various locations easily. A well-managed database stores critical information such as customer, transaction, and inventory data that must be kept intact to keep the data accurate and secure. In facing the era of digital transformation that accelerates technology adoption, understanding and mastering technology security is essential (Hoshmand et al., 2023).

Based on this background, researchers want to know how vital technology infrastructure is in facing the challenges of the digital era. Challenges in the digital era include various things, from changes in people's lifestyles to transformations in how businesses are run. Reliable technology infrastructure is the main factor to overcome these challenges. In facing challenges in the fast-changing digital era, technology infrastructure must be able to adapt to evolving needs and can be expanded easily to accommodate rapid growth.

Technology Infrastructure

Community activities that emphasize the inefficiency of their organizational activities with the structures used to support them with physical form are also called infrastructure. (Sekarsari, 2019). In the organization, information technology is one of the crucial resources for excelling in the current era of globalization. Technology Infrastructure is an investment in hardware, software, and services such as consulting, education, and training that are shared throughout the company or all business units. Technology Infrastructure includes hardware such as mainframe computers, servers, laptops, and PDAs, while software such as operating systems and applications have many functions; besides, there are also databases to store important data. (Maisharoh & Ali, 2020).

Challenges in the Digital Age

One of the critical challenges is infrastructure readiness. Many organizations, especially in remote areas or developing countries, face technological infrastructure limitations such as poor internet connections and inadequate hardware. In addition, the existing infrastructure may not be compatible with the new technology to be integrated, requiring expensive upgrades or replacements. Security and privacy are significant concerns when integrating technology. With the increasing risk of cyberattacks, organizations must implement adequate security measures to protect their data and systems. In addition, managing and protecting personal data is becoming increasingly complicated with the growth in the amount of data collected and stored. (Yahya, 2024). The factors that influence the challenges in the digital era are:

a. Changes in Consumer Behavior

With better access to the internet, consumers are now more educated and informed. With the internet, they can easily search for and compare products, services, and prices. Consumers actively seek information and inspiration through the Internet. This includes product search, comparison, and purchase. In e-commerce, trends have changed consumer patterns from offline to online shopping, affecting business strategies. Consumers increasingly rely on mobile devices, such as smartphones and tablets, to conduct product searches, compare prices, and make purchases. This situation encourages marketing strategies focusing more on the mobile device user experience.

b. Global Competition

Broad market access through the digital age allows companies from all over the world to compete openly. Digital competition allows companies from all over the world to compete in a more open and connected market. Companies compete not only with local competitors but also with global players who can quickly enter local markets. Technology has reduced entry barriers for new businesses, leading to many start-ups that seek to disrupt established industries. Competition comes not only from large companies but also from innovations made by smaller, more flexible start-ups.

c. Cyber Security Threats

Cybersecurity threats are one of the main challenges that must be faced in an increasingly connected digital era. Several cyber security threats are increasingly widespread, namely:

d. Malware Attack

Malware such as viruses, worms, and trojans can infiltrate a computer system or network and cause damage, data theft, or take over control of the system.

e. Phishing and Spear Phishing

Phishing attacks involve attempts to obtain sensitive information, such as passwords or financial information, by posing as a trusted entity. Spear phishing is a more targeted attack targeting specific individuals or organizations with more customized information.

f. DDoS (Distributed Denial of Service) attack

DDoS attacks aim to make network services or resources unavailable to legitimate users by streaming massive internet traffic to a target website or server.

g. Data Breach

System hacks that result in unauthorized access to personal or sensitive data, such as credit card or identity information, can harm companies and consumers and damage a company's reputation.

h. Ransomware Attack

Ransomware is malware that encrypts the victim's data and then demands a ransom payment to obtain the decryption key. This attack can cause huge financial losses and significant operational disruptions for organizations.

i. Software Vulnerability Exploitation

Software that is out of date or vulnerable to attacks can be exploited by attackers to enter a system or network, steal data, or spread malware.

j. Privacy Breach

Unauthorized data collection and use by companies or third parties can threaten the privacy of individuals and lead to severe legal and reputational consequences for companies.

PROCEEDING ICEBESS - SEP 2024
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The Role of Technology Infrastructure in Addressing the Challenges of the Digital Age

Appropriate information technology infrastructure is essential for organizational success in the digital era. This technology infrastructure has a central role in facing the challenges of the digital era, namely:

a. Electronic Business and Commerce: Information technology development has changed how businesses operate. E-commerce allows companies to have online stores, facilitate electronic transactions, and reach global markets more easily. Efficient inventory management, finance, and customer management systems are supported by information technology.
b. Online Education and Learning: E-learning and online courses provide wider and more flexible access to education. With online platforms, individuals can learn from anywhere and anytime, according to their needs.
c. Digital Health and Telemedicine: Information technology is essential in efficient and affordable healthcare. Telemedicine enables remote consultations with doctors via video or phone, making it easier for patients to get medical care without visiting a healthcare facility physically.

METHOD, DATA, AND ANALYSIS

The third part of the manuscript, "Method, Data, and Analysis" is designed to describe the nature of the data. The method should be well elaborated and enhance the model, the approach to the analysis and the step taken. Equations should be numbered as we illustrate. This section typically has the following sub-sections: Sampling (a description of the target population, the research context, and units of analysis; the sample; and respondents' profiles); data collection; and measures (or alternatively, measurements).

The research methodology should cover the following points: Concise explanation of the research's methodology is prevalent; reasons for choosing the particular methods are well described; the research's design is accurate; the sample's design is appropriate; the data collection processes are properly conducted; the data analysis methods are relevant and state-of-the-art.

RESULT AND DISCUSSION

Implementation of technology infrastructure in addressing cyber security

A critical aspect of the research results is data security awareness. With cyber threats on the rise, data protection is becoming a top priority for organizations. Implementing security measures is an integral part of a data protection strategy to face the challenges of the digital age. Some of the security measures that can be implemented, as mentioned, include:

a. Data Encryption: Data encryption involves converting data into an unreadable format without the proper encryption key. Data Encryption provides an additional layer of protection against unauthorized access to sensitive data while the data is in storage and in transit.
b. Firewalls are software or hardware devices that monitor and control network traffic. They can help identify and block unauthorized access to systems or networks and protect against attacks such as DDoS attacks.
c. Advanced Security Software: Advanced security software, such as antivirus, antispyware, and antimalware, is vital to detect and address evolving security threats. This software should be updated regularly to ensure optimal protection against cyberattacks.

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

d. Strong Authentication Mechanisms: Implementing robust authentication mechanisms, such as two-factor authentication or token-based authentication, can help prevent unauthorized access to sensitive accounts or systems.
e. Continuous Security Monitoring: Continuous security monitoring of networks, systems, and applications is essential to detect and respond to cyberattacks quickly. The monitoring involves the use of sophisticated security monitoring and security analytics software.
f. Periodic Updates and Maintenance: Software and systems should be updated regularly to fix discovered security vulnerabilities and keep up with the latest developments in security technology.
g. Security Awareness Training for Employees: Regular security awareness training can help improve their understanding of good security practices, such as avoiding phishing attacks and utilizing available security tools.

Based on the results of this study it is relevant to the findings of the researchers (Sudiantini et al., 2023) entitled the application of base 64 cryptography for website URL (Uniform Resource Locator) security from SQL Injection attacks, which states that the integrity of the encrypted URL will be better maintained because the SQL injection method cannot be applied to URLs that have been encrypted. This is the same as the research results, which state that the implementation of technological infrastructure in the face of cyber security uses secure data encryption.

The Importance of Collaboration Between the IT Department and Management in Managing Technology Infrastructure

Collaboration between the IT department and management is crucial in managing technology infrastructure. Here are some reasons why this collaboration is so important:

a. Shared Vision: The IT department and management must have an aligned vision of how technology can support business goals. By collaborating, technological decisions can be directed following the organization's strategy.
b. Security and Compliance: The IT department is responsible for maintaining technology security and compliance. Collaboration with management helps identify risks and take appropriate action to ensure data and system security.
c. Budget and Resources: Management is vital in budget and resource allocation. Collaboration ensures that technology investments are made wisely and efficiently.
d. Decision Making: Technology decisions should involve both parties. The IT department provides technical insight, while management considers the overall business impact.
e. Innovation: Collaboration allows innovative ideas to emerge. IT departments and management can work together to identify new opportunities supported by technology, such as using the latest technology or implementing more efficient solutions.

The results of this study are relevant to the researchers' findings (Alfito et al., 2024) entitled Digital Transformation: Impact, Challenges, and Opportunities for Digital Economic Growth. This research also highlights the importance of collaboration and partnership in transforming the shipping industry. Thus, this study provides an in-depth understanding of the role of information technology in management transformation in the shipping industry while highlighting the challenges faced and their practical implications.

CONCLUSION

A good technology infrastructure is a strong foundation for dealing with changes and challenges in the digital era. Organizations and individuals will find it difficult to adopt new technologies without adequate infrastructure to enable better connectivity. A fast and reliable internet network enables access to information, collaboration, and efficient communication. Technology infrastructure also includes security and data protection systems. In a digital age prone to cyber threats, a secure infrastructure is essential to protect sensitive information and reduce the risk of data leakage. A good technology infrastructure helps improve operational efficiency. Automation, system integration, and efficient data management can reduce costs and increase productivity. A reliable technology infrastructure enables innovation and business transformation. With good infrastructure support, organizations can adopt new technologies, develop better products and services, and adapt to market changes.

REFERENCE

Alfito, Ramadhan, D., Ramadhan, A. D., Mutiara Negara, R., Azzahra, R. W., Rahmadi, B., Radianto, D. O., Perkapalan, P., & Surabaya, N. (2024). *Peran Teknologi Informasi dalam Transformasi di Industri Perkapalan*. *2*(2), 30–51.

Arikunto, S. (2014). *rosedur Penelitian: Suatu Pendekatan Penelitian*. Rineka Cipta.

Aulia, B. W., Rizki, M., Prindiyana, P., & Surgana, S. (2023). Peran Krusial Jaringan Komputer dan Basis Data dalam Era Digital. *JUSTINFO | Jurnal Sistem Informasi Dan Teknologi Informasi*, *1*(1), 9–20. https://doi.org/10.33197/justinfo.vol1.iss1.2023.1253

Haniko, P., Sappaile, B. I., Gani, I. P., Sitopu, J. W., Junaidi, A., Sofyan, & Cahyono, D. (2023). Menjembatani Kesenjangan Digital: Memberikan Akses ke Teknologi, Pelatihan, Dukungan, dan Peluang untuk Inklusi Digital. *Jurnal Pengabdian West Science*, *2*(05), 306–315. https://doi.org/10.58812/jpws.v2i5.371

Hoshmand, M. O., Ratnawati, S., & Korespondensi, E. P. (2023). Analisis Keamanan Infrastruktur Teknologi Informasi dalam Menghadapi Ancaman Cybersecurity. *Jurnal Sains Dan Teknologi*, *5*(2), 679–686. https://doi.org/10.55338/saintek.v5i2.2347

Jayanthi, R., & Dinaseviani, A. (2022). Kesenjangan digital dan solusi yang diterapkan di Indonesia selama pandemi COVID-19. *JURNAL IPTEKKOM Jurnal Ilmu Pengetahuan & Teknologi Informasi*, 24(2), 187-200. http://dx.doi.org/10.17933/iptekkom.24.2.2022.187-200

Maisharoh, T., & Ali, H. (2020). *Faktor-faktor yang mempengaruhi Infrastruktur Teknologi Informasi: Keuangan, Fleksibilitas TI, dan Kinerja Organisasi*. 1–9.

Parolin, G., Arnbjerg, J., Eriksen, H. A., McAloone, T. C., & Pigosso, D. C. A. (2024). Enabling environmental sustainability and circularity assessment in technology development: The Value-Impact Scanner. *Sustainable Production and Consumption*, *49*(June), 92–103. https://doi.org/10.1016/j.spc.2024.06.015

Pusparani, M. (2021). Faktor Yang Mempengaruhi Kinerja Pegawai (Suatu Kajian Studi Literatur Manajemen Sumber Daya Manusia). *Jurnal Ilmu Manajemen Terapan*, *2*(4), 534–543. https://doi.org/10.31933/jimt.v2i4.466

Qi, Y., Sajadi, S. M., Baghaei, S., Rezaei, R., & Li, W. (2024). Digital technologies in sports: Opportunities, challenges, and strategies for safeguarding athlete wellbeing and competitive integrity in the digital era. *Technology in Society*, *77*(February), 102496. https://doi.org/10.1016/j.techsoc.2024.102496

Santoso, G., Supiati, A., Komalasari, L., Hafidah, I., & Toton Subandi, E. (2023). Kewarganegaraan digital di era industri 4.0: tantangan dan peluang membangun masyarakat global yang inklusif. *Jupetra: Jurnal Pendidikan Transformatif*, *02*(02), 141–146.

Sekarsari, N. (2019). ICT dan Kinerja Organisasi: Peran Mediasi Inovasi. *Jurnal Akuntansi*.

Sudiantini, D., Ayu, M. P., Aswan, M. C. A. S., Prastuti, M. A., & Apriliya Melani. (2023). Transformasi Digital : Dampak, Tantangan, Dan Peluang Untuk Pertumbuhan Ekonomi

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E-ISSN : 2528 - 671X

Digital. *Trending: Jurnal Ekonomi, Akuntansi Dan Manajemen*, *1*(3), 21–30.

Yahya. (2024). Cendikia pendidikan. *Cendekia Pendidikan*, *3*(6), 101–112.

Zhang, H., Zhang, C., & Wang, Y. (2024). Revealing the technology development of natural language processing: A Scientific entity-centric perspective. *Information Processing and Management*, *61*(1), 103574. https://doi.org/10.1016/j.ipm.2023.103574

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DETERMINANTS FACTORS OF CAREER CHOICE AMONG STUDENTS OF OFFICE ADMINISTRATION EDUCATION STUDY PROGRAM, FEB UNY AFTER COMPLETING STUDIES (AFTER GRADUATION)

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ABSTRACT

This study aims to determine the factors that influence graduates of the Office Administration Education Study Program FEB UNY in choosing a career or profession and the priority of career choices after completing their studies. The research was a quantitative research with an ex-post facto approach. The independent variables in this study were influencer environment, interest in office administration profession, financial condition, personal capacity, and culture, while the dependent variable was a career opportunity in office administration. The respondents of the study were 333 students of the Office Administration Education Study Program FEB UNY. Data collection used questionnaires that already meet the requirements of validity and reliability. Data analysis was carried out descriptively and statistical analysis of multiple regression techniques. The results showed that together, influencers, interest in the profession, financial resources supporting studies, personal capacity, and culture significantly affect career opportunities of office administration. These five variables contribute 17.6% to career opportunities in office administration. Individually, the factors of interest in the profession in office administration, financial conditions, and culture significantly affect career opportunities in the field of office administration while the factors of influence (influencer) and personal capacity do not have a significant influence on career opportunities in the field of office administration. The priority for graduate career choices after completing their studies is as office practitioners, followed by MICE entrepreneurs, educators, and finally educational laboratory administrators.

Keywords: Culture Influencers, Financial Resources, Personal Capacity, Interest, Career Opportunities, Influencer Interest, Financial Resources, Personal Capacity, Culture, Office Administration, Career Opportunities, Office Administration Career

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INTRODUCTION

Educators, especially teachers, are a profession that must be specially prepared through an educational process over a relatively long period. A teacher is required to master competencies as a professional educator. Law of the Republic of Indonesia Number 14 of 2005 concerning Teachers and Lecturers demands that teachers have four competencies. They are pedagogical, personality, social, and professional competencies. These four competencies are a complete and holistic unit so that a person emerges as a professional teacher. One of the educational institutions that prepare professional teachers is the university. It has special study programs which are commonly called Institute of Teachers' Education (LPTK). Through this education program, students are provided with learning materials that cover the four competencies. The graduates of the study program are expected to apply the competencies after they complete their studies. In other words, they are expected to choose a profession as an educator or teacher. However, not all graduates choose the profession as educators. An indicator of this phenomenon is the offers from several vocational high schools in Central Java when they open to recruit teachers of Office Administration. However, there were no applicants from the Office Administration Education Study Program. This phenomenon is quite surprising because the office administration education study program in Central Java and DIY produces quite large numbers of graduates every year.

Interest in the profession or career choice could go linearly with the educational background. Based on such facts, it needs research to find out what factors motivate someone to choose a profession as a teacher so that it might be used as a guide in the selection of new students admitted to education study programs, especially Office Administration. Choosing a particular profession is related to a person's interest. For this reason, the issue of interest needs to be studied because any profession will be successful if the person involved has a high interest in pursuing it. The high level of interest and competency acquired during study will generate work readiness for graduates. Regarding work readiness, Slameto (2015) explains that (1) all development aspects of interaction (mutual influence), (2) physical and spiritual maturity need to gain benefits from the experience, (3) experiences have a positive influence on readiness, and (4) basic readiness for certain activities is formed in certain periods during the formative period of development.

Many factors influence a person's work readiness. Still, according to Slameto (2015), the determinants of work readiness include the three aspects: 1) physical, mental, and emotional conditions; 2) needs, motives, and goals; and 3) other skills, knowledge, and insight. Apart from interests, a person's choice of profession is also influenced by some factors, including family socioeconomic status, the study program (educational background), interest in a particular profession, financial sources to support studies, personal capacity, career opportunities, and culture concerning the educational background. According to Santrock (2009:194), socio-economic status refers to the categorization of people who can be differentiated according to the economic characteristics, education, and work of their parents. Meanwhile, Soerjono Soekamto (2011:251) states that social status is a person's general position in society to other people, such as social environment, prestige, and rights and obligations. Based on the conclusions of Indah Margiati (2020), even though it is low, the family's socio-economic status influences children's work readiness. Based on the results of research on women processing agricultural products conducted by Hayati (2023), concluded that the personal capacity of women who process soybean-based agricultural products in Mataram is seen from various aspects (business planning, identification and solving problems, taking advantage of opportunities, and maintaining continuity business) falls into very high criteria. Career opportunities are job/work opportunities that a person hopes to achieve. Everyone who studies in a particular field or study program hopes to get a job in the field they are studying, after completing their studies.

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

Discussing the fields that can be pursued by graduates of the Office Administration Education Study Program, FEB UNY, based on the Merdeka Curriculum - Merdeka Belajar 2020, there are 4 profiles to choose from, namely: office administration educator, office practitioner, educational laboratory administrator, and MICE entrepreneur. The availability of these 4 types of graduate profiles may influence graduates' choice of profession after completing their studies.

