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Social media use and self-efficacy effects on entrepreneurial interests of vocational high school students

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Abstrak

Penelitian ini bertujuan untuk mengetahui pengaruh penggunaan media sosial dan efikasi diri terhadap minat berwirausaha siswa kelas XI MPLB SMKN 1 Banyudono tahun ajaran 2024/2025, baik secara parsial maupun simultan. Penelitian ini menggunakan pendekatan kuantitatif dengan melibatkan 72 siswa melalui teknik sampling jenuh. Data dikumpulkan dengan menggunakan angket dan dianalisis dengan regresi linier berganda menggunakan IBM SPSS Statistics 22. Hasil penelitian menunjukkan: (1) terdapat pengaruh positif dan signifikan penggunaan media sosial terhadap minat berwirausaha dengan nilai $t_{hitung} > t_{tabel}$ ($4,145 > 1,995$) dan nilai signifikansi $0,00 < 0,05$; (2) terdapat pengaruh positif dan signifikan efikasi diri terhadap minat berwirausaha dengan nilai $t_{hitung} > t_{tabel}$ ($3,778 > 1,995$) dan nilai signifikansi $0,00 < 0,05$; (3) terdapat pengaruh positif dan signifikan penggunaan media sosial dan efikasi diri secara bersama-sama terhadap minat berwirausaha dengan $F_{hitung} > F_{tabel}$ ($49,274 > 3,13$) dan nilai signifikansi $0,00 < 0,05$. Persamaan regresi yang diperoleh adalah $\hat{Y} = 1,615 + 0,712X_1 + 0,557X_2 + e$ dengan nilai R^2 sebesar 0,588 yang berarti bahwa 58,8% minat berwirausaha dipengaruhi oleh kedua faktor tersebut. Sisanya dipengaruhi oleh faktor lain.

Kata kunci: komunikasi digital; kuantitatif; pola pikir bisnis; wirausahawan muda

Abstract

This research aimed to determine the influence of social media use and self-efficacy on entrepreneurial interest of Class XI MPLB students at SMKN 1 Banyudono in the 2024/2025 academic year, both partially and simultaneously. We employed a quantitative approach involving 72 students through saturated sampling technique. Data were collected using questionnaires and analyzed with multiple linear regression using IBM SPSS Statistics 22. Results showed: (1) social media use had a positive and significant influence on entrepreneurial interest ($t = 4.145$, $p < .001$); (2) self-efficacy had a positive and significant influence on entrepreneurial interest ($t = 3.778$,

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$p < .001$); (3) social media use and self-efficacy together had a significant influence on entrepreneurial interest ($F = 49.274$, $p < .001$). The regression equation obtained was $\hat{Y} = 1.615 + 0.712X_1 + 0.557X_2 + e$ with an R^2 value of 0.588, meaning that 58.8% of entrepreneurial interest was influenced by these two factors. The remainder was influenced by other factors.

Keywords: business mindset; digital communication; quantitative; youth entrepreneurship

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Introduction

Based on data from worldometers.info, a website presenting real-time world population statistics accessed in January 2025, Indonesia is recorded as the fourth most populous country in the world. Rapid population growth has triggered various problems, including high unemployment rates. This occurs because the number of available job opportunities is not proportional to the number of job seekers (Marlina et al., 2024). According to the Central Statistics Agency (BPS), the open unemployment rate in February 2024 reached 4.82%, or approximately 7.2 million people out of a total national workforce of 149.38 million. Furthermore, based on an International Monetary Fund (IMF) report, Indonesia ranks highest in unemployment rates in the Southeast Asia region. This condition indicates that unemployment remains a major challenge that must be addressed immediately.

One strategic effort to overcome unemployment is by fostering entrepreneurial spirit among younger generations. Entrepreneurship is a complex cognitive process that utilizes various resources in innovative and creative manners while facing risks to identify business opportunities (Chang et al., 2020). Sampene et al. (2024) state that entrepreneurship plays important roles in addressing unemployment by creating new jobs. Hartini et al. (2017) also emphasize that developing entrepreneurship can reduce the number of educated unemployed. Through entrepreneurship, individuals not only improve their personal welfare but also contribute to society and the nation. In line with this, educated youth should be aware of entrepreneurship importance for national progress. Taufik et al. (2018) state that the more advanced a country is, the more educated individuals realize business world importance and dare to enter it.

However, data from the 2023 national labor force survey by BPS show that Indonesia's highest unemployment rate is found among youth aged 15-19 years, and the majority of unemployed are Vocational High School (SMK) graduates. In fact, SMKs are designed to produce graduates who are ready to work (Prasetyani et al., 2024). In the 2018 regulation by the Ministry of Education and Culture, it is stated that one of nine competency areas for SMK graduates is entrepreneurship competency. Unfortunately, various studies such as those conducted by Fitri et al. (2024), Isma et al. (2021), and Wanto (2014) show that vocational students' interest in entrepreneurship is relatively low. This condition is also found among Grade XI students of the Office Management and Business Services (MPLB) program at SMK Negeri 1 Banyudono. Based on preliminary study conducted by researchers, out of a total of 72 Grade XI students, 10 were randomly selected to participate in an initial survey. Findings revealed that 80% of respondents had no interest in entrepreneurship and 90% preferred to become employees in formal sectors rather than starting their own businesses. Additionally, 70% of students did not feel motivated to become entrepreneurs even after seeing successful entrepreneurs on social media or in real life. In fact, all respondents (100%) stated that entrepreneurship carries many challenges and risks. These findings indicate that entrepreneurial interest among Grade XI MPLB students remains low. We selected Grade XI students as research focus because students at this level have undertaken Creative Products and Entrepreneurship (PKK)

subjects and have engaged in practical entrepreneurial activities, ranging from production to marketing. Consequently, these students are considered to have acquired fundamental knowledge and experience related to entrepreneurship.

Entrepreneurial interest should be nurtured and cultivated through various internal and external factors (Nagel & Suhartatik, 2018). Kelley's Attribution Theory (1972) states that individuals tend to explain behavior based on internal and external factors (Romadhon & Diamastuti, 2020). Internal factors such as motivation, self-efficacy, risk-taking courage, and desire to learn new things greatly influence entrepreneurial interest. On the other hand, external factors such as family support, social environment, social media, and access to entrepreneurial information also play roles. Among these various factors, social media use and self-efficacy have been proven to significantly influence increases in entrepreneurial interest, both partially and simultaneously (Wardana et al., 2020). Many novice entrepreneurs started their businesses thanks to their self-confidence and risk-taking courage, as well as their ability to utilize social media as promotional tools (Donoriyanto et al., 2023; Hastuti et al., 2020). Therefore, in this study, we focused on two independent variables: social media use and self-efficacy.

Social media is an internet-based platform that allows users to interact, share information, and build social networks without being limited by space and time (Chaniago & Sayuti, 2019). According to the APJII (2024) survey, internet users in Indonesia reached 221,563,479 people (79.5% of the population), with the teenage age group 15-19 years being the largest user group. Most of them use the internet to access social media, such as Instagram, Facebook, TikTok, and YouTube. Social media is no longer just a communication tool, but also serves as a medium for disseminating information, education, promotion, and inspiration, including in entrepreneurship fields (Amsal & Sahban, 2024). This platform has been used as an informal learning medium rich in information (Ansari & Khan, 2020). Teenagers can access educational content such as articles, videos, webinars, and other digital materials relevant to business worlds (Saptono et al., 2020).