METHOD, DATA, AND ANALYSIS

The research was quantitative research using an ex-post facto design. The research aimed to examine the influence of variables on career opportunities or professional choices among students of office administration after completing their studies. The required data is collected naturally, without manipulation and intervention. The collected data was then analyzed descriptively to determine the characteristics of the respondents. And, it continued to statistical analysis to determine the influence of the independent variable on the dependent variable by involving the population of all 333 students of the Office Administration Education Study Program, Faculty of Economics and Business, UNY who were registered in the 2022/2023 academic year. All students were taken as respondents. Then, this research was population research.

In this research, 6 variables were involved, 5 acting as independent variables and 1 being a dependent variable. The independent variables in this research include (1) family socio-economic status, (2) environmental influence on the choice of profession, (3) interest in the office administration profession, (4) financial sources to support studies, (5) personal capacity, and (6) culture work in office administration. The dependent variable is career opportunities after completing studies. The data collection technique was distributing questionnaires to respondents. For reasons of ease of sending and filling out questionnaires for respondents, the questionnaires are packaged in Google Form format and sent online. The collected data was quantitative data which is then analyzed using statistical techniques to conclude to answer the problems. During the collection of data, an instrument is used in the form of a questionnaire containing several questions or statements to collect information regarding career or professional development for students after graduation. The questionnaire contains several questions about variables that are thought to influence career/professional development, including family socioeconomic status, environmental influence on the choice of profession/career, interest in the profession, financial sources to support studies, personal capacity, and culture of the office administration profession, on career opportunities/choices in the field of office administration. All instruments have met the requirements for validity and reliability.

Then, the obtained data was analyzed quantitatively and grouped based on the variables. The grouped data is presented in a table, referring to criteria. Next, the data was analyzed statistically using the SPSS program to determine the effect of each independent variable on the dependent variable. The next step is to present and discuss the research results. And it continued by concluding the data analysis. Not only the conclusions at the end of the presentation of the results, several suggestions or recommendations are also made to related parties to follow up the conclusions.

RESULT AND DISCUSSION

A. Respondent Characteristics

The respondents were 333 undergraduate students from the Department of Administrative Education, Office Administration Education Study Program, Faculty of Economics and Business, Yogyakarta State University. The location is at UNY's central campus,

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

Karangmalang, Jln. Colombo No. 1, Yogyakarta. The respondent's family background is explained based on several criteria. First, the Parent's educational background. The majority (51.65%) had a high school education (Senior High School). And, it is followed by higher education of 24.02%, junior high school of 14.11%, and elementary school of 10.21%. Second, Parents' occupation. The highest number were self-employed/sellers (33.93%). It is followed by laborers/farmers (27.63%), civil servants/TNI (Army)/POLRI (Police) (15.02%), private employees (14.41%), and unemployment (9.01%). Third, Parents' income. The highest number (35.44%) had an income of under Rp. 1,500,000. It followed by 33.93% with income between Rp. 1,500,000 – IDR 2,500,000) and 16.52% with income between IDR 2,500,000 – IDR. 3,500,000. And there are 14.11% with income above IDR 3,500,000. The largest portion of family expenses for children's college needs (36.04%) is in the range of IDR 4,000,000 – IDR. 6,000,000. It continued by 26.73% in the range of IDR 2,000,000 – IDR 4,000,000. After that, it was followed by spending less than IDR 2,000,000 (21.92%). And 15.32% of parents' spending on college need are above IDR 6,000,000. The house conditions of the respondent's family are permanent construction (80.48%), semi-permanent (17.72%), and wooden houses (1.80%).

B. Finding

The obtained data was analyzed using the SPSS program aiming to find out the factors that influence career opportunities. The analysis involves 5 independent variables (environment that has the potential to influence the choice of profession, interest in the profession, financial sources to support studies, personal capacity, and culture of the office administration profession, on career opportunities/choices in the field of office administration) and a dependent variable (career opportunities), obtained a summary of the results as follows.

1. The influence of the independent variable on the dependent variable

The independent variables consist of factors influencing the choice of profession, interest in the profession, financial sources to support studies, personal capacity, and the culture of the office administration profession. The dependent variable is career opportunities in the field of office administration. A summary of the results of multiple regression analysis using the SPSS program is presented in Table 1.

Table 1. Summary results of multiple regression analysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.434[a]	.188	.176	5.01477

a. Predictors: (Constant), Culture, Influencers, Financial Resources, Personal Capacity, Interest

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1904.317	5	380.863	15.145	.000[b]
	Residual	8223.359	327	25.148		
	Total	10127.676	332			

a. Dependent Variable: Career Opportunities
b. Predictors: (Constant), Influencer, Interest, Financial Resources, Personal Capacity, Culture

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

Hypothesis 1 is: Together the influencing factors, interest in the profession, financial sources to support studies, personal capacity, and the culture of the office administration profession, influence career opportunities in the field of office administration. Based on the analysis results in Table 1, the F value is 15,145 with a significance value of 0.00. These results show that all independent variables (consisting of factors influencing the choice of profession, interest in the profession, financial sources to support studies, personal capacity, and culture of the office administration profession) together influence career opportunities in the field of office administration. Since the significance value is <0.05, means the effect is significant. The analysis results show the contribution of the independent variables together to the dependent variable of 17.6%.

2. The influence of the independent variable on the dependent variable individually

A summary of the analysis results of the influence of each independent variable on the dependent variable is presented in Table 2.

Table 2. Summary of the analysis results of the influence of each independent variable on the dependent variable.

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	8.448	3.106		2.719	.007
Pemberi Pengaruh	-.044	.072	-.031	-.615	.539
Ketertarikan/ Minat 1	.313	.104	.165	3.020	.003
Sumber Keuangan	.208	.097	.108	2.136	.033
Kapasitas Diri	.112	.073	.079	1.545	.123
Budaya	.463	.086	.295	5.368	.000

a. Dependent Variable: Career Opportunities

The career opportunity in this research, according to the study program taken by respondents, is a career in the field of office administration.

a. The Influence of 'Influencer' Factors on Career Opportunities

Influencers in this context are factors that influence a person in determining their career choice after completing their studies. In this research, influencers include (1) input or considerations from parents, (2) siblings or relatives who also choose an office administration education study program or similar study program, (3) close relatives who provide input in choosing an office administration study program, (4) friends who gave encouragement and motivation to choose an office administration education study program, (5) teachers at previous educational institutions, and (6) course/training experience that has been attended in the field of office administration. The tested hypothesis reads: Environmental factors influence career opportunities in the office administration field.

From the results of the data analysis (see Table 2), the t-value is -.615 and the significance value is 0.539. These results indicate that the influence of the environment on career opportunities is not significant because the significance value is higher than 0.05. Thus, hypothesis 1 is rejected. The conclusion is that environmental factors do not significantly influence career opportunities in the field of office administration.

b. The influence of interests on career opportunities

Interest is the respondent's tendency to choose a profession in the field of office administration, especially an office administration teacher, which includes aspects: the enthusiasm to become a teacher after graduating from the office administration education study

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

program, the profession of a teacher in the field of office administration is a pride, satisfaction with the subjects taught during study and the willing to continue studying for a Masters in Office Administration Education Study Program,
Hypothesis 3 is tested: Interest influences career opportunities.
The results of data analysis (see Table 1) obtained a t-value of 3.020 and a significance value of 0.003. These results indicate that the influence of interest on career opportunities is significant because the significance value is lower than 0.05. Thus, hypothesis 2 is accepted. The conclusion is that the interest factor has a significant influence on career opportunities in the office administration field.

c. The influence of financial resources on career opportunities

Financial sources are financial support for educational purposes while the respondent is in college. Aspects of financial resources include support for tuition fees from the family, self-confidence due to having a good source of funds, financial support in the form of loans from banks, and the importance of financial support for achieving career opportunities. The proposed hypothesis 3 is that financial support influences career opportunities.
The results of the data analysis (See Table 1) show a t-value of 2.136 and a significance value of 0.033. These results indicate that the effect of financial support on career opportunities is significant because the significance value is lower than 0.05. Thus, hypothesis 3 is accepted. The conclusion is that financial support has a significant effect on career opportunities in the field of office administration.

d. The influence of personal capacity on career opportunities

Personal capacity is a person's ability to face challenges, obstacles, and environmental changes. In this research, personal capacity includes aspects: (1) suitability of academic abilities possessed and the characteristics of the study program, (2) suitability of skills mastered and the study program taken, (3) ability to apply the knowledge into life practice, (4) the ability to think logically and creatively to find new ideas, (5) the ability to take the initiative in dealing with problems, (6) the ability to communicate in dealing with the environment, (7) the ability to complete work well, and (8) the ability to explore and ask other people to solve the problems.
Hypothesis 4 reads: personal capacity influences career opportunities.
The results of the data analysis (see Table 1) show a t-value of 1.545 and a significance value of 0.123. These results indicate that the influence of the environment on career opportunities is not significant because the significance value is higher than 0.05. Thus, hypothesis 4 is rejected. The conclusion is that personal capacity does not significantly influence career opportunities in the field of office administration.

e. The influence of culture on career opportunities

Culture is the values and expectations that are considered good by an organization (the UNY Office Administration Education Study Program) which are then expressed in various rules that underlie the behavior of members of the organization. Culture includes (1) traditions that live in the study program environment where you study, (2) environmental conditions in the study program, (3) suitability of the study program taken and the characteristics of the previous educational institution, (4) suitability of the study program and the family occupation, (5) the level of discipline that exists in the study program, (6) politeness and positive behavior of members of the study program, and (7) the importance of a teacher understanding organizational culture.
Hypothesis 5 proposed: Culture influences career opportunities.
The results of the data analysis (see Table 1) show a t-value of 5.368 and a significance value of 0.000. These results indicate that the influence of culture on career opportunities is significant because the significance value is lower than 0.05. Thus, hypothesis 5 is accepted.

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

The conclusion is that culture has a significant influence on career opportunities in the field of office administration.

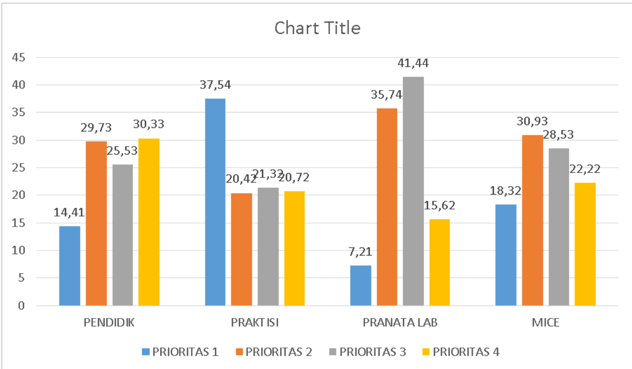
3. Career Choice after completing studies

The Office Administration Education Study Program, FEB UNY, provides 4 types of graduate profiles that students can choose after completing their studies, office administration educators (teachers), practitioners, educational laboratory administrators, and MICE entrepreneurs. Respondents were asked to choose the order of professional priority after graduating. Based on data analysis, it obtained information about career choices after graduating, presented in Table 1 and Figure 3

Table 3. Priority Scale for Graduates of Office administration Education Study Program

Skala Prioritas Lulusan Prodi Pend. Adm. Perkantoran	Pendidik		Praktisi		Pranata Laboratorium		Wirausahawan MICE	
	F	%	F	%	F	%	F	%
Prioritas 1	48	14.41%	125	37.54%	24	7.21%	61	18.32%
Prioritas 2	99	29.73%	68	20.42%	119	35.74%	103	30.93%
Prioritas 3	85	25.53%	71	21.32%	138	41.44%	95	28.53%
Prioritas 4	101	30.33%	69	20.72%	52	15.62%	74	22.22%

Converted into bar chart form, the data in Table 3 is presented in Picture 1.



***Picture* 1. Diagram of the priority scale of career choices for graduates of the Office Administration Education Study Program, FEB UNY**

From the results of data analysis in Table 3, for the first priority, the most common choice is the practitioner profession (37.54%), followed by MICE entrepreneurs 18.32%, educators 14.41%, and laboratory administrators 7.21%. For the second priority, the majority are laboratory administrators (35.74%), followed by MICE entrepreneurs (30.93%), educators 29.73%, and practitioners 20.42%. The third priority is laboratory administrators (41.44%), followed by MICE entrepreneurs 28.53%, educators 25.53%, and practitioners 21.32%. The fourth priority is mostly educators (30.33%), followed by MICE entrepreneurs 22.22%, practitioners 20.72%, and laboratory administrators 15.62%.

C. Discussion

The results of testing hypothesis 1 show that the influencing factors, interest in the profession, financial sources to support studies, personal capacity, and the culture of the office administration profession together influence career opportunities in the field of office administration. These results are in line with the conclusions of Trong Luang Noven, et al with the title "Factors Influencing the Career Choices of Students Majoring in Economics in the

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

Post-covid-19 Pandemic Period: A Case Study at a Private University in Vietnam (2023)" that influencer factors, interests, financial resources, and career opportunities are important elements in influencing students' decisions in choosing a major.

The results of testing hypothesis 2 show that partially, influencing factors of people (parents, siblings, friends, relatives, and teachers) and previous training experience do not have a significant effect on career opportunities in the field of office administration. These results are in line with Nadhifah Nanda (2015) regarding accounting career choices. One of the conclusions stated that the previous training did not have a significant effect on career opportunities. The conclusion shows that factors surrounding people do not have a significant influence in determining the respondent's career choice, indicating that students are more likely to use personal considerations and their thoughts in determining or choosing a career. Different research by Edi Puwanto (2012) on factors influencing junior high school students' career exploration, shows the students' perceptions of their parents' aspirations do not influence academic achievement but influence students' career exploration behavior.

The results of testing hypothesis 3 show that the interest factor has a significant effect on career opportunities in the field of office administration. This finding is in line with Gibson (1988) who states that interest in certain objects is a reflection of attitudes consisting of three components. They are affection, cognition, and actions. These three components will determine a person's behavior or attitude when dealing with certain objects or events, including in determining the career choice. Also, the findings support Nadia Rista Yonanda1 et al. (2022) that talents and interests are very important for students to gain the knowledge, attitudes, and skills needed to determine their future profession or career according to the chosen study program. Interest in certain professions or careers can be fostered through the career guidance process, carried out by teachers, especially guidance and counseling teachers.

The result of testing hypothesis 4 shows that financial support has a significant effect on career opportunities in the field of office administration. The financial resources provide certainty to respondents to complete their studies (as they are supported by adequate financing) so that they can plan their professional or career choices early after graduating. The main source of funds for respondents is from parents. However, currently, many parties are helping to provide tuition fees in the form of scholarships. These parties can come from the government, private institutions, or other institutions specifically to help students finance their studies. Examples of scholarships are scholarships for academic achievement improvement (PPA), the KIP (Smart Indonesia Card) program, and tuition assistance from various companies such as Sampoerna Foundation, BCA Finance, Djarum scholarship plus, and others (https://www.universitas123.com/news/macam-macam-beasiswa-yang-ada-di-perguruan-tinggi-ada-incaranmu. Education funders not only come from within the country, but a number of institutions abroad, both government and private, also offer scholarships for students who are interested in studying in their country. The availability of educational funds seems to be able to increase enthusiasm and trigger respondents to complete their studies.

The results of testing hypothesis 5 show that personal capacity does not significantly influence career opportunities in the field of office administration. It can be identified through a self-evaluation process that is carried out objectively and professionally. In this research, personal capacity includes aspects of the suitability of academic abilities possessed and the characteristics of the study program, suitability of skills mastered and the study program taken, ability to apply the knowledge into life practice, the ability to think logically and creatively to find new ideas, the ability to take the initiative in dealing with problems, the ability to communicate in dealing with the environment, the ability to complete work well, and the ability to explore and ask other people to solve the problems. Carrying out self-assessment regarding these various aspects requires an attitude of openness, honesty, and objectivity. Due to the difficulty of meeting these criteria, there is an opportunity for responses to provide assessments

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

that do not fully reflect personal condition so that the influence of personal capacity on career opportunities is not significant. Different results to Mukson, et al. (2019), the ability had a significant effect on employee performance at the Muara Teweh Regional Drinking Water Company (PDAM).

The results of testing hypothesis 6 show that culture has a significant effect on career opportunities in the field of office administration. Culture is related to the values and expectations held by an organization and acts as a reference for members' behavior. Regarding the office administration profession, the work culture formed in an organization could inspire office administration workers to foster a work environment that is conducive to working and interacting with other parties. In turn, it produces optimal performance. The findings of the research are supported by Lidwina Mulinbota Moron et al. (2023), that there was an influence of work culture on employee performance at the Ikamala Savings and Loans Cooperative. Work culture has a significant effect on employee performance. Another research conducted by Siti Sarah (2018), that work culture had a positive and significant effect on employee performance at CV. X-Sport International Makassar.

The findings related to students' choice of profession or career after graduating are interesting because the top priority of graduates' choice is not educators but practitioners. This is certainly very unfortunate because students of education and teacher training are prepared to become teachers after graduating. This finding answers the fact that many vacancies for teaching in vocational schools are not applied by graduates of the Office Administration Education Study Program.

CONCLUSION

Based on data analysis the conclusions are as follows:

1. Together, influencing factors (influencers), interest in the profession or career, financial resources to support studies, personal capacity, and the culture of the office administration profession, have a significant influence on career opportunities in the field of office administration. These five variables together contribute 17.6% to career opportunities in the field of office administration.
2. Individually, the factors that influence career opportunities in the field of office administration can be explained as follows.
   a. Culture has a significant influence on career opportunities in the field of office administration with a contribution of 29,5%.
   b. Influencing factors (influencer) have no effect on career opportunities in the field of office administration.
   c. The interest factor has a significant influence on career opportunities in the field of office administration with a contribution of 16.50%.
   d. Financial support has a significant effect on career opportunities in the field of office administration with a contribution of 10.80%.
   e. Personal capacity has an effect of 7.3% but is not significant on career opportunities in the field of office administration.
   f. Culture has a significant influence on career opportunities in the field of office administration with a contribution of 29.5%.
3. The top priority career choice for graduates after completing their studies is as a practitioner, MICE entrepreneur, educator, and educational laboratory administrator.

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

REFERENCE

Anang Kistantyo. (2008). Pengaruh Klik Sosial dan Koneksi Terhadap Kesuksesan Karir Hirarkhi. *Jurnal manajemen dan kewirausahaan.* Universitas Petra Surabaya Vol. 10 No. 1 (2008): MARCH 2008.

Badan Pusat Statistik. (Februari 2019). Katalog BPS 3101015. *Perkembangan Beberapa Indikator Utama Sosial-Ekonomi Indonesia.*

Dalil, Soendoro (2002), P*aradigma baru manajemen sumber daya manusia*, Penerbit Amara Book, Yogyakarta.