Through observations and interactions with Grade XI MPLB students at SMK Negeri 1 Banyudono, we found that students are active social media users. Based on APJII data, the teenage age group is the largest social media user. Exposure to entrepreneurial content on social media should provide insight, inspiration, and motivation to foster entrepreneurial interest from early ages. However, social media use alone is not sufficient. Self-efficacy, or belief in one's own abilities, is another important factor. Individuals with high self-efficacy tend to take more initiative, persevere in facing challenges, and are capable of achieving goals. In entrepreneurship contexts, self-efficacy is an internal drive that influences individuals to start and run businesses (Chang et al., 2020; Lubem & Sarah, 2018; Oyugi, 2015; Shahab et al., 2019).

Thus, although social media can broaden perspectives and stimulate interest, decisions to start businesses are largely determined by students' self-efficacy levels. The combination of social media use and high self-confidence is the key to increasing entrepreneurial interest. Several previous studies such as those by Afiyati and Santoso (2022), Badawi et al. (2022), and Syifana and Rochmatullah (2024) have examined similar topics. However, we found differing results regarding social media influence on entrepreneurial interest. Studies by Afiyati and Santoso (2022) and Badawi et al. (2022) showed that social media use has influence on entrepreneurial interest both partially and simultaneously, while the study by Syifana and Rochmatullah (2024) concluded that social media use partially has no influence on entrepreneurial interest. This condition led us to further investigate students of Vocational High Schools, specifically Grade XI students majoring in MPLB at SMK Negeri 1 Banyudono in the 2024/2025 Academic Year.

The research questions in this study were: (1) How does social media use influence students' entrepreneurial interest? (2) How does self-efficacy influence students' entrepreneurial interest? and (3) How do social media use and self-efficacy simultaneously influence students' entrepreneurial interest? Based on these research questions, we formulated the following hypotheses: (1) Social media use influences students' entrepreneurial interest; (2) Self-efficacy influences students' entrepreneurial interest; and (3) Social media use and self-efficacy simultaneously influence students' entrepreneurial interest.

Research Methods

This research was conducted at SMKN 1 Banyudono, involving eleventh-grade students of the MPLB vocational program. The research lasted for eight months, from September 2024 to April 2025. We used a quantitative approach with descriptive correlational method, as it allows for analysis of relationships between social media usage and self-efficacy on students' entrepreneurial interest, while also providing comprehensive overviews of studied population characteristics. The population consisted of eleventh-grade students of the MPLB vocational program in the 2024/2025 academic year, totaling 72 students. The sampling technique used was saturated sampling, in which the entire population was taken as the sample. The data collection instrument used was a closed questionnaire employing a Likert scale with four response alternatives: "Strongly Agree," "Agree," "Disagree," and "Strongly Disagree." This design was intended to encourage respondents to take definitive stances on provided statements.

Data analysis used SPSS Statistics 22. The process began with data tabulation, entering obtained data into tables to facilitate calculation. Subsequently, prerequisite tests for analysis were conducted, including normality tests, linearity tests, and multicollinearity tests to verify and ensure that data met necessary assumptions for multiple linear regression analysis. The normality test used was the Kolmogorov-Smirnov test, with the criterion that if significance values are greater than 0.05, data are normally distributed. Linearity tests were conducted through Test of Linearity, with the criterion that if Deviation from Linearity has significance values greater than 0.05, there are linear relationships between variables. Multicollinearity tests were assessed based on Variance Inflation Factor (VIF) and Tolerance values; if VIF values are less than 10 and Tolerance values are greater than 0.1, then multicollinearity is not present. Next, hypothesis testing was carried out, including multiple linear regression analysis, t-tests, F-tests, coefficient of determination (R^2), and calculations of effective and relative contributions.

In conducting research, data play important roles in determining results or validating research hypotheses. Therefore, research instruments used must meet eligibility criteria, namely validity and reliability tests. Instruments are considered valid if significance values are less than 0.05 and $r_{calculated} > r_{table}$. They are deemed reliable if Cronbach's Alpha coefficients are greater than 0.6. In this research, validity and reliability tests of instruments were conducted through trials on 28 eleventh-grade students of the LK vocational program at SMKN 1 Banyudono. From validity tests of the three variables using SPSS, we obtained the following results: for entrepreneurial interest variable (Y), 12 statements were valid and 1 was invalid; for social media usage variable (X_1), 9 statements were valid and 4 were invalid; and for self-efficacy variable (X_2), all 9 statements were valid. Then, reliability tests were conducted on all valid statements. For each variable, we obtained the following reliability values: entrepreneurial interest variable was 0.843 (> 0.6), social media usage was 0.772 (> 0.6), and self-efficacy was 0.827 (> 0.6). Based on these results, we concluded that all statement items are valid and reliable so that they can be used as research instruments.

Results and Discussion

Research Results

Based on descriptive data analysis, the entrepreneurial interest variable had a median value of 37, a mean of 37.53, and a standard deviation of 4.690. The data had a range between maximum and minimum values of 26, with a minimum value of 22 and a maximum value of 48. The total score of entrepreneurial interest variable based on collected data was 2,702. This variable consisted of 12 statement items, measured using a modified Likert scale ranging from 1 to 4. Meanwhile, the social media usage variable had a median value of 29, a mean of 28.87, and a standard deviation of 2.882. The data had a range between maximum and minimum values of 18, with a minimum value of 18 and a maximum value of 36. The total score of social media usage variable based on collected data was 2,079, consisting of 9 statement items. Furthermore, the self-efficacy variable had a median value of 27, a mean of 27.56, and a standard deviation of 3.356. The data had a range between

maximum and minimum values of 17, with a minimum value of 19 and a maximum value of 36. The total value of self-efficacy variable based on collected data was 1,984, consisting of 9 statement items.

Prerequisite tests used in this study included normality, linearity, and multicollinearity tests. Normality test results showed an Asymp. Sig. (2-tailed) value of $0.200 > 0.05$, indicating that data in this study were normally distributed. Linearity test between social media usage (X_1) and entrepreneurial interest (Y) showed a Deviation from Linearity value of $0.112 > 0.05$, indicating that social media usage and entrepreneurial interest had a linear relationship. Likewise, linearity test between self-efficacy (X_2) and entrepreneurial interest (Y) showed a Deviation from Linearity value of $0.134 > 0.05$, indicating that self-efficacy and entrepreneurial interest also had a linear relationship. Furthermore, multicollinearity test results showed a Tolerance value for social media usage and self-efficacy variables of $0.536 > 0.10$ and a VIF value of $1.867 < 10$. Based on these results, we concluded that there was no multicollinearity between independent variables in this study's regression model.

Table 1

Multiple Linear Regression Test Results

Model	B	Std. Error	Beta
(Constant)	1,615	3,712	
Penggunaan Medsos	0,712	0,172	0,437
<i>Self Efficacy</i>	0,557	0,148	0,399

Source: Data processed by researchers (2025)

Based on Table 1, the regression equation obtained in this study was: $\hat{Y} = 1.615 + 0.712X_1 + 0.557X_2 + e$. This equation can be interpreted as follows: (1) The constant value of entrepreneurial interest (Y) of 1.615 indicates that if social media usage (X_1) and self-efficacy (X_2) variables are zero, then the value of $\hat{Y}$ is 1.615; (2) The regression coefficient of social media usage variable (X_1) of 0.712 means that every increase of one unit in X_1 variable will increase entrepreneurial interest (Y) by 0.712 and conversely, every decrease of one unit in X_1 variable will decrease entrepreneurial interest by 0.712, assuming self-efficacy variable (X_2) remains constant; (3) The regression coefficient of self-efficacy variable (X_2) of 0.557 means that every increase of one unit in X_2 variable will increase entrepreneurial interest (Y) by 0.557 and conversely, every decrease of one unit in X_2 variable will decrease entrepreneurial interest by 0.557, assuming social media usage variable (X_1) remains constant.