Danang Harya Saputra. (2019). Analisis Faktor Yang Mempengaruhi Kecepatan Kenaikan Karir Guru Sekolah Dasar. *Jurnal kependidikan: Penelitian inovasi pembelajaran*. Home > Vol 3, No 2 (2019).

Devi Damayanti, Arini Widyowati (2018). *Humanitas: Indonesian Psychological Journal* UAD Vol.15, No.1, Februari 2018.

Edi Purwanta, Faktor Yang Memengaruhi Eksplorasi Karier Siswa SLTP. *Cakrawala Pendidikan: Jurnal ilmiah pendidikan* Vol. No. 2. 2012.

Ekaningrum Indri F, (2002), The Boundaryless Career Pada Abad ke –21, *Jurnal Visi (Kajian ekonomi manajemen dan akuntansi)*,Vol.IX. No.1 Februari 2002, FE Unika Soegijapranata Semarang.

Erniza Pratiwi, Deddi Prima Putra, Laura Syahrul (2017). Analisis faktor-faktor yang mempengaruhi pilihan karir mahasiswa farmasi di Universitas Andalas. *Pharmaciana Universitas Ahmad Dahlan* Vol.7, No.1, Mei 2017

Fory Armin Naway (https://rakyatgorontalo.com/2022/08/10/kapasitas-diri/)

Gibson, J.L., Ivancevich, J.M, Donnelly, J.H.Jr., et al. (2012). *Organizations:Behaviour structure, processes (14th ed.)*. New York: McGraw-Hill Irwin.

Glueck, Greer, C.G (1997), *Strategy ang human resouces. A general managerial perspective*, NJ: Prentice Hall, Englewood Clifft.

Hayati. Kapasitas Diri Perempuan Pengolah Hasil Pertanian Berbasis Kedelai Di Kota Mataram. *Agimansion*, Vol. 24 No. 1, April 2023 E-ISSN: 2798-5385.

Indah Margiati. 2020. Pengaruh Status Sosial Ekonomi Keluarga, Praktik Kerja Industri , Pendidikan Karakter, Terhadap Kesiapan Kerja Siswa Kelas XII SMK Negeri Jawa Tengah. *Skripsi*, Semarang. UNNES.

Lidwina Mulinbota Moron, Henrikus Herdi, Yoseph Darius Purnama Rangga. Pengaruh Budaya Kerja Terhadap Kinerja Karyawan Koperasi Simpan Pinjam Ikamala. *Jurnal Kompetitif*, Vol. 12, No. 1, hal. 01 – 14, Edisi Januari - Juni 2023.

Mukson, Hairudinor, Setio Utomo. Pengaruh Kemampuan, Motivasi Kerja dan Budaya Kerja terhadap Kinerja Karyawan Perusahaan Daerah Air Minum (PDAM) Muara Teweh. *Jurnal Bisnis dan Pembangunan*, Edisi Juli- Desember 2019 Vol 8, No. 2, E-ISSN 2541-187X 1.

Nadhifah Nanda (2015) Faktor-faktor Yang Mempengaruhi Pemilihan Karir Mahasiswa Akuntansi Sebagai Akuntan Publik & Akuntan Non Publik. *Artikel*. Sekolah Tinggi Ilmu Ekonomi Perbanas Surabaya.

Nadia Rista Yonanda, Mega Iswari, D. Daharnis. (2022). Pentingnya Minat dan Bakat dalam Memilih Program Studi yang Prospektif di Industri Melalui Bimbingan dan Konseling Karir di Sekolah Menengah Kejuruan. *Al-Ihtiram: Multidisciplinary Journal of Counseling and Social Research*. Vol. 1, No. 1 (2022).

Ninik Widyastuti, Arini Widyowati (2015). Hubungan Antara Locus Of Control Internal Dengan Kematangan Karir Pada Siswa Smk N 1 Bantul. *Humanitas: Indonesian Psychological Journal*. Universitas Ahmad Dahlan. Vol.12 No.2 Agustus 2015

Robbins, S.P. & Judge, T.A. (2013). *Organizational behaviour (15thed.).* Boston: Pearson.

Santrock, Jhon W. 2009. *Perkembangan anak*. Edisi 11. Jakarta: Erlangga.

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

Schein, E.H. (2009). *The corporate culture survival guide*. San Francisco: Jossey-Bass.

Simamora Henry. (2001), M*anajemen sumber daya manusia*, Penerbit STIE YKPN, Yogyakarta.

Siti Sarah. (2018). Pengaruh Budaya Kerja Terhadap Kinerja Karyawan Pada CV. X-Sport Internasional Makassar, *Skripsi* Program Studi Manajemen Fakultas Ekonomi dan Bisnis. Universitas Muhammadiyah Makassar.

Soerjono Soekanto, 2011. *Sosiologi sesuatu pengantar*. Jakarta: PT Raja Grafindo.

Slameto. (2015). *Belajar dan faktor-faktor yang mempengaruhi*. Jakarta: Rineka Cipta.

Suyanto, dan Asep Jihad. 2013. *Menjadi guru profesional: Strategi meningkatkan kualitas guru di era global*. Jakarta. Esensi.

Trong Luan Nguyen, et.al. Factors affecting students' career choice in economics majors in the COVID-19 post-pandemic period: A case study of a private university in Vietnam. *Journal of Innovation & Konowledge*. Volume 8 Issue 2. April-June 2023.

Undang-undang Republik Indonesia Nomor 14 tahun 2005 tentang Guru dan Dosen. https://www.detik.com/bali/berita/d-6574428/, dikutip 20 Mei 2023.

Woro Ayu Priyanggaeni, Juliani Prasetyaningrum, Siti Nurina Hakim. Hubungan Antara Kepercayaan Diri Dan Sikap Sadar Gender Dengan keputusan Karir Pada Remaja Akhir perempuan. *Indigenous: Jurnal Ilmiah Psikologi* Vol. 6 No. 1. Mei 2002.

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

THE INFLUENCE OF INNOVATION AND PRODUCT QUALITY TOWARDS SUSTAINABLE COMPETITIVE ADVANTAGE AT WAI-TIDDO NATURE TOURISM, LUWU REGENCY

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ABSTRACT

Introduction/Main Objectives: This study aims to determine the influence of innovation and product quality on sustainable competitive advantage at Wai-Tiddo Nature Tourism, Luwu Regency. The primary data is gathered from all business owners in the area through observation, interviews, and questionnaires, ensuring a comprehensive understanding of the local business environment. The total number of respondents is 90 people, carefully selected to represent a diverse cross-section of the tourism sector in the region. The questionnaires are conducted both directly and indirectly, allowing for a flexible approach that accommodates the varied availability of the respondents and maximizes participation. Furthermore, the secondary data, including relevant documents and supplementary interviews, are meticulously collected from authoritative sources such as the Central Bureau of Statistics and the Local Government Tourism Office. This combination of primary and secondary data provides a robust foundation for analysis, ensuring that the findings are accurate and reliable. The collected data is then rigorously analyzed using multiple regression analysis with the assistance of the SmartPLS program. This powerful tool enhances the precision and reliability of the statistical evaluation. This method allows for a detailed exploration of the relationships between innovation, product quality, and sustainable competitive advantage, revealing the nuanced dynamics. The results show that all the hypotheses in this study are accepted, indicating that innovation and product quality positively and significantly affect Sustainable Competitive Advantage at Wai-Tiddo Nature Tourism, Luwu Regency. These findings underscore the critical importance of continuous innovation and high product quality for businesses seeking to sustain a competitive edge in the increasingly competitive nature tourism market.

Keywords: Sustainable competitive advantage, Luwu regency, Product quality, Tourism market

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INTRODUCTION

Nature-based tourism has gained popularity, notably after the COVID-19 epidemic. The Tourism and Creative Economy Indonesia reports that travel trends are shifting toward Nature, Ecotourism, Wellness, and Adventure (NEWA) tourism due to the tourism sector's revival. Natural tourism focuses on observing nature in natural settings (Newsome et al., 2019). South Sulawesi followed suit and embraced its natural beauty. Luwu has 227 villages and 21 sub-districts in its 3,000.25 km^2 regency. Mountains, forests, rivers, and oceans surround it. Wai-Tiddo is one of numerous Luwu tourist spots known for its panoramic river view and natural beauty. Nature-based tourism involves natural activities. Nature-based tourism can also turn outdoor recreation into economic tourism (Tangeland, 2011). In 2017, local societies that own land in Wai-Tiddo began working together to add financial value, such as a spring whose water drips from the top of the cliff through tree roots and is surrounded by pitcher plants, ATV arena, flying fox, sky bike, offroad adventure track, camping ground, villa, etc. Therefore, visitors began to notice it. Locals without land started selling directly to visitors. Finally, the local economy grew. Additionally, it boosts the regional and national economies.

Nevertheless, this phenomenon creates more business owners or sellers offering the same products/services. Therefore, business owners at Wai-Tiddo need to develop more innovations and improve their product/service quality to achieve a sustainable competitive advantage. A business achieves sustainable competitive advantage by executing a strategy that generates value without being replicated by existing or potential competitors. Furthermore, other businesses cannot easily duplicate this strategy (Barney, 2000).

A realistic strategy for Chinese companies: internal marketing innovation and sustainable competitive advantage (SCA) (Ren et al., 2009). The results showed that several environmental factors and their interactions affect marketing creativity. Market, technological, regulatory, and customer behavior changes affect marketing campaign performance. The study emphasizes understanding and responding to these components to maintain a competitive edge in a changing market. Looking at the company's former competitive advantage can also yield SCA. Here, we analyze the company's prior successes to see how to improve them or adapt them to the market. Reevaluating and reusing competencies may lead to innovation and long-term success. This process analyzes competitive advantages and creates a market to boost corporate success. A comprehensive strategy ensures that the company's efforts, from product development to consumer engagement, support its strategic goals, resulting in more coherent and successful marketing campaigns. This study proposed a marketing innovation approach to assist managers in finding SCA for their firms. By providing a systematic framework for studying and adopting creative marketing techniques, the study helps managers navigate the complex competitive landscape. Besides identifying SCA sources, this strategy helps organizations improve their marketing to respond to changing consumer tastes and environmental conditions. Thus, firms can boost their market status, customer loyalty, and success in the Chinese market.

Innovation and long-term competitiveness can benefit Indonesian medium and small food processing companies through collaborative networks (Najib et al., 2014). These networks—which often include distributors, suppliers, research institutes, and competitors—provide SMEs with information, tools, and resources they couldn't get along. Working together helps these companies to combine their skills and build new techniques, products, and business models. It will improve their market position. The study shows collaborative networks drive innovation and solve difficulties in food processing. Collaboration allows SMEs to try new things, learn from one another, and respond rapidly to market developments. They can overcome their size and resource constraints by working together, making innovation more achievable. The study finds that cooperation networks boost innovation but cannot guarantee long-term competitiveness. Teamwork promotes invention, but other factors are needed to turn

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ideas into long-term competitive advantages. Strong management, savvy marketing, efficient operations, and the ability to scale innovations are essential to maximize long-term competitiveness from collaboration.

Innovation has three main areas. Creating new ideas demands a mindset sensitive to current events, especially in fields like education that are always changing. This perspective change requires a deeper look at new trends, issues, and possibilities, not just ideas. This could mean using innovative methods to engage and assess students or rethinking teaching and learning. Education-changing ideas can range from general theories and frameworks to specific systems and techniques (Robbins, 2015). We also work hard to turn these innovative ideas into products and services. Invented ideas must be refined and tested. Developing a product from a concept requires study, experiments, and iterative development cycles. This may spur creative pedagogical methods, digital resources, curricula, and instructional technologies to boost student accomplishment. Going from idea to product or service is crucial to spreading innovation and making adoption easier.

Our third focus is continuous improvement initiatives aiming to improve innovative outputs. Innovation is an ongoing process that requires examination, criticism, and development (Kline & Rosenberg, 2010). Improvements ensure innovation’s benefits last. Adjusting educational offerings in response to user feedback, changing demands, or expanding successful ideas may be necessary. Educational innovations must evolve to meet students’, teachers’, and society’s requirements. Innovation requires fresh ideas, new products and services, and continuous improvement (Schuh et al., 2011). They work together to ensure that innovation isn’t just about coming up with ideas but also about translating them into real results that may boost growth and bring long-term benefits, especially in education.

Products can be things, experiences, events, people, locations, property, data, organizations, and ideas (Kotler & Keller, 2009). This broad definition emphasizes that product quality includes intangibles that improve customer experience. Quality must exceed consumer expectations, and pricing must meet or exceed consumers' needs. Ultimately, product quality is about how well a thing does its job (Andreasen & Kotler, 2000). All the crucial features that influence a product’s functionality and appeal are included. Durability is essential among these attributes. Value makes people willing to pay more for a long-lasting, affordable product. Product reliability matters too. This measure evaluates a product’s reliability. Brand loyalty is higher for things customers can trust when they have troubles. Products that value customer satisfaction, performance, and safety should prioritize this (Yoon et al., 2020).

METHOD, DATA, AND ANALYSIS

The study was conducted in the Wai-Tiddo Tourism Area in Luwu Regency, South Sulawesi. This region is renowned for its stunning natural landscapes and rapidly growing tourism sector. The study was conducted over a three-month duration, spanning from May to August 2023, to facilitate the gathering of extensive data, including various stages of tourist engagement. The study was conducted at a crucial time to observe both the busiest and least busy periods, allowing for a comprehensive grasp of the dynamics in this region's tourism industry. The study used the Smart PLS tool to analyze the technical data using a qualitative analysis approach known as Structural Equation Modeling (SEM). Structural equation modeling (SEM) is a robust collection of statistical methods that allows for the simultaneous examination of intricate connections among various variables (Yudatama et al., 2019). This makes it especially suitable for studies aimed at comprehending diverse interactions within a system. This study employed Structural Equation Modeling (SEM) to investigate the complex interconnections among different elements that impact the business environment in the Wai-Tiddo Tourism Area.

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Structural equation modeling (SEM) enables the creation of models that incorporate both dependent (endogenous) and independent (exogenous) factors, which can be directly seen or assessed using different indicators (Mueller & Hancock, 2018). These variables are frequently intricate constructs that represent bigger notions. A single indication cannot quantify them but are instead derived from numerous observed factors. In the context of this study, constructs such as "business performance," "customer satisfaction," or "marketing innovation" can be formed by combining several observable indicators such as sales growth, customer feedback ratings, or the number of new items released. The structural equation modeling (SEM) framework employed in this study combines factor analysis with route analysis, a statistical technique used to uncover the latent relationships among observable variables. This method elucidates both direct and indirect connections between constructs (Hair Jr et al., 2021). This combination of techniques offers a thorough framework for comprehending the structural interconnections among the various components of the Wai-Tiddo tourism industry. By utilizing Structural Equation Modeling (SEM), the research is capable of verifying the measurement model, ensuring that the constructs are appropriately depicted by their indicators, and examining the postulated structural model, assessing the cause-and-effect connections between the constructs.

One must be familiar with the study's structural model before utilizing the PLS-based SEM (Partial Least Squares Structural Equation Modeling) technique (Sarstedt et al., 2020). All of the investigated constructs and variables are laid out in the structural model, which is also the theoretical framework. It outlines the hypothesized interplay between many components in a visual and intellectual map. The structural model used in this investigation is shown in Figure 1 of the following. This model was developed to represent the intricate interrelationships of the relevant constructs—including innovation, product quality, and sustained competitive advantage. One or more indicators measure the latent variable for each component. The indicators convey information about the hidden constructs through observable variables.

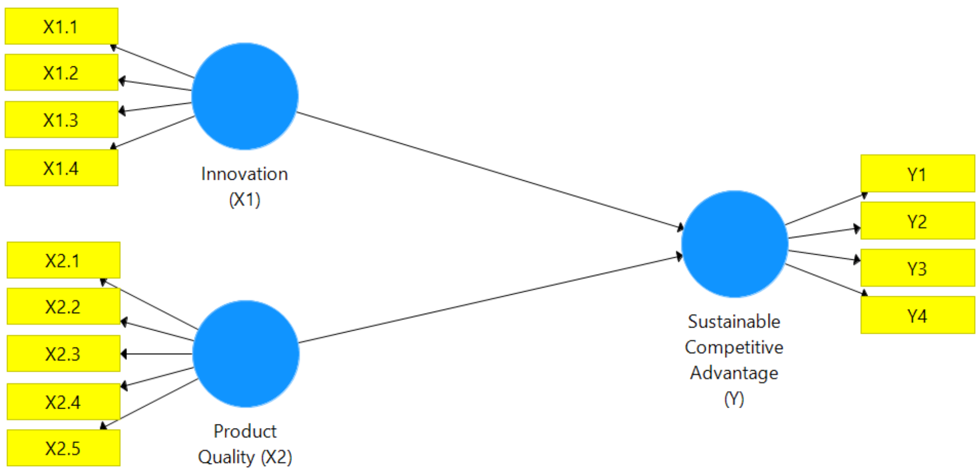


Figure 1. Structural equation model

The study population comprises entrepreneurs who engage in the sale of goods and provision of services within the Wai-Tiddo natural tourism region. These individuals have a vital impact on molding the tourist experience and, consequently, the overall success of the tourism business in this region. The choice to include these business owners in the study is deliberate, as they are directly affected by and play a role in the economic activities within the tourism region. The sampling procedure employed was incidental sampling, a non-probability strategy that selects samples based on convenience and accessibility. This technique was

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

selected based on the study area's characteristics, which has a scattered population and limited accessibility to all eligible respondents within the study timeframe. Incidental sampling enables various business owners to incorporate a comprehensive range of viewpoints and experiences. Although this technique does not ensure the same level of representativeness as probability sampling, it is useful in exploratory research when the goal is to gather insights rather than make broad predictions.

This study's determination of representative samples is based on a well-established guideline in Structural Equation Modeling (SEM) research. It suggests that the sample size should be determined by multiplying the number of indicators by 5 to 10 (Koran, 2020). This approach guarantees that the sample size is sufficient to produce dependable and accurate results, especially when working with intricate models that incorporate numerous variables and constructs. Within the SEM model, 18 indicators were utilized to measure different constructs in this study. The observed variables in question are crucial for comprehending the underlying constructs within the Wai-Tiddo Tourism Area, such as business performance, customer satisfaction, or innovation effectiveness. Every indicator has a vital role in capturing the intricacies of these constructs, and accurately measuring them is crucial for the reliability of the SEM analysis. The calculation for determining the sample size is as Equation 1.

$$\text{Sample size} = \text{Number of indicators x } 5 \quad (1)$$

According to this calculation, it is necessary to have a minimum sample size of 90 respondents for this study. The sample size adequately captures the range of responses and offers valuable insights into the relationships being studied in the SEM model. By ensuring that the sample size meets the minimum threshold, the study aims to achieve accurate estimates of the model parameters, minimize sampling error, and improve the generalizability of the findings. In addition, using a larger sample size would be advantageous as it can enhance the estimates' accuracy and the effectiveness of the statistical tests. Increasing the sample size would enable more in-depth subgroup analyses and improve the reliability of the SEM results. Considering the practical limitations of time and resources, selecting a sample size of 90 achieves a good balance between maintaining methodological rigor and ensuring feasibility.

This approach to sample size determination demonstrates a strong emphasis on methodological rigor in the research design. By following established guidelines and ensuring a sufficient sample size, the study is more likely to generate reliable and practical findings that enhance our understanding of the factors that impact business performance and competitiveness in the Wai-Tiddo Tourism Area. The sample of 90 respondents provides a strong basis for the subsequent analysis and interpretation of the data, aligning with the overall goals of the research.

RESULT AND DISCUSSION

In this study, technology, customer interaction, new service development, and service delivery system are the four indicators used to measure innovation, the first exogenous variable. These indicators help us understand how innovation affects the dependent variables in the study by capturing distinct aspects of innovation. New Service Development stands out among these indicators with a score of 3.98 (see Figure 2a), as shown in Table 1. This impressive number shows that creating new services is one of the main areas of innovation in the Wai-Tiddo natural tourist area. The region’s continuous endeavors to broaden and improve its tourist offers are mirrored in the emphasis on new service development. The desire to increase tourism, adapt to changing visitor expectations, and take advantage of new economic prospects propels this innovative push. Respondent answers include Strongly disagree (SD), Disagree (D), Somewhat agree (SA), Agree (A) and Strongly agree (SA).

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

Table 1. Response to respondent's thoughts on innovation

No.	Indicator	Respondent's answer					Score	Average
		SD	D	SA	A	SA		
		1	2	3	4	5		
1	Use of technology	3	8	17	55	7	325	3.61
2	Customer interaction	2	1	20	53	14	346	3.84
3	New service development	2	0	15	53	20	359	3.98
4	Service delivery system	3	6	18	43	20	341	3.79

The significant growth and improvement of tourist services in the region is the reason for the high value of New Service Development. Adding novel features meant to provide visitors with one-of-a-kind and unforgettable experiences falls under this category (Henrique de Souza et al., 2020). By consistently innovating new services, the Wai-Tiddo area can set itself apart from competing attractions and maintain its competitive edge in the tourism industry.

The second exogenous variable in this study is product quality (X2). Emotion, empathy, responsiveness, warranties, and reliability are the five main indications to evaluate X2. Customers' happiness and pleasure in the Wai-Tiddo natural tourist area are boosted by these metrics, representing various aspects of product quality. The Empathy indication stands out with a score of 4.20 (see Figure 2b), firmly positioned in the "Agree" group, as seen in Table 2 above. With such a high score, it's clear that clients greatly appreciate the compassionate service in the Wai-Tiddo tourist region. A high level of empathy is essential for improving product quality since it directly affects the customer experience by making them feel cared for.

Table 2. Response to respondent's thoughts on product quality

No.	Indicator	Respondent's answer					Score	Average
		SD	D	SA	A	SA		
		1	2	3	4	5		
1	Physical evidence	4	0	12	41	33	369	4.10
2	Reliability	3	2	15	43	27	359	3.98
3	Responsiveness	4	5	16	46	19	341	3.78
4	Guarantee and assurance	2	2	13	44	29	366	4.06
5	Empathy	2	0	9	46	33	378	4.20

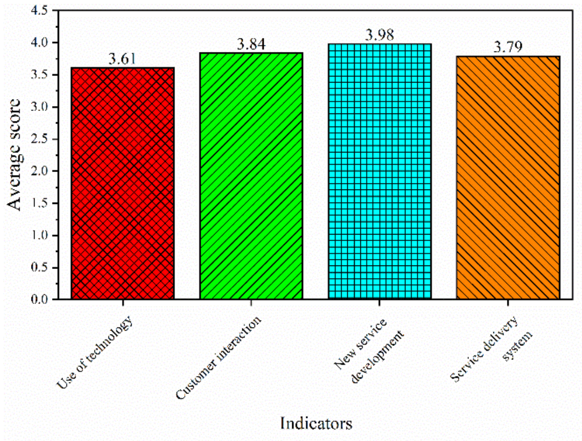
The high score on the empathy indication indicates that customers in the Wai-Tiddo area feel their issues are truly heard and handled by the staff. Managerial and staff interactions with guests majorly contribute to this high rating. In particular, managers must respond courteously and respectfully when guests inquire about anything or need help. Using this tack, you may win over skeptical consumers and make them feel appreciated. The tourist sector places a premium on human encounters, making empathy in customer service all the more crucial. Customers are more likely to be satisfied, return, and spread the word about a great experience when they feel that the staff is trying their best to make them feel special.

The first endogenous variable in this study is Sustainable Competitive Advantage (Y), which is measured using four key indicators: Price and Value, Consumer Delight, Consumer Experience, and Product Attributes that can be recorded. The indicators in question encompass various factors contributing to sustainable competitive advantage. They specifically target aspects that bolster businesses' long-term success and distinctiveness in the Wai-Tiddo natural tourism area. According to Table 3, the Consumer Delight indicator has a score of 4.05 (see Figure 2c), which falls into the "Strongly Agree" category. Based on the data, it is evident that Consumer Delight is the primary factor contributing to sustainable competitive advantage in the Wai-Tiddo tourism area. The significant focus on Consumer Delight implies that tourists experience a profound feeling of joy and contentment when they receive particular services that surpass their expectations.

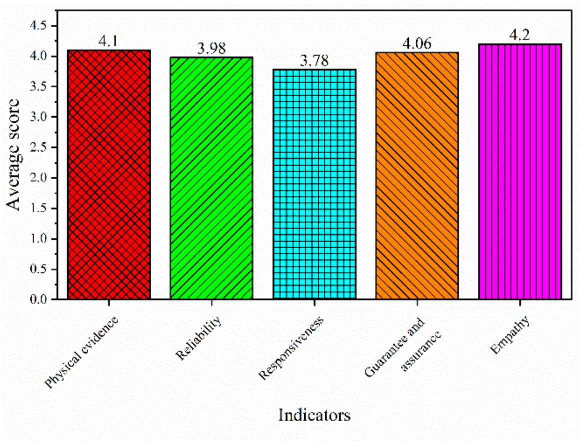
Table 3. Response to respondent's thoughts on sustainable competitive advantage

No.	Indicator	Respondent's answer					Score	Average
		SD	D	SA	A	SA		
		1	2	3	4	5		
1	Price and value	4	4	11	53	18	347	3.85
2	Pleasing to customer	3	1	16	38	32	365	4.05
3	Customer experience	1	4	14	45	26	358	3.97
4	Product attributes that can be logged	5	2	24	31	28	345	3.83

The high score achieved by Consumer Delight underscores the significance of crafting extraordinary and unforgettable experiences for visitors. Competition and choices abound in tourism, and consistently pleasing customers can set you apart. When tourists are pleased, they are more inclined to come back, suggest the destination to others, and positively impact the overall reputation of the area. This finding emphasizes the strategic emphasis on delivering customized and outstanding services that meet tourists' specific preferences and desires. Through this approach, businesses in the Wai-Tiddo natural tourism area can cultivate happiness and satisfaction among their customers, leading to increased loyalty and a sustainable competitive edge. For instance, providing unique experiences, customized services, or thoughtful gestures that make tourists feel appreciated can significantly improve their perception of the service. Whether it's a personalized tour, a surprise upgrade, or a warm and attentive interaction with staff, these small but meaningful actions contribute to the customer's overall satisfaction. The resulting emotional connection not only enhances the individual experience but also strengthens the overall brand image of the tourism area (Huang & Liu, 2018).



(a)



(b)

PROCEEDING ICEBESS - SEP 2024
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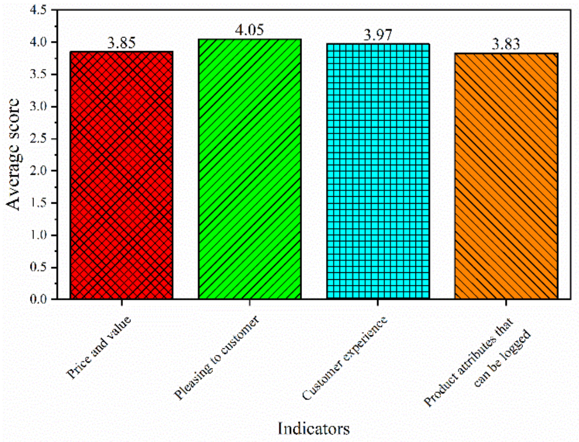

(c)

Figure 2. Summary of respondent results on a) innovation, b) product quality and c) sustainable competitive advantage

In Table 4, the outer loading values for Innovation (X1), Product Quality (X2), and Sustainable Competitive Advantage (Y) are larger than 0.5. This indicates strong individual item dependability because the study's indicators are well-aligned with their latent components. If each indicator has an outer loading value above 0.5, it contributes significantly to the construct it measures, validating the model's construct validity. Outside loadings and AVE values are used to evaluate convergent validity. Convergent validity is essential if indicators measuring a construct converge on a single idea. This can be assessed using the AVE value, which shows the construct's variation relative to measurement error. AVE scores for Innovation (X1), Product Quality (X2), and Sustainable Competitive Advantage (Y) are more than 0.5 in this study. The latent construct explains more than half of the variance in its indicators if its AVE value is larger than 0.5. The indicators' representation of Innovation, Product Quality, and Sustainable Competitive Advantage supports the assessment model's convergent validity.

Table 4. Convergent validity results

Variable	Items	λ	AVE
Innovation (X1)	X1.1	0.825	0.674
	X1.2	0.838	
	X1.3	0.844	
	X1.4	0.774	
Product quality (X2)	X2.1	0.675	0.572
	X2.2	0.760	
	X2.3	0.805	
	X2.4	0.828	
	X2.5	0.703	
Sustainable competitive advantage (Y)	Y1	0.660	0.550
	Y2	0.809	
	Y3	0.794	
	Y4	0.726	

Table 5 shows that all data are discriminant valid because the Heterotrait-Monotrait Ratio (HTMT) is less than 0.9 for every pair of constructs. In structural equation modeling (SEM), discriminant validity is essential to model validation. It makes sure that the constructs being measured are separate and not too correlated with each other. A more recent and rigorous criterion for evaluating discriminant validity than older approaches, such as the Fornell-Larcker

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

criterion, is the HTMT ratio. Contrasting the correlations between markers of distinct constructs (heterotrait) with those of the same construct determines the extent to which a construct is unique. When the HTMT score is low, the constructs assess distinct ideas and do not overlap much, which is good news for discriminant validity. All of the construct pairings (X1, X2, and Y) in this study have HTMT values lower than the 0.9 threshold, which indicates innovation, product quality, and sustainable competitive advantage. This proves the measurement model's discriminant validity by showing that the constructs are sufficiently different.

Table 5. Discriminant validity results

Variable	X1	Y	X2
Innovation (X1)	0.821		
Sustainable competitive advantage (Y)	0.702	0.742	
Product quality (X2)	0.758	0.746	0.757

All the variables in Table 6 have Cronbach's Alpha values higher than 0.6. This finding is noteworthy because it shows that all of the study's variables pass the reliability test. This means that the responses from the respondents are consistent across all of the items used to evaluate the constructs. An important metric of internal consistency, Cronbach's Alpha shows the degree to which a scale or measurement instrument's elements are related to one another. The reliability and validity of a scale are enhanced when Cronbach's Alpha value is high since it shows that the items measure the same underlying concept. Each of the three constructs—Innovation (X1), Product Quality (X2), and Sustainable Competitive Advantage (Y)—has items that accurately measure it. This indicates that the items are cohesive and help validate the construct they claim to evaluate.

Table 6. Reliability test result

Variable	Cronbach's alpha	Criteria
Innovation (X1)	0.839	Highly reliable
Product quality (X2)	0.794	Reliable
Sustainable competitive advantage (Y)	0.707	Reliable

Sustainably Competitive Advantage (the dependent variable) is related to the independent variables of Innovation and Product Quality, as shown in Table 7, which summarizes the results of the hypothesis testing. The focus of the first hypothesis is the effect of Innovation (X1) on Long-Term Competitive Advantage (Y). A favorable correlation between innovation and sustainable competitive advantage is suggested by the coefficient value of 0.321. Businesses in the Wai-Tiddo natural tourist area can sustain a competitive edge due to the favorable correlation between innovation efforts and this indicator. Tourist business can strengthen their competitive standing through innovation, which leads to the development of new products and services, improvements in consumer interactions, and the application of modern technologies. The second theory examines how Product Quality (X2) affects Long-Term Competitive Advantage (Y). Product quality and sustainable competitive advantage have a stronger positive association, as the coefficient value 0.502 indicates. This points to the idea that producing high-quality goods is a more important component in gaining and keeping a competitive edge. Customer expectations, trust, and loyalty are greatly influenced by product quality, which is defined by qualities like responsiveness, empathy, and reliability (Sitorus & Yustisia, 2018). There will be noticeable improvements to the competitive edge of enterprises in the Wai-Tiddo natural tourism area as they keep improving the quality of their products and services.

Table 7. Hypothesis test result

Hypothesis	Relationship	B	T-Value	P-Value	Criteria
H1	X1 → Y	0.321	2.493	0.013	Accepted
H2	X2 → Y	0.502	3.562	0.000	Accepted

As shown by both hypotheses, the positive direction of the correlations suggests that a rise in sustainable competitive advantage is linked to enhancements in innovation and product quality. Research in other fields, such as tourism, has shown that innovation and high-quality products are important factors in gaining a competitive edge (Borsekova et al., 2017). Our findings are in line with that research. According to the positive coefficient values, businesses in the Wai-Tiddo natural tourist area should expect positive results from strategies that focus on improving product quality and innovation. Companies may use these tactics to stand out from the crowd, win over clients, and keep them as customers for the long haul.

CONCLUSION

The study's findings show that all variables are descriptively sound, which bodes well for evaluating the important constructs examined. The study's findings shed light on what drives long-term success in the Wai-Tiddo Nature Tourism area in Luwu Regency's competitive landscape. The main conclusions are these:

1. Research in the Wai-Tiddo Nature Tourism area has shown that new ideas are crucial to maintaining a competitive edge over the long term. Businesses that actively participate in innovative practices, like introducing new services, leveraging technology, and improving customer interactions, can achieve and maintain a competitive advantage in the market. The positive and significant relationship between innovation and sustainable competitive advantage supports this. Businesses can achieve long-term success by embracing innovation. It helps them stand out, satisfy changing client demands, and adapt to changes in the tourism industry.
2. Furthermore, the results stress that high-quality products are essential for maintaining a competitive edge over the long term. Because product quality has a positive and statistically significant effect on sustained competitive advantage, companies in the Wai-Tiddo Nature Tourism area prioritizing providing customers with high-quality goods and services have a better chance of staying ahead of the competition. To maintain a strong position in the market, it is vital to have reliable, responsive, and empathetic products. This will lead to client pleasure and loyalty. In the long run, businesses can get a competitive edge by constantly providing excellent products and services. This will lead to a reputation for excellence, which will draw return visitors and create a loyal customer base.

REFERENCE

Andreasen, A. R., & Kotler, P. (2000). Strategic marketing for nonprofit organization. *Marketing theory: A student text*, 264-279.

Barney, J. B. (2000). Firm resources and sustained competitive advantage. In *Economics meets sociology in strategic management* (pp. 203-227). Emerald Group Publishing Limited.

Borsekova, K., Vaňová, A., & Vitálišová, K. (2017). Smart specialization for smart spatial development: Innovative strategies for building competitive advantages in tourism in Slovakia. *Socio-economic planning sciences*, *58*, 39-50.

Hair Jr, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., Ray, S., Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2021). An introduction to structural

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

equation modeling. *Partial least squares structural equation modeling (PLS-SEM) using R: a workbook*, 1-29.

Henrique de Souza, L., Kastenholz, E., & Barbosa, M. d. L. d. A. (2020). Relevant dimensions of tourist experiences in unique, alternative person-to-person accommodation—sharing castles, treehouses, windmills, houseboats or house-buses. *International Journal of Hospitality & Tourism Administration*, *21*(4), 390-421.

Huang, C.-E., & Liu, C.-H. (2018). The creative experience and its impact on brand image and travel benefits: The moderating role of culture learning. *Tourism Management Perspectives*, *28*, 144-155.

Kline, S. J., & Rosenberg, N. (2010). An overview of innovation. *Studies on science and the innovation process: Selected works of Nathan Rosenberg*, 173-203.

Koran, J. (2020). Indicators per factor in confirmatory factor analysis: More is not always better. *Structural Equation Modeling: A Multidisciplinary Journal*, *27*(5), 765-772.

Kotler, P., & Keller, K. L. (2009). Manajemen pemasaran. In: edisi.

Mueller, R. O., & Hancock, G. R. (2018). Structural equation modeling. In *The reviewer's guide to quantitative methods in the social sciences* (pp. 445-456). Routledge.

Najib, M., Dewi, F. R., & Widyastuti, H. (2014). Collaborative networks as a source of innovation and sustainable competitiveness for small and medium food processing enterprises in Indonesia. *International Journal of Business and Management*, *9*(9), 147-160.

Newsome, D., Rodger, K., Pearce, J., & Chan, K. L. J. (2019). Visitor satisfaction with a key wildlife tourism destination within the context of a damaged landscape. *Current Issues in Tourism*, *22*(6), 729-746.

Ren, L., Xie, G., & Krabbendam, K. (2009). Sustainable competitive advantage and marketing innovation within firms: A pragmatic approach for Chinese firms. *Management research review*, *33*(1), 79-89.

Robbins, S. P. (2015). Teori organisasi: Struktur, desain dan aplikasi, edisi ketiga. In: Jakarta.

Sarstedt, M., Ringle, C. M., Cheah, J.-H., Ting, H., Moisescu, O. I., & Radomir, L. (2020). Structural model robustness checks in PLS-SEM. *Tourism Economics*, *26*(4), 531-554.

Schuh, G., Lenders, M., & Hieber, S. (2011). Lean Innovation–Introducing value systems to product development. *International Journal of Innovation and Technology Management*, *8*(01), 41-54.