Table 2

t-test Result

Model	t	Sig.
(Constant)	0,435	0,665
Penggunaan Media Sosial	4,145	0,000
<i>Self Efficacy</i>	3,778	0,000

Source: Data processed by researchers (2025)

Based on Table 2, t-tests were conducted to determine individual or partial influence of independent variables on dependent variables. Based on t-test results between social media usage (X_1) and entrepreneurial interest (Y) in the table above, social media usage variable had a t-value of $4.145 > \text{table } 1.995$ and a significance value of $0.00 < 0.05$. From the result of t-value and significance, H_0 was rejected and H_1 was accepted, meaning there was significant influence of social media usage variable (X_1) on entrepreneurial interest (Y). Furthermore, t-test results between self-efficacy variable (X_2) and entrepreneurial interest (Y) showed that self-efficacy variable had a t-value of 3.778, a ttable value of 1.995, and a significance value of 0.00. From the result that t-value $> \text{table}$ and significance value < 0.05 , H_0 was rejected and H_2 was accepted, which means there was significant influence of self-efficacy variable (X_2) on entrepreneurial interest (Y).

Table 3*F-test Result*

Model	F _{hitung}	Sig.
Regression	49,274	0,000 ^b

Source: Data processed by researchers (2025)

Based on Table 3, F-tests in this study were conducted to determine simultaneous or combined influence of independent variables on dependent variables. F-test results in the table above showed a significance value of $0.00 < 0.05$ and an F-value of $49.274 > F_{table\ 3.13}$. Based on these results, we concluded that H_0 was rejected and H_3 was accepted, meaning there was significant simultaneous or combined influence of social media usage variable (X_1) and self-efficacy (X_2) on entrepreneurial interest (Y).

Table 4*Results of the Determination Coefficient Analysis*

R	R Square	Adjusted R Square
0,767 ^a	0,588	0,576

Source: Data processed by researchers (2025)

Table 5*Results of Calculation of Effective Contribution and Relative Contribution*

Variabel	Effective Contribution	Relative Contribution
X_1	31%	52,7%
X_2	27,8%	47,3%
Total	58,8%	100%

Source: Data processed by researchers (2025)

The analysis of determination coefficient in Table 4 aimed to determine the extent of influence between social media use and self-efficacy variables on entrepreneurial interest variable. Based on results presented in the table above, the coefficient of determination (R^2) was 0.588. This indicated that social media use and self-efficacy variables had influence on entrepreneurial interest variable of 58.8%. Furthermore, based on effective contribution calculation in Table 5, we found that social media use variable contributed effectively by 31% and self-efficacy variable by 27.8% to entrepreneurial interest variable. The remaining 41.2% ($100\% - 58.8\%$) was influenced by other factors or variables not examined in this study.

Discussion

The Influence of Social Media Use on Entrepreneurial Interest of Students in Class XI MPLB SMKN 1 Banyudono 2024/2025 Academic Year

Based on partial significance test (t-test) results regarding social media use influence on entrepreneurial interest, the value of $t_{count} > t_{table}$ ($4.145 > 1.995$) and a significance value of $0.000 < 0.05$. These results indicated that social media use had positive and significant influence on entrepreneurial interest of students in Class XI MPLB SMK 1 Banyudono, so that H_0 was rejected and H_1 was accepted. Based on these results, we concluded that the higher the level of student social media usage, the higher the student entrepreneurial interest, and conversely, the lower the level of student social media usage, the lower the entrepreneurial interest in students.

These research findings can be attributed to social cognitive theory by Bandura (1986) which explains individual behavior is formed by interaction between environment and individual cognition through processes of observation, thinking, motivation, and self-action (Abdullah, 2019). Social cognitive theory also emphasizes that some knowledge a person has can be obtained by observing others through social interaction, experience, and media influence (Firmansyah & Saepuloh, 2022). In this case, social media acts as a learning environment that allows students to gain entrepreneurial

insights and learn from others' experiences through various existing platforms. The process becomes a form of learning through indirect modeling, which is when individuals learn by observing and imitating others' behavior through media (Firmansyah & Saepuloh, 2022). This modeling is a form of social cueing in Bandura's social cognitive theory that can shape ideas about how behavior is performed (Sun et al., 2024).

Social media is currently a widely used platform for obtaining information, including information about entrepreneurship worlds. There are many types of social media that have wide reach and are often utilized in entrepreneurship, including Facebook, Twitter, and Instagram. As a result, social media users tend to be more easily exposed to entrepreneurial content such as marketing strategies, entrepreneur success stories, and business ideas. These entrepreneurial contents make it easier for younger generations, especially students, to gain various insights and inspiration to develop entrepreneurial creativity and innovation. Through observation and modeling processes, students can understand steps and challenges of entrepreneurship, which in turn affects their mindset and belief in business worlds. This understanding then forms motivation that is in line with cognitive aspects of the self and encourages students to dare to start businesses. Findings in this study support research by Afiyati and Santoso (2022), Badawi et al. (2022), Kumara (2020), Sahroh (2018), and Wibowo et al. (2023) which state that social media use has positive and significant influence on entrepreneurial interest.

The Influence of Self-Efficacy on Entrepreneurial Interest of Students in Class XI MPLB SMKN 1 Banyudono 2024/2025 Academic Year

Based on partial significance test (t-test) results on self-efficacy effects on entrepreneurial interest, the tcount value was $3.778 > t_{table} 1.995$ and a significance value of $0.000 < 0.05$. These results indicated that self-efficacy had positive and significant influence on entrepreneurial interest of students in Class XI MPLB SMKN 1 Banyudono so that H_0 was rejected and H_2 was accepted. Based on obtained results, we found that the higher the level of student self-efficacy, the higher the interest in student entrepreneurship, and conversely, the lower the level of student self-efficacy, the lower the interest in entrepreneurship in students. This finding can be attributed to Bandura's (1986) social cognitive theory which explains that interaction between cognitive self and environment affects individual behavior (Sun et al., 2024). In this theory, Bandura states that self-efficacy plays important roles in cognitive aspects because self-belief directly influences individual motivation, feelings, thoughts, and behavior to dare to achieve desired goals (Abdullah, 2019; Indriyani & Subowo, 2019).

Students with high levels of self-efficacy tend to have confidence to take real steps, face challenges, and take risks when starting and managing businesses. This belief allows students to set clear business goals, design strategies, and survive in various situations. Motivation arising from self-belief will encourage students to continue learning, looking for opportunities, and developing creative ideas in entrepreneurship. These research results support research by Heriyanto (2020) which concluded that self-efficacy influence is very dominant in increasing interest in entrepreneurship. Furthermore, it also supports several previous studies conducted by Afiyati and Santoso (2022), Badawi et al. (2022), Hartini et al. (2022), Mustofa (2014), Syifana and Rochmatullah (2024), and Yanti (2019) who concluded that self-efficacy has positive and significant influence on entrepreneurial interest.

The Influence of Social Media Use and Self-Efficacy on Entrepreneurial Interest of Students in Class XI MPLB SMKN 1 Banyudono 2024/2025 Academic Year

Simultaneous significance test (F-test) results showed that there was significant influence together between social media use and self-efficacy variables on entrepreneurial interest of Class XI MPLB students of SMKN 1 Banyudono. This conclusion was evidenced by the value of Fcount $49.274 > F_{table} 3.13$ and a significance value of $0.000 < 0.05$. These results indicated that social media use and self-efficacy together had significant influence on entrepreneurial interest of students in Class XI MPLB SMKN 1 Banyudono so that H_0 was rejected and H_3 was accepted. Furthermore, determination coefficient analysis results with an R^2 value of 0.588 meant that 58.8% of student entrepreneurial interest was influenced by social media use and self-efficacy, with each effective

contribution from social media usage variable of 31% and self-efficacy variable of 27.8%. The remaining 41.2% (100% - 58.8%) was influenced by other factors not examined in this study.

Optimal social media use and high self-efficacy can support each other in increasing students' interest in entrepreneurship. Social media provides access to information, inspiration, and business opportunities, while self-efficacy determines the extent to which students are confident to take advantage of these opportunities. Easy access to information and many business platforms on social media and with high self-efficacy, make students more motivated to take real steps in entrepreneurship. The combination of the two can form creative and innovative mindsets, increase students' courage to try new things in entrepreneurship worlds, and provide strong impetus to start utilizing social media by realizing their business ideas.

This finding is in line with Bandura's (1986) social cognitive theory which explains that individual behavior is the result of interaction between environment and individual cognition (Abdullah, 2019). In this case, social media use acts as a learning environment that can be utilized in modeling processes and self-efficacy plays important roles as individuals' cognitive aspects (Abdullah, 2019; Firmansyah & Saepuloh, 2022; Indriyani & Subowo, 2019). Furthermore, these research results can also be attributed to Kelley's attribution theory (1972) which understands how individuals explain causes of behavior by connecting to internal and external factors (Romadhon & Diamastuti, 2020). In this case, social media use as an external factor that exerts influence from outside individuals while self-efficacy as an internal factor because it comes from within individuals. Results obtained in this research are in line with research by Sari (2024) which shows that social media use and self-efficacy together affect entrepreneurial interest. This study also supports several previous studies conducted by Afiyati and Santoso (2022), Badawi et al. (2022), Bariyah (2024) which concluded that social media and self-efficacy together have significant influence on entrepreneurial interest.

Conclusion

Based on collected data and analysis results, we concluded: (1) There was positive and significant influence of social media use on entrepreneurial interest of students in Class XI MPLB SMKN 1 Banyudono. This was evidenced by t-test results which showed the value of $t_{count} > t_{table}$ ($4.145 > 1.995$) and a significance value of $0.00 < 0.05$. Thus, the null hypothesis (H_0) was rejected and the alternative hypothesis (H_1) was accepted; (2) There was positive and significant influence between self-efficacy on entrepreneurial interest of students of Class XI MPLB SMKN 1 Banyudono. The t-test results showed a significance value of $0.00 < 0.05$ and a t_{count} value of $3.778 > t_{table} 1.995$. Based on these results, the null hypothesis (H_0) was rejected and the alternative hypothesis (H_2) was accepted; (3) There was simultaneous significant influence between social media use and self-efficacy on entrepreneurial interest of students in Class XI MPLB SMKN 1 Banyudono. This was evidenced by F-test results, where the F_{count} value was $49.274 > F_{table} 3.13$, with a significance level of $0.00 < 0.05$. Thus, the null hypothesis (H_0) was rejected and the alternative hypothesis (H_3) was accepted. The regression equation model in this study was: $\hat{Y} = 1.615 + 0.712X_1 + 0.557X_2 + e$. The coefficient of determination (R^2) was 0.588, which means that social media use (X_1) and self-efficacy (X_2) together contributed to entrepreneurial interest (Y) by 58.8%, with an effective contribution of 31% from social media usage variable and 27.8% from self-efficacy variable. While the remaining 41.2% was influenced by other factors not examined in this research.

Study limitations included narrow scope of population, as it only involved students of Class XI MPLB at SMKN 1 Banyudono, thereby restricting findings generalizability. Furthermore, this study examined only two independent variables, social media use and self-efficacy, while other potentially influential factors were not explored. Therefore, future researchers are encouraged to include broader populations and samples from various schools or vocational programs and to incorporate additional variables that may affect entrepreneurial interest, such as parental support or entrepreneurship education. Moreover, it is recommended that future researchers employ mixed method approaches to obtain more in-depth analysis.

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Self-awareness and teacher attitudes influencing student learning discipline: A quantitative study

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Abstrak

Penelitian ini bertujuan untuk: (1) mengetahui pengaruh self-awareness terhadap disiplin belajar siswa kelas XI MPLB di SMK Negeri 6 Surakarta; (2) mengetahui pengaruh sikap guru terhadap disiplin belajar; (3) mengetahui pengaruh self-awareness dan sikap guru secara bersama-sama terhadap disiplin belajar. Penelitian kuantitatif ini menggunakan populasi 106 siswa dengan teknik sampling jenuh. Instrumen yang digunakan divalidasi untuk memastikan keandalan data. Data dikumpulkan melalui kuisioner tertutup menggunakan skala Likert 1–4. Analisis data menggunakan regresi linear berganda dengan bantuan IBM SPSS versi 26. Hasil penelitian menunjukkan: (1) ada pengaruh yang positif dan signifikan self-awareness terhadap disiplin belajar siswa kelas XI MPLB di SMK Negeri 6 Surakarta ($t_{hitung} 3,630 > t_{tabel} 1,983$); (2) ada pengaruh yang positif dan signifikan sikap guru terhadap disiplin belajar siswa kelas XI MPLB di SMK Negeri 6 Surakarta ($t_{hitung} 5,441 > t_{tabel} 1,983$); (3) ada pengaruh yang positif dan signifikan self-awareness dan sikap guru terhadap disiplin belajar siswa kelas XI MPLB di SMK Negeri 6 Surakarta ($F_{hitung} 34,607 > F_{tabel} 3,08$). Temuan lain menunjukkan sumbangan efektif self-awareness sebesar 14,5% dan sikap guru sebesar 25,7% terhadap disiplin belajar.

Kata kunci: pendekatan kuantitatif; perilaku siswa; sekolah menengah kejuruan

Abstract

This study examined the influence of self-awareness and teacher attitudes on learning discipline among eleventh-grade Management of Office and Business Services (MPLB) students at SMK Negeri 6 Surakarta. Employing a quantitative approach with multiple linear regression analysis, the research utilized a saturated sampling technique encompassing all 106 students in the target population. Data collection was conducted through validated questionnaires using a 4-point Likert scale, with subsequent analysis performed using IBM SPSS version 26. The findings revealed significant positive effects: (1) self-awareness demonstrated a significant influence on learning discipline ($t_{count} = 3.630 > t_{table} = 1.983$); (2) teacher attitudes showed a

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significant impact on learning discipline ($t_{\text{count}} = 5.441 > t_{\text{table}} = 1.983$); and (3) the combined effect of both variables was statistically significant ($F_{\text{count}} = 34.607 > F_{\text{table}} = 3.08$). The effective contribution analysis indicated that self-awareness contributed 14.5% and teacher attitudes contributed 25.7% to student learning discipline, with a total variance explanation of 40.2%. These results provide empirical evidence for the importance of developing student self-awareness and fostering positive teacher attitudes in enhancing learning discipline within vocational education settings.

Keywords: quantitative approach; student behaviour; vocational high school

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Introduction

Education serves as a fundamental necessity for individuals to navigate developmental challenges and enhance human resource quality in an increasingly complex world (Rosy & Matusolikhah, 2021). Students, as primary actors in the learning process, are expected to actively apply their knowledge and realize their potential (Siahaan & Pramusinto, 2018). Among the critical elements that facilitate effective learning processes, discipline emerges as a cornerstone factor that significantly influences educational outcomes.