Sitorus, T., & Yustisia, M. (2018). The influence of service quality and customer trust toward customer loyalty: the role of customer satisfaction. *International Journal for Quality Research*, *12*(3), 639.

Tangeland, T. (2011). Why do people purchase nature-based tourism activity products? A Norwegian case study of outdoor recreation. *Scandinavian Journal of Hospitality and Tourism*, *11*(4), 435-456.

Yoon, B., Jeong, Y., Lee, K., & Lee, S. (2020). A systematic approach to prioritizing R&D projects based on customer-perceived value using opinion mining. *Technovation*, *98*, 102164.

Yudatama, U., Hidayanto, A. N., Nazief, B. A. A., & Phusavat, K. (2019). Data to model the effect of awareness on the success of IT Governance implementation: A partial least squares structural equation modeling approach (PLS-SEM). *Data in brief*, *25*, 104333.

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THE ROLE OF BIG DATA IN CALCULATING ECONOMIC GROWTH BY SECTOR AND ITS IMPLEMENTATION IN THE ERA OF INDUSTRIAL REVOLUTION 4.0

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ABSTRACT

Introduction: Since the industrial era 4.0 Big Data has grown rapidly in terms of number and volume in Indonesia, along with the advancement of Information technology so that it supports the development of the Internet on Thing and the Internet of System**. Problem:** Big Data is around us and is growing very fast, but how is the utilization and role of Big Data in Indonesia's economic growth? This study aims to examine the role of Big Data in Economic Growth and its implementation. **The Research methode** uses descriptive quantitative analysis of BPS Big Data data from 514 Districts/Cities, 1790 KLBI and 12-year time series (2012-2023) or as many as 11,040,720 national economic sector data to calculate economic growth using the industrial sector output approach (KLBI). **Novelty:** The use of Big Data in quantitative analysis of 11,040,720 national economic sector data sourced from BPS 514 Districts/Cities. **Results and Discussion** of the role of Big Data is proven in calculating economic growth using the KLBI sector method to calculate Real GDP which is then implemented as a source of information in policy making. The policy is implemented in the form of implementing a smart city, which aims to manage and control resources more effectively and efficiently in order to maximize public services, better economic growth brings progress that ultimately improves the welfare of local communities. **Conclusion:** Big Data in calculating economic growth per industrial sector and its implementation plays a very large role and has an impact on regional progress. However, it would be better and have a multiplier effect if Big Data between agencies were collaborated,

Keywords: Big Data 1, Economic Growth 2, KLBI per sector 3, Implementation 4, Collaboration 5

INTRODUCTION

Indonesia as a developing country has entered the Digital era which is in line with the Industrial Revolution 4.0. since 2012. The fourth generation industrial revolution can be interpreted as the involvement of an intelligent system and automation in industry. This is driven by data through machine learning and AI technology which uses Big Data as information material (Forbes). There is a connection between industry players allowing computers to be connected to the Internet and communicate with each other, and ultimately produce decisions without requiring the physical presence of humans, aka a combination of the actual and virtual worlds, the Internet of Things (IoT) and the Internet of Systems (IoS) where it is supported by information sourced from millions (Megabyte Capacity) of data, billions of data (Terrabyte Capacity), even countless data (data explosion) and the complexity of data characteristics, Morabito (2014) calls it Big Data. This Big Data consists of structured data,

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semi-structured data and unstructured data. Gartner (2013) previously stated that 6.4 billion connected devices will be used worldwide in 2016 and the number will reach 20.8 billion in 2020.

Big Data is a term that applies to data that cannot be processed or analyzed using traditional tools because the volume is so large that it must use new methods and tools to get value from this Big Data (Zikopoulos, et.al,2012). In 2016, 5.5 million new devices will be connected every day to collect, analyze, and share data that is categorized as Big Data. Big data is supported by the internet and processed by applications so that it can facilitate all aspects of the economy to be fully automated. Programming language data is semi-structured data, its characteristics do not match the specifications of a relational database, but can be determined to meet the structural needs of certain applications, for example the Extensible Business Reporting Language (XBRL) which was developed to change financial data between organizations and government agencies (Morabito, 2014).

So that finally the digital economy emerged, in the form of e-commerce, wallet payments, m-banking, social media applications such as tik-tok, marketplaces, QRIS sensors, advertising supported by Google Ads, stock investment applications, mutual funds, precious metals and other commodity market investments, cashier applications, corporate financial accounting applications and national financial banking transactions which are all part of a unified system called the digital economy which aims to facilitate transactions, save time and costs and be accurate in nominal terms that bring economic progress. The progress of a country's economy is generally measured by economic growth. Economic growth is a very important indicator for knowing and evaluating the development performance of a country. The condition of economic growth in Indonesia in the 2011-2019 period can be said to be quite good with an average economic growth of 5.32% although in 2020 economic growth in Indonesia contracted by only 2.07% due to the Covid-19 pandemic limiting economic activity. However, with the existence of Information technology which includes big data transfer, it has supported economic activities to continue running so that economic growth rose again in 2021 to 3.7% and recovery to normal in early 2023 with a growth rate of 5.27% (close to the pre-pandemic level) (Agus, M, 2023). The relatively rapid recovery of economic growth after Covid-19 along with the growth rate of internet usage of 5.23% per year has greatly supported the digital economy which contains billions of Big Data. Is there a role for Big Data in economic growth? The study in this article aims to find out how Big Data can produce information on Gross Domestic Product Per Component/Business Sector Structure in Measuring Economic Growth, especially in the Industrial Era 4.0 in Indonesia (2012-2023)? So how does Big Data provide growth information per sector for policy implementation in both government and private sectors?

Economic growth will show the extent to which the government's performance in various economic sectors in producing added value for goods and services or community income in a certain period. The main factors that influence economic development and growth are human resources (HR), natural resources (SDA), capital, socio-culture and technological developments (Sadono, 2015). Patta Rapanna et al (2016) said that economic growth is a process in which income increases without linking it to the population growth rate. If economic growth improves, people's purchasing power will increase and this is an opportunity for companies to increase their sales and company profits will also increase. A country's economic growth can be measured by comparing its GDP. For national measurements, the gross domestic product (GDP) of the current year with the previous year because the measurement can only be done with quarterly or annual data. Calculating gross national income (GDP) can be done with three approaches, namely the production output method, the expenditure method, and the income method. Among the three methods of measuring GDP that are often used is the production output method or value-added approach. This is the most widely used method because it is simple and based on the calculation of the total value of gross domestic product

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

(GDP) from a country's industrial sectors, namely the total value of all goods and services produced by production factors in the country for one year. This method takes into account all products produced from industry, agriculture, extractives, services and trade, both by domestic companies and foreign companies operating domestically. Real GDP is a more accurate measure of the total amount of goods and services produced at constant prices. The prices used in determining Gross Domestic Product are based on a certain base year or the previous year so that they are adjusted for inflation (Suparmoko, 2007).

Utilization of Big Data can be an option with its advantages that are real-time and can be obtained without conducting a census or survey. One of the Big Data that can be used to provide an overview of economic activity is Google Trends. Google Trends data is a search history that is classified into many categories, where the indicators above have different time frequencies, namely monthly and quarterly. The nowcasting method that can accommodate this problem is Mixed Data Sampling (MIDAS). MIDAS is able to reduce high-frequency data to low-frequency data according to its target variables (Ghysels et al., 2007). Reduction can also be done by using certain weights by considering the contribution of each period so that it is relatively better than the usual average. In the study of Kuzin et al. (2011) compared the performance of the MIDAS and MF-VAR methods in nowcasting Eurozone GDP. The results of their study showed that MIDAS tends to have better performance. The use of MIDAS as a nowcasting method has also been carried out by Claudio et al. (2020) who found that the use of MIDAS for monthly variables in predicting GDP growth.

METHOD, DATA AND ANALYSIS

The research method is quantitative from secondary data which is explained and analysis qualitatively based on the facts that occur. The author still believes in secondary data collected by BPS because in addition to being an official government institution so that the data is legal, it also comes from Big Data (primary data collected directly with a clearly classified questionnaire), the number of big data used is 514 districts/cities, 1790 KLBI (base on data 2020), and a 12-year time series or a total of 11,040,720 national economic sector data which are also calculated with a careful and standardized ratio, then processed using sophisticated computer applications to produce quality data that is worthy of publication. Analysis using increasing amounts of data (Big Data) will be better because it is closer to reality.

While nowcasting from Google is taken from Big Data which is a collection of information from various sources such as BPS, World Bank, research journals and others which may have different measurement standards so that they are less valid. The analysis was carried out from descriptive statistics from the results of calculating the index used to measure GDP and economic growth. The method used to calculate GDP is the Production Method (Output) from each business classification group (KLBI) / sector:

KLBI Ratio, 5-digit:

$$R_{jkt} = \frac{\sum V_{jkt}}{\sum (V_{jkt}\ \mathrm{R_{ijkt}})} = \frac{\sum V_{jkt}}{\sum V_{jkt}\left(\frac{Q_{ijk(t-1)}}{Q_{ijkt}}\right)}$$

Rjkt = is the ratio of the amount of commodity production in the quarter – (t-1) to t with a 5-digit KLBI value weight.

Vjkt = is the production value of the j Company in the k industry group in the to th Quarter

The economic growth rate is calculated from GDP at constant prices, intended so that economic growth is truly the growth in the volume of goods and services, not growth that still contains

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

price increases/decreases (inflation). Currently the base year used by BPS-RI in calculating GDP is the base year 2010. The formula used to calculate economic growth is:

$$GDP\ yield = \frac{GDP\ t - GDP(t\text{-}1)}{GDP\ (t\text{-}1)} \times 100\%$$

Economic growth in year t can be known by comparing GDP in the current year with the previous year. If GDP has not been priced to become Real GDP, GDP is formulated as follows.

$$GDP\ t\ (riil) = GDPo\ (1+r)^t$$

Where PDB0 is the initial period GDP and r is the GDP growth rate is the difference between a period's GDP and the previous period. The data source used is Big Data that has been processed and published by BPS in 3 period divisions, namely GDP based on output in 2012-2015, 2016-2018, and 2019-2023 to simplify analysis.

RESULTS AND DISCUSSION

Quarterly Structure of Indonesian GDP 2012-2015 and Economic Growth

When observing quarterly GDP based on current prices that show the economic structure of a region, then in the period 2012-2015 the economic structure according to business fields from quarter to quarter did not change significantly. As shown by Big Data, the Manufacturing Industry Business Field provides the largest contribution in each quarter with an average contribution of 21.06 percent. Furthermore, every quarter I, II and III, the Agriculture, Forestry and Fisheries Business Field provides the second largest contribution and the Wholesale and Retail Trade, Car and Motorcycle Repair Business Field provides the third largest contribution followed by other business fields. While every quarter IV there is a slight shift in the economic structure, where the second largest contribution is achieved by the Wholesale and Retail Trade, Car and Motorcycle Repair Business Field.

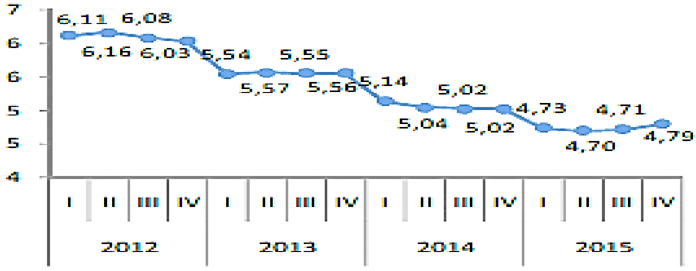
Table. 1. KLBI with the Highest Contribution to GDP and Its Growth in 2012-2015

KLBI	Contribution	Growth	Causes
Manufacturing	21,06%	0,66%	• Dominated by the textile industry that surplus production and demand are influenced by religious holidays and the end of the year.
Agriculture, Plantations and Forestry	13,41%	112%	• Food crops have the highest growth due to fertilizer subsidies and pest control. • 50% supported by rapidly increasing plantation yields
Wholesaler and Retail	13,37%	67%	• Car-Motorcycle functions as a transportation that distributes output produced by the goods business field (agriculture, mining, processing industry). This causes the movement pattern of this business field to follow the goods sector (tradable) and imports of goods.

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

KLBI	Contribution	Growth	Causes
Mining	11,06%	2,4%	• Business Field Performance Mining and Quarrying are often influenced by government policies and supporting facilities for the production process of Mining and Quarrying commodities

Grafic. 1
Growth of Quarterly GDP (q to q), 2012-2015 (percent)



Furthermore, the very high growth of KLBI in the agriculture, plantation and trade sectors (90%) has driven a stable real GDP growth rate in 2012-2015, namely 5.4%.

Quarterly Structure of Indonesian GDP 2016-2018 and Economic Growth

Big Data The Manufacturing Industry Business Sector provides the largest contribution in each quarter to GDP and economic growth with an average contribution of 20.18 percent. In addition, the Agriculture, Forestry and Fisheries Business Sector provides an average contribution of 13.15 percent, followed by the Wholesale and Retail Trade, Car and Motorcycle Repair Business Sector which provides an average contribution of 13 percent and Construction 10.43 percent.

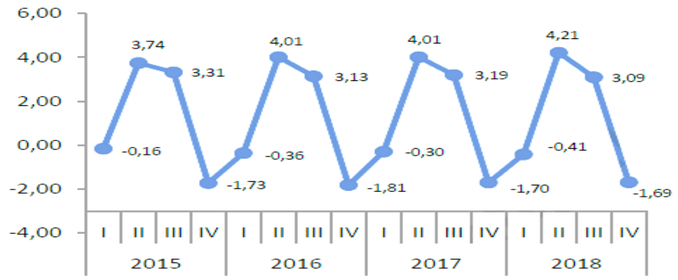
Table. 2. KLBI with the Highest Contribution to GDP and Its Growth in 2015-2018

KLBI	Contribution	Growth	Causes
Manufacturing Industry	**20,18%**	**3,54%**	1. Increased domestic demand for textiles and paper influenced by preparations for the 2019 election 2. Increased domestic demand from imports of food, beverages and pharmaceutical commodities.
Agriculture, Plantations and Forestry	**13,15%**	**5,33%**	1. Shifting planting seasons 2. Supply of broiler chickens 3. Increased fisheries production 4. Increased plantation production
Wholesaler and Retail	**13%**	**4,63%**	1. Increased motorcycle consumption 2 Increased retail sales
Contruction	**10,43%**	**5,69%**	1. Increased cement procurement 2. Increased revenue of state-owned construction companies 3. Increased constructionvalue index

Grafic. 2

E-ISSN : 2528 - 671X

Growth of Quarterly GDP (q to q), 2015-2018 (percent)



In the 2015-2018 period, the growth of KLBI in the construction, agriculture and plantation and wholesale trade sectors of 4.75% has driven the real GDP growth rate in the 2015-2018 period by 2.25%.

Quarterly Structure of Indonesian GDP 2019-2023 and Economic Growth

The performance of the national economy can be seen from the development of Gross Domestic Product (GDP). From the production side, GDP at constant prices (ADHK) 2010 shows the level of economic growth in each business field as a reflection of development achievements. The Indonesian economy in the period 2019-2022 as measured by GDP at constant prices showed an increasing trend, although it experienced a decline in 2020 due to the Covid-19 pandemic. The economic recovery after Covid-19 was very rapid as shown in the second quarter of 2021 which increased to pre-pandemic conditions.

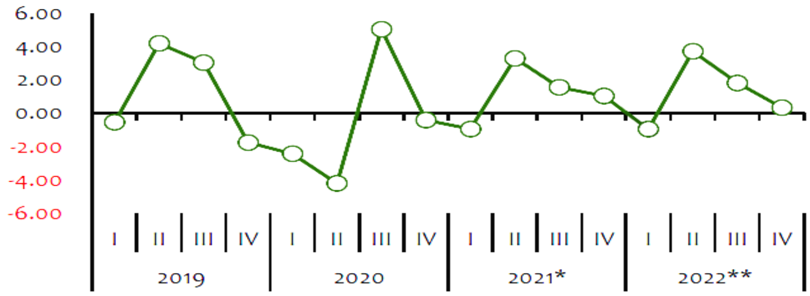
The structure of the Indonesian economy according to business fields did not change significantly during the period 2019 - 2022. The three business fields that had the largest average contribution during this period were the Manufacturing Industry with an average contribution of 19.29 percent. Agriculture, Forestry and Fisheries contributed an average of 13.02 percent, and Wholesale and Retail Trade, Car and Motorcycle Repair contributed an average of 12.93 percent. Meanwhile, Construction and Mining and Quarrying each contributed an average of 10.41 percent and 8.72 percent.

Table. 3. KLBI with the Highest GDP Contribution and Its Growth in 2019-2023

KLBI	Contribution	Growth	Causes
Manufacture Industry	**19,29%**	**4,64%**	1. High demand for textiles as raw materials for masks and medical team clothing in 2020-2021. 2. High demand for textiles during Eid and the new school year 2022-2023.
Agriculture, Plantations and Forestry	**13.02%**	**15,32%**	The fisheries agriculture sector is due to seaweed production. The increase is due to the results of cocoa and palm oil plantations.
Wholesaler and Retail	**12,93%**	**1,3%**	Starting to grow since the existence of e-commerce.
Car and Motorcycle Repair	**12,93%**	**2,5%**	1. Sales of cars and motorbikes and an increase in the supply of domestic goods.

KLBI	Contribution	Growth	Causes
			2. Increasing use of transportation as a means of transporting goods and people (in online taxis).
Contruction	**10,41%**	**3,4%**	Increased due to very rapid infrastructure development projects during President Jokowi's administration.
Mining	**8,72%**	**3,65%**	Increasing influenced by ore and coal mining.
Transportation and Warehousing	**5,1%**	**13,96%**	Increased influenced by the 2022-2023 increase in the quota for hajj pilgrims, tourism, package goods transportation from e-commerce and online transportation.

Grafic. 3
Growth of Quarterly GDP (q to q), 2019-2022 (percent)



Economic growth in the second-fourth quarter of 2019 began to decline due to Covid-19 which had previously hit overseas so that export demand for Indonesian products continued to decline and was reflected in the steep decline in GDP growth, even negative 3%. Then entering the second quarter of 2020, Covid-19 began to hit Indonesia and the government protected the region by implementing a lockdown policy so that almost all economic activities stopped so that economic growth fell to -5%. However, slowly in the third quarter the economy relatively increased its growth of 5% due to the PSBB policy that for essential sectors can operated. Therefore, the growth of KLBI related to e-commerce such as wholesalers, warehousing and transportation, grew by an average of 7.6%, ultimately driving the recovery of the Indonesian economy in 2023 grew by 5.05 percent.