From an ethical perspective, discipline represents an individual's willingness and action to comply with established rules for achieving specific objectives (Puteri et al., 2023). Learning discipline encompasses behaviors that foster time management skills, prevent wasteful practices, and facilitate structured preparation for academic activities (Mu'min et al., 2022). This behavioral framework is essential for creating conducive learning environments and promoting academic achievement.

Contemporary research has identified concerning patterns in student discipline across educational institutions. Mu'min et al. (2022) documented various manifestations of undisciplined behavior, including unauthorized absences, tardiness, classroom disruptions during instruction, incomplete assignment submissions, creation of non-conducive classroom atmospheres, and academic dishonesty through copying. Similarly, Sugiarto (2019) reported persistent disciplinary challenges characterized by unauthorized absences, inappropriate dress codes, and incomplete school uniform compliance. These behavioral patterns indicate systemic issues that require comprehensive intervention strategies.

The discipline-related challenges extend to SMK Negeri 6 Surakarta, particularly among eleventh-grade MPLB students, where preliminary observations revealed significant disciplinary concerns. Statistical evidence from the preliminary study indicated that 51.6% of students failed to attend classes punctually, 64.5% neglected to record instructional materials, and 67.4% exhibited resistance when following teacher directives. These findings underscore the critical need for enhanced disciplinary interventions within this educational context.

The factors contributing to learning discipline challenges can be categorized into internal and external dimensions. According to Rusnawati (2022), internal factors encompass inherent characteristics, awareness levels, interest and motivation patterns, and cognitive frameworks. External factors include modeling influences, advisory interventions, training experiences, family and school environmental conditions, and peer group dynamics. Yuliantika (2017) further emphasized that learning discipline is influenced by internal psychological conditions and external factors such as school regulation implementation and rule compliance mechanisms.

Self-awareness represents an individual's capacity to understand their thoughts, emotions, behaviors, and environmental interactions (Hafizha, 2022). Within educational contexts, self-awareness plays a crucial role in helping students recognize their learning responsibilities, develop

time management skills, and make appropriate decisions that enhance disciplinary behaviors. This metacognitive capability enables students to engage in reflective practices that promote academic responsibility and behavioral regulation.

Teacher attitudes constitute behavioral tendencies demonstrated by educators based on their understanding and emotional responses to specific situations (Dachmiati, 2015). In learning environments, teacher attitudes serve as significant factors influencing student discipline. Educators who demonstrate positive, consistent attitudes are better positioned to guide students toward disciplined behavior throughout the learning process (Nugraheni, 2023). The quality of teacher-student interactions significantly impacts the development of disciplinary behaviors and academic engagement.

The present study addresses a significant gap in the literature by examining the combined influence of self-awareness and teacher attitudes on learning discipline a relationship that has not been comprehensively investigated in previous research. This investigation is particularly relevant given the specific contextual challenges observed at SMK Negeri 6 Surakarta, where teacher approaches to discipline implementation appear insufficiently assertive, leading to student complacency and inappropriate classroom behaviors.

The research objectives are threefold: (1) to examine the influence of self-awareness on learning discipline among eleventh-grade MPLB students at SMK Negeri 6 Surakarta; (2) to investigate the effect of teacher attitudes on student learning discipline; and (3) to analyze the combined influence of self-awareness and teacher attitudes on learning discipline outcomes.

Research Method

This study was conducted at SMK Negeri 6 Surakarta, located at Jl. Adi Sucipto No. 38, Kerten, Laweyan District, Surakarta City, Central Java. The research timeline extended from September 2024 to April 2025, encompassing all phases from initial proposal development through thesis examination and revision processes.

The study employed a quantitative research approach utilizing an associative method. According to Sugiyono (2019), associative methods aim to examine relationships or influences between two or more variables, focusing on causal or correlational relationships. This methodological approach was selected to analyze the influence of self-awareness as the first independent variable (X_1) and teacher attitudes as the second independent variable (X_2) on student learning discipline as the dependent variable (Y). The associative method was particularly appropriate because the research sought to establish causal relationships rather than merely descriptive associations between variables.

The research population comprised all eleventh-grade Management of Office and Business Services (MPLB) students at SMK Negeri 6 Surakarta during the 2024/2025 academic year, totaling 106 students. The selection of this specific population was based on preliminary study findings that identified significant disciplinary challenges within this student cohort.

The sampling technique employed was non-probability sampling with saturated sampling. This approach was justified by the relatively small population size and the accessibility of all population members, enabling comprehensive data collection from all 106 students without sampling limitations.

Data collection utilized structured questionnaires containing predetermined response options (Karwanto, 2023). The questionnaire distribution was conducted through direct classroom visits, with completion facilitated through Google Forms prepared by the researchers. To ensure response integrity and accuracy, comprehensive instructions were provided prior to completion, independent response completion was emphasized without external pressure, and respondent confidentiality was guaranteed. Additionally, researchers provided technical assistance throughout the completion process.

The study employed Likert scale measurements for data collection. According to Sugiyono (2019), Likert scales effectively measure attitudes, perspectives, and perceptions of individuals or groups regarding social phenomena under investigation. Before final data collection, the

questionnaire instruments underwent comprehensive validity and reliability testing using Microsoft Excel and SPSS version 25.

Validity testing employed Pearson Product Moment correlation techniques, with items considered valid when r -calculated values exceeded r -table values. Reliability assessment utilized Cronbach's Alpha formula, with instruments considered reliable when alpha coefficients reached or exceeded 0.60. According to Sujawerni (2014), instruments demonstrate adequate reliability with alpha values between 0.60-0.70, while values ≥ 0.70 indicate good reliability. Pilot testing was conducted with 35 tenth-grade MPLB students at SMK Negeri 6 Surakarta, who shared similar characteristics with the research sample.

The data analysis process involved several systematic stages. Initially, data tabulation organized questionnaire responses into tabular formats for analysis facilitation. Subsequently, data conversion transformed responses into appropriate scale formats according to established scoring guidelines. Prerequisite analysis testing included normality tests to assess data distribution patterns, linearity tests to examine variable relationships, multicollinearity tests to identify excessive correlation between independent variables, and heteroscedasticity tests to evaluate residual variance consistency.

Hypothesis testing encompassed multiple linear regression analysis to determine simultaneous independent variable effects on dependent variables. F-tests evaluated overall model significance, examining whether independent variables collectively influenced dependent variables significantly. T-tests assessed individual independent variable significance through partial analysis. Additionally, determination coefficients (R^2) measured independent variable contributions to dependent variables, while effective contribution and relative contribution analyses provided specific insights into individual variable contributions.

The research implementation followed systematic phases including preparation, proposal development, instrument construction and testing, data collection, data processing and analysis, conclusion development, and research report compilation.

Results and Discussion

Research Results

The pilot study conducted with 35 tenth-grade MPLB students at SMK Negeri 6 Surakarta revealed that among 43 questionnaire items, 36 items were validated while 7 items were deemed invalid based on SPSS statistical analysis comparing r -calculated and r -table values. The r -table value for this study was 0.334 with degrees of freedom (df) of 103 ($106-2-1$) and a significance level of 0.05.

Reliability testing demonstrated satisfactory results across all variables: learning discipline achieved a reliability value of 0.698, self-awareness scored 0.732, and teacher attitudes reached 0.750. These results exceeded Sujawerni's reliability threshold of Cronbach's Alpha > 0.60 , confirming instrument reliability. Consequently, the 36 validated items were utilized in the main study, while the 7 invalid items were eliminated.

The questionnaire administration to eleventh-grade MPLB students yielded comprehensive descriptive statistics as presented: (1) Learning Discipline Variable: Scores ranged from 19-53 with a mean of 42.59, standard deviation of 5.480, median of 43.12, and mode in the 44-48 interval, achieving a total score of 4,514 from a maximum possible 12,000. (2) Self-Awareness Variable: Scores ranged from 21-51 with a mean of 34.22, standard deviation of 5.364, median of 34.77, and mode in the 33-36 interval, achieving a total score of 3,267 from a maximum possible 12,000. (3) Teacher Attitudes Variable: Scores ranged from 17-53 with a mean of 36.40, standard deviation of 6.155, median of 35.92, and mode in the 33-36 interval, achieving a total score of 3,859 from a maximum possible 12,000. (4) The prerequisite analysis encompassed normality, linearity, and multicollinearity tests to ensure data appropriateness for multiple linear regression analysis. The normality test yielded an Asymp. Sig. (2-tailed) value of 0.200, exceeding the 0.05 threshold, confirming normal data distribution.

Linearity testing revealed that the deviation from linearity significance value between self-awareness and learning discipline was 0.254, exceeding 0.05 and confirming linear relationships. Similarly, the teacher attitudes and learning discipline relationship demonstrated a deviation from linearity significance value of 0.825, also exceeding 0.05 and confirming linearity.

Multicollinearity testing showed that both self-awareness and teacher attitudes variables achieved Tolerance values of 0.844 and VIF values of 1.185. With Tolerance values > 0.10 and VIF values < 10 , the analysis confirmed the absence of multicollinearity symptoms between independent variables.

As shown in Table 1, the regression equation derived from the analysis is:

$$Y = 17.434 + 0.308X_1 + 0.402X_2$$

This equation demonstrates that: (1) the constant value of 17.434 indicates that when both self-awareness (X_1) and teacher attitudes (X_2) equal zero, student learning discipline is estimated at 17.434; (2) the self-awareness regression coefficient of 0.308 shows that a one-unit increase in X_1 while X_2 remains constant results in a 0.308-unit increase in learning discipline; and (3) the teacher attitudes regression coefficient of 0.402 indicates that a one-unit increase in X_2 while X_1 remains constant leads to a 0.402-unit increase in learning discipline.

Table 1
Multiple Regression Analysis Results

	Unstandardized Coefficients		Standardized Coefficients
	B	Std. Error	Beta
(Constant)	17.434	3.106	
Self-Awareness	.308	.085	.301
Teacher Attitudes	.402	.074	.451

Source: Data processed by researchers (2025)

The t-test results presented in Table 2 demonstrate significant relationships for both independent variables. Self-awareness showed a significance value of 0.00 (< 0.05) with $t_{\text{count}} > t_{\text{table}}$ ($3.630 > 1.983$) at degrees of freedom 103 and $\alpha = 0.05$, leading to H_0 rejection and confirming significant influence of self-awareness on learning discipline.

Teacher attitudes demonstrated a significance value of 0.00 (< 0.05) with $t_{\text{count}} > t_{\text{table}}$ ($5.441 > 1.983$) at degrees of freedom 103 and $\alpha = 0.05$, resulting in H_0 rejection and confirming significant influence of teacher attitudes on learning discipline.

Table 2
T-test Results

	t	Sig.
(Constant)	5.613	.000
Self-Awareness	3.630	.000
Teacher Attitudes	5.441	.000

Source: Data processed by researchers (2025)

Table 3 presents the F-test results with a significance value of 0.00 (< 0.05) and F_{count} value of 34.607 exceeding F_{table} value of 3.08. These results confirm H_0 rejection, indicating significant combined influence of self-awareness and teacher attitudes on eleventh-grade MPLB student learning discipline at SMK Negeri 6 Surakarta.

Table 3
F-test Results

	df	F	Sig.
Regression	2	34.607	.000 ^b
Residual	103		
Total	105		

Source: Data processed by researchers (2025)

As demonstrated in Table 4, the determination coefficient (R Square) value of 0.402 indicates that 40.2% of learning discipline variance among eleventh-grade MPLB students at SMK Negeri 6 Surakarta is explained by self-awareness and teacher attitudes, while the remaining 59.8% is influenced by other factors not examined in this study.

Table 4
Determination Coefficient Results

R	R Square	Adjusted R Square	Std. Error of the Estimate
.634 ^a	.402	.390	4.278

Source: Data processed by researchers (2025)

Table 5 presents the correlation coefficients and regression coefficients used for calculating effective contributions, as detailed in Table 6. The effective contribution analysis reveals that self-awareness contributes 14.5% to learning discipline while teacher attitudes contribute 25.7%, totaling 40.2% and matching the previously calculated R-square value.

Table 5
Correlation Coefficient Results

Variable	Regression Coefficient (Beta)	Correlation Coefficient	R Square
X ₁	0,301	0,480	0,402
X ₂	0,451	0,570	

Source: Data processed by researchers (2025)

Table 6
Effective Contribution of X₁ and X₂ to Y

Effective Contribution	Value	Percentage
Self-Awareness (X ₁)	$0,301 \times 0,480 = 0,145$	14,5%
Teacher Attitudes (X ₂)	$0,451 \times 0,570 = 0,257$	25,7%
Total		40,2%

Source: Data processed by researchers (2025)

Table 7
Relative Contribution of X₁ and X₂ to Y

Relative Contribution	Value	Percentage
Self-Awareness (X ₁)	$14,5\% \div 40,2\%$	0,361%
Teacher Attitudes (X ₂)	$25,7\% \div 40,2\%$	0,639%
Total		100%

Source: Data processed by researchers (2025)

The relative contribution analysis presented in Table 7 shows that self-awareness contributes 36.1% while teacher attitudes contribute 63.9% of the total explained variance, with both variables combining to account for 100% of the explained variation in learning discipline.

Discussion

The effective contribution calculation for self-awareness on learning discipline yielded 14.5%, confirming the first hypothesis that "there is an influence of self-awareness on student learning discipline." This finding aligns with Govanny et al. (2021), who demonstrated a significant relationship between self-awareness and learning discipline of 35.5%. Similarly, Afifah et al. (2022) found that self-awareness influenced student discipline by 38.8%. These convergent findings strengthen the evidence that self-awareness plays a crucial role in shaping student disciplinary behaviors.

Although the percentage contribution in this study appears modest compared to previous research, the statistical significance remains robust, and the analytical process encountered no methodological obstacles. This result is further supported by Puteri et al. (2023), who found that self-awareness influenced student learning discipline by 13.7%, providing additional validation for the current findings.

The effective contribution calculation for teacher attitudes on learning discipline demonstrated 25.7%, supporting the second hypothesis that "there is an influence of teacher attitudes on student learning discipline." This finding corroborates research by Masurska et al. (2022), which indicated that 85.2% of students perceived firm yet positive teacher attitudes as influential in their disciplinary behavior, while 84.2% agreed that friendly teacher-student relationships foster positive discipline.

The substantial contribution of teacher attitudes highlights the critical role of educator behavior in shaping student disciplinary patterns. Teachers who demonstrate consistency, fairness, and supportive approaches create learning environments that naturally encourage disciplined behavior among students.

The determination coefficient (R^2) analysis for the combined effects of self-awareness and teacher attitudes on learning discipline yielded 40.2%, supporting the third hypothesis that "there is an influence of self-awareness and teacher attitudes on student learning discipline." This finding demonstrates that both variables collectively exert substantial influence in shaping student disciplinary behaviors.

The research by Afifah et al. (2022) emphasized the importance of self-awareness in student discipline, while Masurska et al. (2022) highlighted how open, supportive, and consistent teacher attitudes in rule implementation create positive learning climates that encourage student discipline throughout the learning process. Despite extensive research examining these relationships individually, no previous studies have directly investigated the simultaneous influence of self-awareness and teacher attitudes on student learning discipline, establishing the novelty value of this research.