The Use of Big Data in Policy Implementation Based on Economic Growth Per Industrial Sector

From the discussion above, it can be seen that the use of Big Data has been used in calculating economic growth. Furthermore, KLBI growth from Big Data can be used as a reference for mapping industries that play a role in Smart City policy making by local governments in collaboration with BI to encourage potential industries because they can process resources in the region effectively and efficiently so that they have the potential to increase public services and Regional Income. Smart city is a vision of urban development to integrate information and communication technology (ICT) and Internet of things (IoT)

E-ISSN : 2528 - 671X

technology in a safe way to manage city assets. On May 22-23, 2017, the kick-off of the Activity became 100 Smart City program in 2019 was carried out with a roadmap in 2017 at the time of launching as many as 25 regencies/cities, 2018 as many as 50 regencies/cities and 2019 as many as 25 regencies/cities. The six cities and regencies include:

1. **Makassar**
   This city is considered as one of the cities in Indonesia with the best smart city in Southeast Asia. . Makassar uses smart city for the purpose of government services, tourism services and regional industrial potential services. With the potential of food and beverage processing industry (500 industries), ready-made clothing industry, convection, sewing, embroidery, border (209 industries), Repair and Installation Services for Machinery and Equipment (163 industries), wood industry, Printing Industry for invitations, brochures, banners, screen printing (146 industries), Medicine industry, herbal, cosmetics (114 industries), Electrical equipment industry, computer equipment, aluminum goods (105 industries), Machinery industry, equipment and supplies (63 industries), Furniture industry, cupboards, sofas, chairs, interiors (63 industries), Other Processing Industries, and Ship and boat manufacturing industry, bicycles (24 industries). Bamboo & rattan crafts (23 industries),
2. **Denpasar**
   A tourism-based city that implements a smart city with the Denpasar Prama Sewaka (DPS) application and the Pro Denpasar website with a focus on tourism industry resources and their supporters (transportation and aviation 36.38%, electricity and gas procurement 28.81%, provision of accommodation, food and beverages 18.95%, financial services and money changers 11.2%) which totals 95.34% of PDRB in 2023 with an economic growth rate of 6.04%. In addition, Denpasar residents can use the DPS and Pro Denpasar applications and websites to report urban problems, explore tourist attractions, and contact important numbers.
3. **Surabaya**
   A big city that implements smart city innovations in various fields, such as smart governance, smart environment, smart economy, and smart living. Related to smart economy, Surabaya has issued the GOBISS (Go Bisnis to Surabaya) application which records the potential of leading industries, consisting of 288,790 MSME units in Surabaya and has business types in the trade sector, provision of accommodation and food and beverages, and the processing industry - the three sectors that contribute the most to Surabaya's PDRB.

4. **Yogyakarta**
   Since the issuance of the Yogyakarta Mayor Regulation Number 15 of 2015, Yogyakarta has implemented Smart City in stages, initially only within the scope of government. Then in 2018 it expanded further through Jogja Smart Service (JSS) covering public services, CCTV-connected security services at several points in the city in real time, and tourism services supported by the hotel accommodation service industry sector, aviation, local transportation and restaurants with a contribution to PDRB reaching 55% and a contribution to employment of 25.34% (BI, 2018).
5. **Sleman Regency**
   Sleman Regency is developing a smart city concept for government, public services, branding, economic potential, housing, community welfare and the environment. The economic potential is dominated by 4 sectors contributing the largest PDRB reaching 67% of Sleman Regency's PDRB, namely the agricultural sector, the processing industry sector, the trade sector, and the hotel and restaurant services sector.

PROCEEDING ICEBESS - SEP 2024
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6. **Wonogiri Regency**
This regency is developing a smart city concept to support priority tourism. One of its leading programs is the development of a Tourist Information Center containing information on accommodation, transportation, and tourism information because the three industrial sectors supporting tourism resources are able to contribute 36.68% of PDRB. In addition, the economy is supported by the agricultural sector 29.1% of PDRB and limestone and bentonite mining reaching 18.08% of PDRB. The economic growth rate is 4.2%.

In addition, good KLBI growth is also an indicator of conducive economic growth and good industrial production growth so that indirectly Big Data plays a role in driven investment decisions.

In the agricultural sector, information generated by Big Data can influence national food supply policies, whether food crops can meet or whether rice imports are still needed, or fertilizer subsidies are needed to increase agricultural production to meet national needs. On the other hand, if there is a surplus of production such as plantations and fisheries compared to domestic needs, exports can be carried out.

In the financial institution sector, the use of Big Data has been actively used to improve customer services related to financial transactions, accelerate the process of preparing financial reports, and detect and prevent fraud. In the trade and transportation sectors, especially those based on digital, Big Data has also been used intensively to increase transactions and expand new customers.

The large contribution of KLBI from Big Data also a play role in the company's strategy and mapping in seeing which industry contributions are large and can be invited to collaborate as suppliers, as customers industry, as marketing cooperation in the oligopoly market or in exporting their products.

To optimize the role of Big Data, a Big Data Utilization Forum is needed between policy-making authorities, banking, academics, and industry. This is expected to be the embryo of creating close collaboration between various institutional elements in society in the management and optimal use of Big Data. The good utilization of Big Data is expected to optimize Indonesia's digital potential which plays a very large role in accelerating national economic growth and creating a multiplier effect for economic development and community welfare.

CONCLUSION

Big Data is growing rapidly in terms of quantity and volume and its use, along with the advancement of Information technology has played a very large role in calculating GDP and economic growth both based on current prices and constant prices. Big Data through KLBI data has shown the contribution of each dominant industrial sector to GDP where the growth of each KLBI sector also influences economic growth.

Big Data with the presentation of information per sector can help make better decisions (efficient, effective, useful and fair. The utilization of Big Data based on KLBI has been realized in the implementation of smart cities, which aim to manage and control resources more effectively and efficiently in order to maximize public services, good economic growth brings progress so as to attract investors, the growth of new businesses, and increased trade followed by increased Regional Original Income which ultimately improves the welfare of local communities.

As a recommendation, a Forum is needed to facilitate the utilization of Big Data between policy-making authorities, academics, and industry. This is expected to be the embryo of

PROCEEDING ICEBESS - SEP 2024
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creating close collaboration between various institutional elements in society in the management and optimal utilization of Big Data. Good utilization of Big Data and digitalization are expected to have great potential in accelerating national economic growth.

REFERENCE

Agus Martowardojo (Agustus 9th, 2023), in the seminar *"Digital Globalization: Optimizing the Utilization of Big Data to Accelerate Economic Growth",* in Jakarta.

Central Bureau of Statistics RI (2016), Quarterly Gross Domestic Product from 2012-2016

Central Bureau of Statistics RI (2019), Quarterly Gross Domestic Product from 2015-2019

Central Bureau of Statistics RI (2023), Quarterly Gross Domestic Product from 2019-2023

Gartner (2013), *Gartner's Big Data Definition Consists of Three Parts, Not to Be Confused with Three "V"s*, New York, Forbes,

Ghysels, Eric, et,al, (2020), *Handbook of Statistics* 42: Chapter 4: Chapter 4 - Mixed data sampling (MIDAS) regression model https://medium.com/skyshidigital/berkenalan-dengan-big-data-15fd941122f8

Kuzin, Vladimir, et.al. (2009), *MIDAS vs. Mixed-frequency VAR: Nowcasting GDP in the Euro Area*, ISSN: 1725-6704, Series/Number: EUI ECO; 2009/32. https://hdl.handle.net/1814/12382

Hubert Klaus and Soheil A (2024), *Big Data in Finance: Data processing and storage solutions for handling large financial datasets*, January 2024,

M. Suparmoko (2007), *Macroeconomics*, Jakarta, Eirlangga, 2007

Morabito, Vincenzo (2014), *Big Data and Analytics: Strategy and Organizational Impacts, New York, Springer Cham Heidelberg,* e-Book DOI 10.1007/978-3-319-10665-6

Patta Rappana (2016), *Grounding Local Wisdom Towards Economic Independence*, Makassar, Sah Media, January 2016

Sukirno, Sadono (2015), *Development Economics: Process, Problems and Policy Basis.* Second Edition. Jakarta: Kencana.

Zikopoulos, P. and Eaton, C. (2012). *Understanding Big Data: Analytics for Enterprise Class Hadoop and Streaming Data,* McGraw Hill, New York, 166.

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PRE-SERVICE TEACHER TPACK COMPETENCIES DEVELOPMENT BY IDD IRR MODEL OF STRATEGY

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ABSTRACT

research is motivated by the need to increase teachers' Technology Pedagogy and Content Knowledge (TPACK) competency as a result of current developments and technological developments so that it is urgent for teachers to carry out learning that remains effective and efficient in various conditions. One effort to achieve learning efficiency is to integrate technology, pedagogy and content in learning through appropriate strategies to develop pre-service teacher TPACK competencies. Based on this, the TPACK IDD IRR model was developed. This research was carried out using a quantitative design based research approach with six stages, namely introduction, demonstration, develop, implementation, reflect, and revision. This research was carried out on 126 preservice teachers in the field of economics education. The novelty in this research is the development model of TPACK in learning economics (social science family) TPACK competency is measured from seven TPACK domains. The results of this research state that there is a significant increase in teacher TPACK competency with the TPACK IDD IRR strategy model. The highest increase was in the form of preservice teacher learning technology skills and pedagogical knowledge and integrating technology and pedagogy in learning. However, the TPACK IDD IRR strategy does not increase preservice teachers' economic content knowledge.

Keywords : TPACK IDD IRR, Competencies, strategy, education,

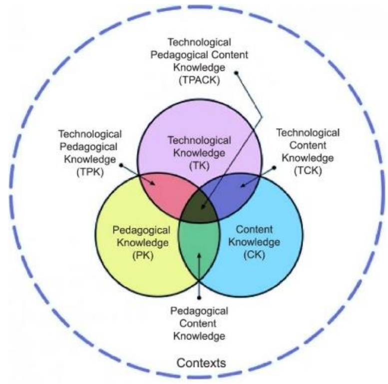
INTRODUCTION

With the emergence of human technology in the 21st century and the industrial revolution 4.0, many aspects of society's life have undergone changes, including the field of education. Both teachers, students and the learning environment will experience changes in the educational transformation era of the 21st century. Regulation of the Minister of Education and Culture of the Republic of Indonesia (Permendikbud) of Indonesia Number 65 of 2013a concerning Primary and Secondary Education Process Standards, paragraph 13 states that "the use of information and communication technology to increase the efficiency and effectiveness of learning" (Pendidikan et al., 2013). This is in line with the 21st century teacher competency standards issued by the International Society for Technology in Education (ISTE), namely (1) facilitate and inspire student learning and creativity (2) design and develop digital age learning experiences and assessments (3) model digital age work and learning (4) promote and model digital citizenship and responsibility (5) engage in professional growth and leadership.(2) Based on this, teachers need the ability to combine technological knowledge, pedagogy and material knowledge or known as TPACK (Technological, Pedagogical and Content

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

Knowledge) . Currently, a number of TPACK problems still exist related to 1) teachers, 2) students, and 3) materials. Teachers face the challenge of adapting technology to student characteristics, learning strategies, and materials used. The problem students face is monotonous, unrealistic and uninteresting learning. On the other hand, students must have strong thinking skills so that they can use robotic technology and artificial intelligence as tools. The problems related to the nature of economic matter are as follows: matter has an abstract concept; the material requires graphical analysis that is constantly changing; and material requires accurate data from various sources. One of the problems with the unit of analysis, which consisted of student teachers, was that the material did not combine pedagogical, technological, and disciplinary knowledge. Apart from that, there are a few digital courses given.

To improve TPACK capabilities, a TPACK development model is needed. It is hoped that this model will produce a form of lecture that suits the characteristics of TPACK material for students who will become teachers. (Pre Service Teacher=PST) in the field of economic studies. There are several TPACK development models from previous research, the TPACK PST development model that will be used is the TPACK-IDDIRR model (3), among the TPACK ability development models, most are used in science and mathematics subjects and have high technological content such as the SAMR. The TPACK IDDIRR development model was chosen for several reasons: it can be used in the field of social sciences; it is simple to implement; and it is suitable for PSTs who still need to strengthen understanding and prevent misperceptions. Consisting of TPACK development models, including the SQD, TPACK-COPR, TPACK-IDDIRR, TPACK-COIR (9), and SAMR (10) models, the TPACK IDD IRR model focuses more on developing training techniques.



***Picture* 1. TPACK Component**
(Source : Ning, et.al., 2022)

The Pedagogy Content Knowledge (PCK) approach, first presented by Shulman in 1986, is the foundation of the TPACK approach. There are seven domains of knowledge in TPCAK, as explained by Mishra & Khoehler (Harris et al., 2009). These are: (1) Content Knowledge, which is the teacher's understanding of the material to be studied or taught; (2) Technological Knowledge (TK), which is the teacher's understanding of technology that can support learning; (3) Pedagogical Knowledge (PK), which is a thorough understanding of the procedures and practices involved in delivering the material to be studied; (4) Pedagogical Content Knowledge (PCK), which, according to Shulman (Shulman, 1986), is effective teaching that requires more than just the separation of understanding of content and pedagogy; (5) Technological Pedagogical Knowledge (TPK) is an understanding of how learning can change when certain technologies are used in certain ways (Harris et al., 2009); (7) Technological Pedagogical Content Knowledge (TPCAK) is knowledge of the complex interactions between domains of

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

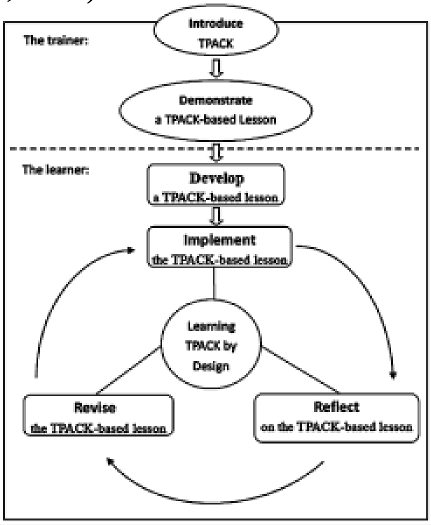
knowledge principles (Pimdee et al., 2024). Technological Content Knowledge (TCK) is knowledge of how technology can create a new picture in the material (Pimdee et al., 2024).

METHOD

The method used in the development of design research-based competencies. Research on design is a systematic study of how educational interventions (like programs, learning strategies, materials, products, and systems) are designed, developed, and evaluated to solve complex educational problems. The goal of this research is to broaden our knowledge of the characteristics of these interventions and the process of design and development. (Pamenan et al., 2022) Design-based research involves steps like the educational design process, namely analysis, design, evaluation, and revision, a cyclical process that ends in a balance between ideas and practice (Pamenan et al., 2022). We referred to the population as preservice teachers (PSTs) since they were graduates of the economic education study program and had completed TPACK-oriented courses in digital economic learning, ICT literacy, and economic learning media.The sample in this group was 126 Economics PST's. The data that has been obtained was then analyzed using descriptive statistics and inferential. The data analysis technique used t test. The validity test carried out was the Pearson test and the reliability test with Cronbach's alpha. The validity test was carried out using the Pearson test which states that if r count > r table, then the item was said to be valid. Here, the r table at df 43 and $\alpha = 0.05$ was 0.2159 and all items have a calculated $r > 0.2159$. Thus, all items were valid. Reliability was tested with Cronbach's alpha. Items are reliable if Cronbach's alpha > 0.05. From the calculation results, Cron Bach's alpha is 0.847

RESULT AND DISCUSSION

Instructional designers plan the content, teaching strategies, assessment, and procedures during the Design stage. Creating a comprehensive plan to accomplish predetermined learning objectives is the aim of planning. Using the IDD IRR (Introduction, Demonstrate, Develop, Implementation, Reflect, and Revise) technique, the assessment results were converted into a development design (Lee et al., 2022). This model can be described in figure 3.



Picture **2. TPACK Competency Development Model IDD IRR**
Source: Lee & Kim, 2014

The details implemented in the IDD IRR model are described in Table 1.

E-ISSN : 2528 - 671X

Table 1. Stages of Competency Development TPACK IDD IRR

Stages	Implementation	Implementer
Introduction	Trainers conducted lectures on TPACK knowledge interactive learning media production skills (running British economy).	Trainer
Demonstration	The trainer conducted a TPACK-oriented learning demonstration, which included preparing a digital lesson plan and implementing the lesson plan, using digital learning media, and conducting digital evaluation.	Trainer
Develop	Learners develop learning knowledge within the TPACK framework and are evaluated on their ability level (Develop-based-lesson).	The learner
Implementation	Learners practice microteaching within the TPACK framework, which consists of preparing lesson plans, implementing learning within the TPACK framework, and evaluating learning within the TPACK framework.	The learner
Reflect	Learners practice microteaching within the TPACK framework, which consists of preparing lesson plans, implementing learning within the TPACK framework, and evaluating learning within the TPACK framework.	The learner
Revise	Learners revise the implementation based on reflection information, revise the lesson plan, revise the learning implementation, and revise the evaluation implementation.	The learner

Developing Stage

Learning resources that complement the IDD IRR development paradigm are currently being created. At this point, the lesson plan, instructional materials, media, and technique approaches are all prepared. The goals of the lesson are outlined in the lesson plan and are supported by project-based learning, coaching, simulation, discussion, and demonstration as learning methods. TPACK materials are created using the kinds of materials found in TPACK fundamental principles, learning simulations, and learning tools (micro teaching).

Implementing Stage

At this point, the developed learning program is implemented in a genuine learning environment. Currently, the IDD IRR strategy is being used to implement the TPACK competency development program, and the effect of this approach on skills in the seven components under consideration was seen. The following are the implementation and improvements both before and after the IDD IRR TPACK competency development activities.

Table 2. Implementation of TPACK's Introductionn Demonstration and Development Stage

Stage	Implementation	Teaching Method
Introduction	The instructors gave an explanation of how to create lesson plans, create digital learning materials, and use HOTS assessment methods for economic education.	Lecture Question & Answer Discussion
Demonstration	Conducting a demonstration: Preparation of lesson plan Production of digital learning media	Demonstration Method Simulation Method

Stage	Implementation	Teaching Method
Development	Preparation of HOTs evaluation tools Teaching simulation (microteaching). Developing lesson plans on economics subjects Develop ICT-based interactive learning media Developing HOTs evaluation tools	Project Based Learning

Source: primary research 2023

The two main components of the TPACK IDD IRR competency development strategy are IDD and IRR. The planning and strategy design phases are known as the IDD stages (introduction, demonstration, develop). Using lecture, Q&A, and discussion techniques, the trainer gives a presentation on the fundamentals of TPACK during the introductory phase. All TPACK domains see an increase at this point. The domain gain that is relatively higher compared to the others is pedagogy knowledge (PK) = 3.25. This shows that the development carried out is able to improve pedagogy knowledge (PK), especially related to basic digital learning concepts that integrate pedagogy, technology and economics subject content. Aside from that, content knowledge is the domain that scores relatively low. This demonstrates that there is currently insufficient discussion of economic content knowledge.