The findings suggest that while eleventh-grade MPLB students at SMK Negeri 6 Surakarta demonstrate adequate self-awareness levels and positive teacher-student relationships exist, learning discipline has not been maximally realized. Therefore, enhancing both self-awareness and teacher attitudes is essential for creating optimal learning discipline within the educational environment.

The research provides empirical evidence for educational practitioners to focus on dual intervention strategies: developing student metacognitive awareness while simultaneously training teachers in effective disciplinary approaches. The higher contribution of teacher attitudes (25.7% vs. 14.5%) suggests that immediate improvements in teacher behavior and classroom management strategies may yield more substantial disciplinary improvements.

Conclusion

Based on the comprehensive data analysis examining the influence of self-awareness and teacher attitudes on learning discipline among eleventh-grade MPLB students at SMK Negeri 6

Surakarta, several key conclusions emerge. First, self-awareness demonstrates a positive and significant influence on student learning discipline (t -calculated 3.630 > t -table 1.983). Second, teacher attitudes show a positive and significant effect on student learning discipline (t -calculated 5.441 > t -table 1.983). Third, the combined influence of self-awareness and teacher attitudes on student learning discipline is positive and significant (F -calculated 34.607 > F -table 3.08). The analysis reveals that teacher attitudes exert a more substantial and dominant influence on learning discipline compared to self-awareness, with effective contributions of 25.7% and 14.5%, respectively. These findings provide empirical support for educational interventions that prioritize teacher development while simultaneously fostering student self-awareness. This study acknowledges several limitations that warrant consideration for future research. First, the investigation was conducted exclusively at SMK Negeri 6 Surakarta among eleventh-grade MPLB students, limiting generalizability to other educational levels or vocational programs with different characteristics. Second, the research focused solely on two variables self-awareness and teacher attitudes while other potentially influential factors affecting student discipline remained unexamined. Future researchers may consider incorporating additional variables that influence learning discipline to expand theoretical knowledge regarding disciplinary factors in educational settings. Furthermore, employing alternative research methodologies such as qualitative or mixed-methods approaches could provide more comprehensive insights into the complex dynamics of student discipline. Longitudinal studies examining the temporal relationships between these variables would enhance understanding of causal mechanisms and intervention effectiveness over time.

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CIPP model evaluation of school internship program in teacher education

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Abstrak

Program Pengenalan Lapangan Persekolahan (PLP) dirancang untuk mempersiapkan calon guru yang kompeten, namun dalam pelaksanaannya masih dijumpai berbagai kendala seperti kesenjangan antara teori dan praktik, pembekalan yang belum optimal, serta keterbatasan fasilitas. Penelitian ini dilakukan untuk mengevaluasi pelaksanaan PLP dengan menggunakan model CIPP (Context, Input, Process, Product) guna mengidentifikasi kelemahan sekaligus meningkatkan kualitas program. Pengumpulan data dilakukan melalui pendekatan kualitatif (wawancara dengan UP2KT, guru pamong, dosen pembimbing, mahasiswa, dan analisis dokumen) serta pendekatan kuantitatif. Analisis data kualitatif menggunakan reduksi data, penyajian data, dan penarikan kesimpulan, sedangkan analisis kuantitatif menggunakan statistik deskriptif. Validitas instrumen diuji dengan korelasi Pearson, dan reliabilitas diukur menggunakan Cronbach's Alpha. Penelitian dilaksanakan di Program Studi Pendidikan Administrasi Perkantoran FKIP UNS Surakarta pada November 2024 - Juli 2025. Hasil penelitian menunjukkan: (1) Konteks PLP berhasil mencapai sasaran dan tujuan, mencakup: (a) Tujuan, (b) Relevansi, (c) Sasaran; (2) Masukan PLP menyatakan setuju, mencakup: (a) Panduan PLP, (b) Sarana-Prasarana, dan (c) Bekal kompetensi mahasiswa; (3) Proses PLP menyatakan sangat setuju, mencakup: (a) Peran mahasiswa, (b) Peran Dosen Pembimbing dan Guru Pamong, (c) Kedisiplinan Mahasiswa, (d) Tanggung jawab mahasiswa; (4) Hasil PLP menyatakan setuju, mencakup: (a) Peningkatan kompetensi Mahasiswa, (b) Kesiapan Menjadi Pendidik, (c) Pengalaman praktik mengajar, (d) Tingkat kepuasan mahasiswa.

Kata kunci: calon guru; CIPP; evaluasi program; kesiapan mengajar

Abstract

The School Internship Program (PLP) is designed to prepare competent prospective teachers; however, implementation challenges persist, including theory-practice gaps, suboptimal preparation, and limited facilities. This study evaluates PLP implementation using the CIPP model (Context, Input, Process, Product) to identify weaknesses and enhance program quality. Data collection employed mixed methods,

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incorporating qualitative approaches (interviews with UP2KT, mentor teachers, supervising lecturers, students, and document analysis) and quantitative methods. Qualitative data analysis utilized data reduction, presentation, and conclusion drawing, while quantitative analysis employed descriptive statistics. Instrument validity was tested using Pearson correlation, and reliability was measured with Cronbach's Alpha. The research was conducted at the Office Administration Education Study Program, FKIP UNS Surakarta, from November 2024 to July 2025. Findings revealed: (1) Context evaluation demonstrated successful achievement of PLP objectives and targets, encompassing goal attainment, relevance, and target identification; (2) Input evaluation showed agreement across PLP guidelines, facilities and infrastructure, and student competency preparation; (3) Process evaluation indicated strong agreement regarding student roles, supervising lecturer and mentor teacher roles, student discipline, and student responsibility; (4) Product evaluation demonstrated agreement in student competency improvement, educator readiness, teaching practice experience, and student satisfaction levels. The study provides comprehensive insights for program enhancement and quality assurance in teacher education.

Keywords: prospective teachers; CIPP; program evaluation; teaching readiness

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Introduction

During the Industrial Revolution 4.0 era, significant transformations have emerged in various aspects of life, particularly in Science and Technology (IPTEK) development, positioning education as a crucial element in producing superior, adaptive, and competitive human resources (Ismail et al., 2018). Education is expected to prepare young generations capable of critical thinking, innovation, and mastering relevant 21st-century skills, including digital literacy, collaboration, and creativity.

According to Government Regulation (PP) Number 74 of 2008 Article 4 paragraph (1), Teacher Certificates are obtained through professional education programs at accredited universities, including educational internship programs. These internship programs are assessed as having significant contributions to enhancing prospective teacher competencies, as revealed by Jogan (2019), who demonstrated that internship programs effectively help students develop practical work skills. Theory and practice can be integrated through such programs while providing understanding of appropriate learning material delivery. Additionally, student performance improvements can be observed through feedback provided by supervisors.

However, School Internship Program (PLP) implementation in the field does not always proceed as expected. Based on preliminary observations, phenomena were discovered including inadequate PLP preparation, unclear information, and internship outcomes that are not yet relevant to real field conditions. This aligns with findings by Dwi et al. (2024), who stated that internal and external factors become obstacles in PLP implementation. Internal factors include adaptation abilities, material readiness, and suboptimal time management. Furthermore, student confidence levels in creating conducive classroom atmospheres are low, impacting student interactions and learning effectiveness. External factors such as limited school facilities and variations in student characteristics also hinder PLP implementation. Mia and Sulastri (2023) emphasized that teacher competencies must be enhanced to motivate students through enjoyable learning. Thus, prospective teachers can continuously update their knowledge and skills according to contemporary developments and student needs.