At the demonstration stage, trainers demonstrate preparing lesson plans, producing digital learning media, preparing HOTs evaluation tools, and teaching simulations (microteaching). At this stage it is carried out using the demonstration method. At this stage, all TPACK domains increase. The domains that increased at this stage were Technology Knowledge (TK)=4.23 and Technology Pedagogy Content Knowledge=3.98. PST's technological and TPACK capabilities are enhanced by the preparation materials for learning tools that are supplied through simulation and demonstration techniques. The introduction and demonstration stages' outcomes informed the development of the IDD IRR design until it was prepared for implementation.

In the develop stage, PST's develops digital learning tools for economic learning which are continuously being improved. The development of this learning tool was delivered using the project based learning method. The results obtained from this stage, all TPACK domains increase. Since technology pedagogy content knowledge is the greatest benefit, TPACK will be developed through project-based learning, which will increase TPACK competency overall. The economic content knowledge of PST is also increased by this way. The TPACK-IRR stage is executed upon the completion of the IDD stage. The following is how IRR was applied in this study.

Table 3. Implementation Implementation, Reflect, Revise Stage

Stage	Activities	Methods
Implementation	Learners practice the learning implementation that has been prepared (microteaching).	Simulation (microteaching)
Reflection	Reflection on the planning and implementation that has been practiced. Improvements related to the implementation of learning that has been done consist of the ability to open lessons and conduct initial diagnostics. Difficulties in implementing learning.	Coaching
Revision	Revising the difficulties experienced	Coaching

The scores for each level are in figure 3.

PROCEEDING ICEBESS - SEP 2024
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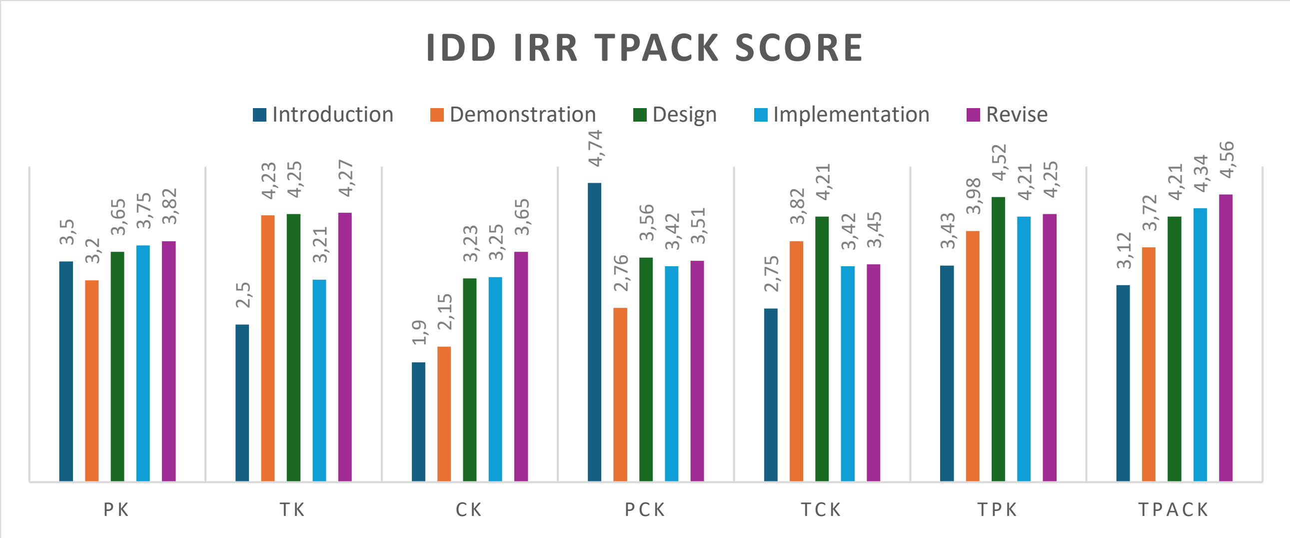

***Picture* 3 TPACK IDD IRR Score**

Based on the picture above, at the introduction stage, the researcher/trainer explains the important concepts of TPACK. The results obtained by pedagogy content knowledge are relatively higher than other domains. Meanwhile, content knowledge is relatively the lowest among other domains. This could be because the TPACK material is material that contains a lot of learning content, but does not explore enough knowledge in the field of economics. At the demonstration stage in the IDD IRR model, the trainer showed how to create digital learning media using the "Running British Economy" software, which is able to show changes in macroeconomic variables due to government policy. At this stage, the level of technological knowledge is at the peak, while content knowledge is at the lowest level. This technology simulation-based learning contributes to increasing mastery of technology in learning. This is due to the interrelated nature of practical and interactive learning. Research in China in 2024 states that the combination of social media with e-learning provides more learning resources and opportunities for students to interact and learn collaboratively, which in turn can increase student motivation and participation. In addition, e-learning systems designed with gamification elements and interactive learning activities encourage students to participate actively (Chen, 2025). Thus, the demonstration stage not only increases students' understanding of technology, but also creates a more dynamic and engaging learning environment, which supports more effective mastery of the content.

Besides that, this technology simulation-based learning plays an important role in increasing students' mastery of technology, which in turn can support their understanding of the content. Research conducted by Kingsley Okoye in Mexico highlights the importance of understanding the factors that influence the attrition phenomenon to increase student retention. This research recommends using data mining methods or AI approaches to identify students who are at risk of dropping out of school or not graduating on time. By applying the predictive models developed in this study, educators can make timely decisions for interventions and sustainable educational practices. Overall, the link between technology mastery, content understanding, and effective pedagogy can contribute to increased student retention and understanding in learning (Okoye et al., 2024). By utilizing innovative approaches and technology in the learning process, educators can create an environment that supports students to be more engaged, understand the material better, and reduce the risk of dropping out of school. Thus, this combination of strategies not only enhances the learning experience, but also strengthens students' commitment to their education.

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

In this research, it appears that an integrated framework of problem-based learning (PBL) methods has the potential to foster scientific creativity skills. This advantage is caused by the nature of PBL which encourages students to be actively involved in the learning process, find solutions to real problems, and work collaboratively. TPACK material, which is rich in learning content, supports this approach, although it still lacks knowledge in the field of economics. At the demonstration stage in the IDD IRR model, PBL allows students to apply the concepts they have learned, thus further encouraging the development of their creativity. Thus, the combination of PBL and this framework can be an effective solution for improving students' understanding and creative skills in a broader learning context. (Ates & Aktamis, 2024).

TPACK competency is measured from seven TPACK domains, and the results of this study show a significant increase in teacher TPACK competency with the TPACK IDD IRR strategy model. The highest improvement was seen in the learning technology skills and pedagogical knowledge of prospective teachers, especially in integrating technology and pedagogy in learning. Combined knowledge about the interaction of teaching technology with subject matter is mandatory during ICT-based activities in the classroom using the TPACK framework. The findings of this research will improve classroom pedagogy and help in choosing appropriate technology during teaching, thereby contributing to improved learning achievement at the university level (Rashedul et al., 2024).

A more interesting and enjoyable experience can be created through this integration, because the TPACK IDD IRR approach encourages adaptability to diverse conditions and is easily accessible in reality. Integrated skills development will further enrich the learning process, allowing students to not only understand the material better, but also enjoy a more interactive learning experience. This model shows how technology can be integrated into teaching and learning based on content areas, as well as how to effectively convey content knowledge to students. Thus, TPACK IDD IRR not only strengthens teacher competency, but also makes the teaching and learning process more interesting, productive and results-based (Rashedul et al., 2024)

At the design stage, participants are given guidance to develop a HOTs learning plan using interactive learning media. The research results reveal that the ROR is relatively higher compared to other domains. This shows that preservice teachers' pedagogical knowledge is enhanced by the practice of preparing RPS which encourages participants to integrate knowledge and technology.

At the implementation stage, the teacher is shown practicing learning in microteaching. Next, students' levels of TPACK competency are measured. The research results show that the TPACK and TCK abilities of preservice teachers are relatively high. This shows that learning practices result in an increase in preservice teacher TPACK. This increase in teacher TPACK is caused by the fact that in the learning process, teachers not only act as transmitters of material, but must also be able to integrate technology, pedagogy and content effectively. Learning uses the TPACK framework as a theoretical model to support teacher knowledge and skills that can be used to integrate ICT effectively into teaching methods. ICT lesson plans must follow methods that can help teachers gain knowledge about technology and its pedagogical use because in TPACK, students have direct experience with technology, which allows them to interact actively with the material. Additionally, this practice also encourages necessary pedagogical reflection and adjustments, so that teachers can adapt their teaching methods based on students' needs and responses. Integration with ICT not only increases teacher competence, but also enriches students' learning experiences pedagogically (Rashedul et al., 2024).

Development of Technological Pedagogical Content Knowledge (TPACK) among teachers, which has a direct impact on the development of technology integration skills by students. In the context of TPACK, teachers are expected to not only master the subject matter, but also understand effective teaching methods and how to use technology to support the learning process. When teachers are able to integrate these three elements harmoniously, they create a more dynamic and interactive learning environment (Li & Miller, 2023).

For students, having access to TPACK-supported instruction is critical. When teachers have a good understanding of how technology can be used to enrich the learning experience, students can be more actively involved in the learning process. For example, the use of technology tools such as learning applications, simulations, or collaborative platforms allows students to work independently and in groups, solve real problems, and apply the knowledge they learn. With this approach, students not only learn academic content, but also develop important skills such as critical thinking, creativity, and collaborative abilities. When teachers are able to adapt teaching methods according to students' needs and utilize technology effectively, students feel more motivated and interested in learning. This creates a more engaging, productive, and results-based learning experience (Li & Miller, 2023). Therefore, developing TPACK among teachers is not only important for increasing their competence, but also crucial for creating a generation of students who are ready to face challenges in an increasingly digital world. Thus, a focus on improving teachers' TPACK will directly contribute to the development of students' skills and abilities, ensuring they receive a relevant and rewarding education.

The presence of learning with TPACK can improve Collaboration and Learning from Peers on students. When teachers master TPACK, they can design learning activities that not only focus on conveying information, but also encourage students to work together to solve problems. For example, by using technology tools such as collaborative platforms or project-based applications, students can collaborate in groups to explore specific topics, share ideas, and solve problems together. This process not only improves their understanding of the material, but also develops social and cooperative skills that are critical in the real world. (Ning et al., 2022). 2024) Collaboration resulting from the use of TPACK can increase student motivation and involvement in learning. When students feel that they can contribute to the group, they tend to be more active and enthusiastic in the learning process. Additionally, these collaborative learning experiences also provide opportunities for students to learn from each other, which can enrich their perspectives and deepen their understanding of the material.

Overall, instructional practices provide teachers with space to explore, implement, and evaluate the integration between technology, pedagogy, and content, ultimately improving their TPACK. At the reflection and revision stage, preservice teachers reveal the advantages and disadvantages of learning practices carried out to continuously improve the quality of learning. From the results of the reflection, teachers are asked to revise in the form of formulating learning feedback, and re-design learning that is the result of the revision knowledgement.

CONCLUSION

The TPACK IDD IRR development strategy is carried out in 6 stages, namely introduction, demonstration, development, implementation, reflection and revision. At each stage, measurements were made of the TPACK domains, namely TK, PK, CK, PCK, TCK, and TPACK, at each stage there was a change in the dominant TPACK domain. there is a significant increase in teacher TPACK competency with the TPACK IDD IRR strategy model. The highest increase was in the form of preservice teacher learning technology skills and pedagogical knowledge and integrating technology and pedagogy in learning. However, the TPACK IDD IRR strategy does not increase preservice teachers' economic content knowledge. At the introduction stage, the domain that is relatively high is PK, at the demonstration stage the highest is TK, at the design stage is TPK, and the domain that is less increasing is the CK domain. Based on the results of this research, it is concluded that the TPACK IDD IRR development strategy can increase TPACK competence, especially knowledge of learning technology

REFERENCE

Ates, C. B., & Aktamis, H. (2024). Investigating the effects of creative educational modules blended with Cognitive Research Trust (CoRT) techniques and Problem Based Learning (PBL) on students ' scientific creativity skills and perceptions in science education. *Thinking Skills and Creativity*, *51*(February), 101471. https://doi.org/10.1016/j.tsc.2024.101471

Chen, C. (2025). Entertainment social media based on deep learning and interactive experience application in English e-learning teaching system. *Entertainment Computing*, *52*(June 2024), 100846. https://doi.org/10.1016/j.entcom.2024.100846

Harris, J., Mishra, P., & Koehler, M. (2009). Teachers' technological pedagogical content knowledge and learning activity types: Curriculum-based technology integration refrained. *Journal of Research on Technology in Education*, *41*(4), 393–416. https://doi.org/10.1080/15391523.2009.10782536

Lee, H., Chung, C., & Wei, G. (2022). *Research on Technological Pedagogical and Content Knowledge : A Bibliometric Analysis From 2011 to 2020*. *7*(February), 1–14. https://doi.org/10.3389/feduc.2022.765233

Li, T., & Miller, E. A. (2023). *Theory into Practice: Supporting Knowledge-in-use through Project-Based Learning*. *May*.

Ning, Y., Zhou, Y., Wijaya, T. T., & Chen, J. (2022). Teacher Education Interventions on Teacher TPACK: A Meta-Analysis Study. *Sustainability (Switzerland)*, *14*(18), 1–21. https://doi.org/10.3390/su141811791

Okoye, K., Nganji, J. T., Escamilla, J., & Hosseini, S. (2024). Computers and Education : Artificial Intelligence Machine learning model (RG-DMML) and ensemble algorithm for prediction of students ' retention and graduation in education. *Computers and Education: Artificial Intelligence*, *6*(January), 100205. https://doi.org/10.1016/j.caeai.2024.100205

Pamenan, M. S., Wibowo, S. E., & Wulandari, A. (2022). *The Effect of Problem Based Learning on Understanding of Prospective Elementary School Teacher*. *6*(3), 438–445.

Pendidikan, K., Kebudayaan, D. A. N., Dasar, P., Proses, M., Pendidikan, M., Kebudayaan, D. A. N., & Indonesia, R. (2013). *BERITA NEGARA*. *810*.

Pimdee, P., Sukkamart, A., & Nantha, C. (2024). Heliyon Enhancing Thai student-teacher problem-solving skills and academic achievement through a blended problem-based learning approach in online flipped classrooms. *Heliyon*, *10*(7), e29172. https://doi.org/10.1016/j.heliyon.2024.e29172

Rashedul, M., Shamim, H., Malick, A., & Raihan, A. (2024). Heliyon University teachers ' perceptions of ICT-based teaching to construct knowledge for effective classroom interaction in the context of TPACK model. *Heliyon*, *10*(8), e28577. https://doi.org/10.1016/j.heliyon.2024.e28577

Shulman, L. S. (1986). Those Who Understand Knowledge. *Educational Researcher*, *15*(2), 4–14.

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EVALUATION OF YOUTUBE AS A LEARNING MEDIA IN THE VOCATIONAL EDUCATION

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ABSTRACT

YouTube has now become a popular learning resource used in education. Previous studies have found that YouTube is an unqualified source of information, lacks clarity of sources, and has low accuracy. The purpose of this study is to evaluate the learning videos available on the YouTube search engine whether they are suitable for use as learning media in vocational learning. This research is an evaluative research using a quantitative approach. The video feasibility test uses *expert judgment*, namely by media experts and material experts. The data collection instrument used a questionnaire developed by Morain and Swarts (2012) on the quality of learning videos. Data were analyzed using descriptive analysis. The result of this study is that most of the learning videos on YouTube for learning electronic document management are of good quality and feasible to use as learning media in the vocational field. Recommendations for further research are that follow-up needs to be done to see the effect of learning videos on YouTube on the level of student understanding.

Keywords: YouTube, Learning Media Evaluation, Vocational Education.

INTRODUCTION

Vocational education is one of the fields of education that is expected to be able to produce skilled workers who are experts in their fields and ready to work (Sugiyo et al., 2020). The implication is that learning in the field of vocational education is expected to represent the working conditions of the industrial world so that students will be able to apply it well when they enter the world of work (Suharno et al., 2020). Therefore, educators are required to be able to develop effective and enjoyable learning according to the characteristics of their students (Dunlosky et al., 2013) because understanding the characteristics of students is the main key in achieving learning success (Maudini & Nurhasanah, 2018; Purwanti & Vania, 2021). Study results state that students in higher education today are dominated by generations born between 1995-2012 or often referred to as generation Z (Rakhmah & Azizah, 2020). As a generation born and raised in the era of easy internet access, Generation Z prefers digital-

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based information sources and is more comfortable searching for information on audio-visual search pages such as the YouTube *platform* (Rakhmah & Azizah, 2020).

The office administration study program is one of the fields of expertise in vocational education that produces graduates to become experts in the field of office administration (Nofiantoro, 2018). One of the competencies that must be mastered by students in the study program is archiving, which has more practical learning activities (Sutirman et al., 2023). Referring to the characteristics of students who are mostly generation Z and the characteristics of practice-based courses, one of the learning media that can be used as archival learning media is learning videos integrated with the YouTube *platform* (Milheim, 2012a). Empirically, this learning media has proven to be effective and can be useful in the learning process, including: making it easier for students to understand the material provided (Islam et al., 2021), increasing learning motivation (Sistadewi, 2021), and increasing students' participation in learning activities (Rahayu, 2021). In addition, learning videos also have the advantage of not being bound by time and space, meaning that the video can be accessed by students from anywhere, anytime, and can be studied repeatedly (Copper & Semich, 2015).

The many benefits of using videos in learning encourage educators to utilize videos on the YouTube *platform* as a learning resource (Mutoharoh et al., 2022; Purwandari, 2019). However, the videos that are widely used are not the result of the educator's own development, but only take from videos that are already available on YouTube. In fact, the ranking of videos on YouTube is based on popularity, relevance, and viewing history, not quality (Mohamed & Shoufan, 2022). A study conducted by Ferhatoglu et al. (2019) found that the information on YouTube has low quality and accuracy, and the content does not have clear sources. Next, the results of a study conducted by Celik et al. (2020) also corroborated these findings that videos on the YouTube *platform are* of low quality. Thus, it is necessary to conduct an in-depth study whether the videos available on the YouTube search engine meet the requirements as a good learning media through this research.

Vocational education has taken center stage in recent years, especially with dynamic changes in technology and learning methods. In this digital era, YouTube offers great potential as a medium for vocational learning. An in-depth evaluation of the use of YouTube in archival learning is needed to ensure its effectiveness in supporting student understanding, practical skill development, and achievement of vocational learning objectives.

1. YouTube Evaluation in Archival Learning Media

YouTube as the world's largest video-based *platform* has changed the way we access information and learning. Mohamed and Shoufan (2022) stated that YouTube not only provides abundant learning resources, but also becomes a significant self-learning medium. Hew and Lo (2020) presented information on the influence of video type on students' preferences. In the context of archival learning, choosing the appropriate type of video, such as practical demonstrations or interactive tutorials can enhance students' understanding and practical skills.

Chartrand et al. (2021) that linked self-directed learning through video with practical skill development in university students showed interesting results. A similar evaluation in the archival context could assess the extent to which YouTube is effective in supporting the development of practical skills, such as how to organize and manage archives.

2. YouTube Evaluation in Vocational Learning

Liu and Elms (2019) emphasize the power of animation as an effective pedagogical tool on YouTube. Animation combines audio and visual messages, allowing for the presentation of complex concepts in an engaging way. The use of animation in an archival context can be an interesting strategy.

Boateng et al. (2016) showed that students often find the length of videos too long to be a challenge in vocational learning. This evaluation can provide insights into how to

PROCEEDING ICEBESS - SEP 2024
E-ISSN : 2528 - 671X

effectively present archival materials on the YouTube *platform* with students' preferences in mind.

Aldallal et al. (2019) investigated the use of YouTube as a self-directed learning resource in dental education. This evaluation showed that students seek out YouTube for self-directed learning and assessed that the use of YouTube in the classroom increased student engagement, understanding, and overall satisfaction. A similar evaluation in an archival context could provide an overview of how well YouTube supports vocational learning inside and outside the classroom. Despite its merits, a thorough evaluation is needed to understand the impact of YouTube on vocational learning, particularly in archives.

METHOD, DATA, AND ANALYSIS

This research is an evaluative research using a quantitative approach. This research is directed to assess whether learning videos on YouTube are suitable for use as learning media in the vocational field, especially for learning electronic document management. The video quality assessment procedures are: (1) selection of learning videos on YouTube, videos are selected according to a predetermined theme, namely electronic document management; (2) video feasibility test, test using *expert judgment* involving 5 media experts and 5 material experts. The data collection instrument uses an instrument developed by Morain & Swarts (2012) with 3 indicators, namely *Physical Design*, *Cognitive Design*, and *Affective Design*. The assessment criteria include 3 categories, namely: good, sufficient, and not good. The data obtained was then analyzed using descriptive analysis.

RESULT AND DISCUSSION

Result

1. Comparison of Practical and Theoretical Learning Videos on YouTube

The topic of YouTube video selection in this research is electronic document management. The videos found were then categorized between videos that support theoretical and practical learning. Based on the search results, 42 videos were found in the research theme with the following details:

Table 2: Number of Videos by Category

No.	Type	Total	Percentage
1	Theory	10	23,81%
2	Practices	32	76,19%
	Total	42	100,00%

Based on Table 2, it is known that videos on YouTube that support practical learning are 33 videos (76.19%) and theoretical learning is 10 videos (23.81%). Therefore, videos on YouTube can support learning in the vocational field with the theme of electronic document management dominated by videos that support practical learning as much as 76.19%.

2. Video Quality Rating on YouTube

The video quality assessment in this study refers to the assessment instrument developed by Morain & Swarts (2012). The assessment is divided into 3 indicators, namely *Physical Design*, *Cognitive Design*, and *Affective Design*. The results of the video assessment based on quality are as follows:

E-ISSN : 2528 - 671X

a. Theory Video Quality on YouTube

Table 3. Theory Video Quality

Category	Total	Percentage
Good	3	30%
Simply	6	60%
Not good	1	10%
	10	100%

Based on Table 3, it is known that the theoretical videos that are included in the good criteria are 60%, 30% are sufficient, and 10% are not good. Thus, it can be concluded that the theoretical videos on YouTube in vocational learning are mostly of good quality.

b. Practice Video Quality on YouTube

Table 4. Quality of Practice Videos

Category	Total	Percentage
Good	18	56,25%
Simply	14	43,75%
Not good	0	0,00%
	32	100%

Based on Table 4, it is known that practical videos in vocational learning are included in the good criteria, namely 56.25%, 43.75% are sufficient, and 0% are not good. Thus, it can be concluded that practical videos on YouTube in vocational learning are mostly of good quality.

c. YouTube Video Quality for Vocational Learning

Table 5. Vocational Field Learning Videos by Quality

Category	Video	Percentage
Good	21	63,64%
Simply	20	60,61%
Not good	1	3,03%
	42	127%

Based on Table 5, it is known that overall the vocational learning videos on YouTube that fall into the good criteria are 21 videos (63.64%), 20 videos (60.61%), and 1 video (3.03%). Thus, it can be concluded that overall the vocational learning videos on YouTube with the theme of electronic document management are mostly of good quality.

Discussion

1. YouTube and Learning in Vocational Fields

Vocational education is one of the fields of education that is required to produce skilled workers who are experts in their fields and ready to work (Sugiyo et al., 2020). The implication is that learning in the field of vocational education is expected not only to be limited to mastery of theory, but emphasizes more on direct practice. However, the limited learning hours in the classroom require students to be able to learn independently outside the classroom. Judging from their characteristics, students in higher education are currently dominated by the Z generation (Rakhmah & Azizah, 2020). As a generation that was born and grew up in the era of easy internet access, Generation Z prefers digital-based information sources and is more comfortable searching for information on audio-visual search pages, such as the YouTube

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platform (Rakhmah & Azizah, 2020), so current students prefer to search for videos on YouTube as a medium for independent learning.

YouTube as the world's largest video-based *platform* has great potential in vocational learning as its videos emphasize the power of animation as an effective pedagogical tool (Liu and Elms, 2019). Animation combines audio and visual messages, enabling the presentation of complex concepts in an engaging way. In relation to the theme of this study, which is electronic document management, the use of animation can be an interesting strategy. By selecting the appropriate type of video, such as practical demonstrations or interactive tutorials, it can improve students' understanding and practical skills.

The results of data analysis showed that the search results on the YouTube *platform* for the theme of electronic document management found 42 videos and most of them were videos with practical learning categories with a percentage of 76.19%. This reinforces that learning in the vocational field emphasizes practical learning rather than theory, so that categorically the learning videos available on YouTube can be said to have supported learning in the vocational field.

2. Quality of Electronic Document Management Learning Videos on YouTube

YouTube not only provides abundant learning resources, but also a significant self-learning medium (Mohamed and Shoufan, 2022). Digital preparedness learning requires students to have practical skills or direct practice. By category, the videos on YouTube have met these criteria with the largest percentage of videos being learning videos with practical categories. However, the video cannot be said to be feasible or not as a digital archiving learning media, so further analysis needs to be done, namely by analyzing video quality.

Video quality assessment in this study, namely using *expert judgment*. The assessment was carried out by 5 material experts and 5 media experts. The assessment criteria in this study refer to the assessment developed by Morain & Swarts (2012) with 3 indicators, namely *Physical Design*, *Cognitive Design*, and *Affective Design*. *Physical Design* indicators include 3 categories, namely: *Accessibility*, *Viewability*, and *Timing*. *Accessibility* means that the video allows the audience to focus on the area of the screen that is relevant to the instructions given. *Viewability* means that the production quality (audio, video, and text) is sufficient to make the content worth watching. *Timing* means that the video is organized in a way that makes it easy for viewers to follow the content. Furthermore, the *Cognitive Design* indicator includes 3 assessment categories, namely *Accuracy*, *Completeness*, and *Pertinence*. *Accuracy* means that the content is presented without errors of fact or execution. *Completeness* means that the content is presented in an organized super structure and with enough detail so that it can be accurately reproduced and widely applied. *Pertinence* means that the content is related to the instructional objectives and has instructional meaning. Finally, the *Affective Design* indicator includes 3 categories, namely: *Confidence*, *Self-Efficacy*, *Engagement*. *Confidence* means that the narrator fosters self-confidence by presenting themselves as knowledgeable and skilled. The narrator can also foster confidence through association with reputable organizations. *Self-Efficacy* means that the video convinces viewers that they can successfully complete the task that is the focus of the instruction. *Engagement* means that the video is designed to interest and motivate the user.

The results of the video quality assessment for the theoretical video and practical video categories concluded that the learning videos on YouTube were mostly of good quality. These results are also corroborated by the results of the overall video assessment which concluded that the vocational learning videos on YouTube with the theme of electronic document management are mostly of good quality. The results of this study can be interpreted that the quality of learning videos on YouTube is feasible to use as a learning media for vocational fields, especially in digital readiness learning. The findings of this study can reinforce the results of previous research Liu and Elms (2019) and Aldallal et al. (2019) who found that

YouTube videos can be used as an effective learning media. In addition, the findings of this study also corroborate the results of Mohamed and Shoufan's (2022) research which states that YouTube is a significant self-learning medium, and Hew and Lo (2020) present information regarding the selection of appropriate video types that can improve students' understanding and practical skills.

CONCLUSION

Based on the results and discussions that have been carried out, it is concluded that: (1) Learning videos on YouTube are more learning videos in the form of practice, and (2) Videos on YouTube for learning electronic document management are of good quality and are suitable for use as vocational learning media. Recommendations for further research are that follow-up needs to be done to see the effect of learning videos on YouTube on the level of student understanding.

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REFERENCE

Aldallal, S. N., et al. (2019). Use of YouTube™ as a Self-Directed Learning Resource in Oral Surgery among Undergraduate Dental Students: A Cross-Sectional Descriptive Study. *British Journal of Oral and Maxillofacial Surgery*, *57*(10). https://doi.org/10.1016/j.bjoms.2019.09.010.

Boateng, R., et al. (2016). Videos in Learning in Higher Education: Assessing Perceptions and Attitudes of Students at the University of Ghana. *Smart Learning Environments*, *3*(8), doi:10.1186/s40561-016-0031-5.

Celik, H., Polat, O., Ozcan, C., Camur, S., Kilinc, B. E., & Uzun, M. (2020). Assessment of the Quality and Reliability of the Information on Rotator Cuff Repair on YouTube. *Orthopaedics and Traumatology: Surgery and Research*, *106*(1). https://doi.org/10.1016/j.otsr.2019.10.004.

Chartrand, G., et al. (2021). Self-Directed Learning by Video as a Means to Improve Technical Skills in Surgery Residents: A Randomized Controlled Trial. *BMC Med Educ*, *21*(1). doi:10.1186/s12909-021-02524-y.

Copper, J., & Semich, G. (2015). YouTube as a teacher training tool: Information and communication technology as a delivery instrument for professional development. In Professional Development and Workplace Learning: Concepts, Methodologies, Tools, and Applications (Vol. 2, pp. 632-642). IGI Global. https://doi.org/10.4018/978-1-4666-8632-8.ch037.

Dunlosky, J., Rawson, K. A., Marsh, E. J., Nathan, M. J., & Willingham, D. T. (2013). Improving students' learning with effective learning techniques: Promising directions from cognitive and educational psychology. In *Psychological Science in the Public Interest, Supplement* (Vol. 14, Issue 1, pp. 4-58). SAGE Publications Inc. https://doi.org/10.1177/1529100612453266.

Ferhatoglu, M. F., Kartal, A., Ekici, U., & Gurkan, A. (2019). Evaluation of the Reliability, Utility, and Quality of the Information in Sleeve Gastrectomy Videos Shared on Open Access Video Sharing Platform YouTube. *Obesity Surgery*, *29*(5). https://doi.org/10.1007/s11695-019-03738-2.

Hew, K. F., & Lo, C. K. (2020). Comparing Video Styles and Study Strategies During Video-Recorded Lectures: Effect on Secondary School Mathematics Students' Preference and

Learning. *Interactive Learning Environments*, *28*(7). https://doi.org/10.1080/10494820.2018.1545671.

Islam, J. P., Ulandari, R., Rahman K, A., & Busrah, Z. (2021). YouTube as an Islamic Education Learning Media during the Covid-19 Pandemic. *AL-ISHLAH: Journal of Islamic Education*, *19*(1), 17-30.

Liu, C., & Elms, P. (2019). Animating Student Engagement: The Impacts of Cartoon Instructional Videos on Learning Experience. *Research in Learning Technology, 27*. https://doi.org/10.25304/rlt.v27.2124.

Mardapi, D. (2016). *Measurement, Assessment and Evaluation of Education*. Parama Publishing.

Maudini, A., & Nurhasanah, A. (2018). Different Learning Strategies Preference Among Senior High School Students Of Different Programs. *PROJECT: Professional Journal of English Education*, *1*(6), 769-774. http://rate.org.ro/media/blogs/b/diagram.jpg?mtime=1474101081.

Milheim, K. L. (2012). Toward a Better Experience: Examining Student Needs in the Online Classroom through Maslow's Hierarchy of Needs Model. In *MERLOT Journal of Online Learning and Teaching* (Vol. 8, Issue 2).

Mohamed, F., & Shoufan, A. (2022). Choosing YouTube videos for self-directed learning. *IEEE Access*, *10*. doi:10.1109/ACCESS.2022.3174368.

Mohamed, F., & Shoufan, A. (2022). Choosing YouTube videos for self-directed learning.Wong, D. (2020). Effectiveness of Learning Through Video Clips and Video Learning Improvements Between Business Related Postgraduate and Undergraduate Students. *International Journal of Modern Education*, *2*(7). https://doi.org/10.35631/ijmoe.27009.

Celik, H., Polat, O., Ozcan, C., Camur, S., Kilinc, B. E., & Uzun, M. (2020). Assessment of the Quality and Reliability of the Information on Rotator Cuff Repair on YouTube. *Orthopaedics and Traumatology: Surgery and Research*, *106*(1), 31-34. https://doi.org/10.1016/j.otsr.2019.10.004.

Copper, J., & Semich, G. (2015). YouTube as a teacher training tool: Information and communication technology as a delivery instrument for professional development. In *Professional Development and Workplace Learning: Concepts, Methodologies, Tools, and Applications* (Vol. 2, pp. 632-642). IGI Global. https://doi.org/10.4018/978-1-4666-8632-8.ch037.

Dunlosky, J., Rawson, K. A., Marsh, E. J., Nathan, M. J., & Willingham, D. T. (2013). Improving students' learning with effective learning techniques: Promising directions from cognitive and educational psychology. In *Psychological Science in the Public Interest, Supplement* (Vol. 14, Issue 1, pp. 4-58). SAGE Publications Inc. https://doi.org/10.1177/1529100612453266.

Ferhatoglu, M. F., Kartal, A., Ekici, U., & Gurkan, A. (2019). Evaluation of the Reliability, Utility, and Quality of the Information in Sleeve Gastrectomy Videos Shared on Open Access Video Sharing Platform YouTube. *Obesity Surgery*, *29*(5), 1477-1484. https://doi.org/10.1007/s11695-019-03738-2.

Islam, J. P., Ulandari, R., Rahman K, A., & Busrah, Z. (2021). YouTube as an Islamic Education Learning Media during the Covid-19 Pandemic. *AL-ISHLAH: Journal of Islamic Education*, *19*(1), 17-30.

Maudini, A., & Nurhasanah, A. (2018). Different Learning Strategies Preference Among Senior High School Students Of Different Programs. *PROJECT: Professional Journal of English Education*, *1*(6), 769-774. http://rate.org.ro/media/blogs/b/diagram.jpg?mtime=1474101081.

Milheim, K. L. (2012). Toward a Better Experience: Examining Student Needs in the Online Classroom through Maslow's Hierarchy of Needs Model. In *MERLOT Journal of Online Learning and Teaching* (Vol. 8, Issue 2).

Mohamed, F., & Shoufan, A. (2022). Choosing YouTube Videos for Self-Directed Learning. *IEEE Access*, *10*, 51155-51166. https://doi.org/10.1109/ACCESS.2022.3174368.

Morain, M., & Swarts, J. (2012). Yoututorial: A framework for assessing instructional online video. *Technical Communication Quarterly*, *21*(1), 6-24. https://doi.org/10.1080/10572252.2012.626690

Mutoharoh, T., Dewi Kurnia, M., & Hasanudin, C. (2022). Utilization of YouTube Application for Learning Media. *Jubah Raja (Journal of Language, Literature, and Teaching)*, *1*(2), 97-102.

Nofiantoro, W. (2018). Changes in Secretarial Nomenclature to Office Administration between opportunities and challenges. *Indonesian Vocational National Seminar*, 8-13. www.presidenri.go.id.

Purwandari, E. (2019). Utilization of YouTube as a Physics Learning Resource. *Journal of Education and Instruction (JOEAI)*, *2*(2), 83-90. https://doi.org/10.31539/joeai.v2i2.810.

Purwanti, E., & Vania, G. (2021). Classroom management: Applying appropriate strategies to enhance effective teaching. *Journal of Foreign Language Teaching and Learning*, *6*(1). https://doi.org/10.18196/ftl.v6i1.10638.

Rahayu, W. (2021). The Use of YouTube Videos as Learning Media for Early Childhood During the Covid-19 Pandemic. *Tambusai Journal of Education*, *5*(3), 6150-6156.

Rakhmah, D. N., & Azizah, S. N. (2020). Understanding the Post-millennial Generation: A Review of Student Learning Practices. *Indonesian Society*, *46*(1), 49-64.

Sistadewi, M. A. (2021). The Use of YouTube Media in Indonesian Language Learning during the Limited Face-to-Face School Period. In *Journal of Indonesian Language Education and Learning* (Vol. 10, Issue 2).

Sugiyo, S., Tri, S., & Rahardjo, J. (2020). The Role of Vocational Education on the Advancement of Human Development in Indonesia. *International Conference on Science, Education and Technology (ISET)*, *443*.

Suharno, Pambudi, N. A., & Harjanto, B. (2020). Vocational education in Indonesia: History, development, opportunities, and challenges. In *Children and Youth Services Review* (Vol. 115). Elsevier Ltd. https://doi.org/10.1016/j.childyouth.2020.105092.

Sutirman, S., Yuliansah, Y., Muslikhah, & Isti, R. (2023). *The Effectiveness of Electronic Records Information System for Education (ERISE) Applications as a Learning Media of Record Management in the Era of the Industrial Revolution 4.0* (pp. 1094-1104). https://doi.org/10.2991/978-2-494069-35-0_131.

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