Another problem is the mismatch between campus regulations and field requirements, causing confusion regarding internship outputs that must be completed. This is reinforced by interview results showing that internship participants are not fully prepared to enter the field. Additionally, practical results from Micro Teaching courses have not provided sufficient motivation for students to teach professionally. This practice tends to merely fulfill academic obligations without building real readiness as prospective educators. Student discipline also becomes problematic, such as non-compliance with agreed schedules. These conditions may affect student perceptions of students as prospective teachers and their experiences in facing the working world.

Research by Baeten and Simons (2016) demonstrated that globally, field experience models have been developed, including student teaching in Belgium that applies three collaborative approaches between prospective teachers and mentors. These models include: (1) Co-Planning and Co-Evaluation where planning and evaluation are conducted together, but teaching is implemented alternately; (2) Assistant Teaching with role distribution as main teacher and assistant during learning; and (3) Teaming Model involving full collaboration throughout the learning cycle.

Evaluation of PLP implementation is essential for identifying obstacles and challenges faced by students. The CIPP evaluation model developed by Stufflebeam (1971) was selected due to its ability to comprehensively analyze context, input, process, and product. The CIPP model is designed to complement decision-making foundations in evaluation systems through analysis oriented toward planned change. As explained by Burke and Hennessy (2021), Context, Input, Process, and Product (CIPP) evaluation is highly suitable for complex programs or systems, such as educational programs, research projects, or government policies. Its strengths covering various dimensions provide flexibility in identifying problems and solutions comprehensively.

Based on the above description, this research problem formulation is: (1) What are the Context evaluation results in PLP implementation? (2) What are the Input evaluation results in PLP implementation? (3) What are the Process evaluation results in PLP implementation? (4) What are the Product evaluation results in PLP implementation? This research aims to evaluate PLP implementation using the CIPP model to enhance future program quality.

Research Method

This research was conducted at the Office Administration Education Study Program, Faculty of Teacher Training and Education, Sebelas Maret University, Surakarta. Location selection was based on two considerations: (1) the phenomenon of ineffective School Internship Program (PLP) implementation, and (2) data availability and permission from relevant parties. Research implementation lasted eight months, from November 2024 to July 2025.

An evaluative design with the CIPP model (Context, Input, Process, Product) was used to assess PLP implementation. According to Stufflebeam (2015), this model is considered superior compared to other evaluation models due to its approach encompassing all program dimensions, not merely focusing on final outcomes. This research utilized mixed methods with qualitative and quantitative approaches. Data analysis was conducted using tabulation methods including narrative tabulation and non-tabulation, employing systematic approaches to process information comprehensively.

The qualitative approach was applied with quantitative data support to strengthen findings. Context aspects were evaluated through in-depth interviews and document analysis, while input, process, and product aspects were assessed through interviews supplemented with Likert scale-based questionnaires. This combination of approaches enabled the research to provide comprehensive insights about the PLP program. Research instruments were developed based on observation-based problem identification, with indicators arranged based on CIPP theory and previous studies.

Data were collected through observation, interviews, document analysis, and questionnaires. Qualitative samples were taken using nonprobability sampling focused on purposive sampling involving mentor teachers, supervising lecturers, UP2KT teams, and students. According to Lenaini (2021), this technique is used by ensuring specific informants align with research objectives. Meanwhile, quantitative samples were taken using saturation sampling involving the entire population of 2021 cohort students. As explained by Wenno (2018), saturated sampling was chosen

because the population size was not too large, so the entire population became the research sample. This technique was used to guarantee information quality and data representativeness.

The research methodology framework is presented in Table 1, which outlines the systematic approach used in this evaluation study. As shown in Table 1, the research framework encompasses four CIPP components with specific indicators, sub-indicators, and data collection techniques for each aspect.

Table 1
Research Indicator Guidelines

CIPP Component	Indicator	Sub-Indicator	Data Collection Technique
Context	Objectives, Relevance, and Targets	Achievement of Objectives	Interview, Document Analysis
		Relevance to Prospective Educators	Interview, Document Analysis
		Targets	Interview, Document Analysis
Input	Resource Readiness	PLP Guidelines	Interview, Questionnaire
		Facilities and Infrastructure	Interview, Questionnaire
		Student Basic Competency Preparation	Interview, Questionnaire
Process	Student Performance and Contribution	Student Role	Interview, Questionnaire
		Supervising Lecturer and Mentor Teacher Role	Interview, Questionnaire
		Student Discipline	Interview, Questionnaire
		Responsibility	Interview, Questionnaire
Product	PLP Success in enhancing competency, teaching readiness, practical experience, and student satisfaction as prospective educators	Student Competency	Interview, Questionnaire
		Improvement	Interview, Questionnaire
		Readiness to Become Educator	Interview, Questionnaire
		Teaching Practice Experience	Interview, Questionnaire
		Student Satisfaction Level	Interview, Questionnaire

Qualitative data were analyzed using the Miles and Huberman model (data reduction, presentation, and conclusion drawing), while quantitative data were processed using descriptive statistics with Likert scales. Data analysis was conducted with assistance from SPSS Statistics 26. Validity testing used Pearson correlation and reliability testing used Cronbach's Alpha to ensure instrument accuracy. Analysis results were presented in percentage and narrative forms to provide deep understanding regarding PLP program evaluation.

Results and Discussion

Research Results

This research evaluates School Internship Program (PLP) implementation at the Office Administration Education Study Program FKIP UNS using the CIPP model (Context, Input,

Process, Product). Overall, School Internship Program implementation proceeded according to plans established by the UP2KT team. Various data related to research problems were successfully collected, including PLP overview, utilized resources, implementation processes, and benefits obtained post-PLP implementation.

Research instruments were tested for validity and reliability to ensure data accuracy. Instrument validity was confirmed through expert judgment, while reliability was measured with Cronbach's Alpha coefficient showing good internal consistency (>0.70). Data were collected through in-depth interviews, document analysis, and questionnaires involving students, supervising lecturers, mentor teachers, and UP2KT.

The validity testing results are presented in Table 2. As demonstrated in Table 2, the validation process revealed that out of 25 questionnaire items, 18 items were considered valid while 7 items were deemed invalid based on Pearson correlation analysis with r -table value of 0.413.

Table 2
Validity Test Results

CIPP	Item Number	Pearson Correlation (r)	r_{tabel} Value	Status
Input	1	-0,343	0,413	Invalid
	2	0,101	0,413	Invalid
	3	-0,311	0,413	Invalid
	4	0,558	0,413	Valid
	5	-0,074	0,413	Invalid
	6	0,554	0,413	Valid
	7	-0,192	0,413	Invalid
	8	0,855	0,413	Valid
	9	-0,173	0,413	Invalid
	10	-0,029	0,413	Invalid
Process	11	0,874	0,413	Valid
	12	0,883	0,413	Valid
	13	0,504	0,413	Valid
	14	0,864	0,413	Valid
	15	0,699	0,413	Valid
	16	0,877	0,413	Valid
Product	17	0,880	0,413	Valid
	18	0,866	0,413	Valid
	19	0,595	0,413	Valid
	20	0,938	0,413	Valid
	21	0,806	0,413	Valid
	22	0,831	0,413	Valid
	23	0,872	0,413	Valid
	24	0,417	0,413	Valid
	25	0,587	0,413	Valid

Source: Data processed by researchers (2025)

The reliability analysis results are shown in Table 3. As indicated in Table 3, the Cronbach's Alpha value of 0.825 exceeded the threshold of 0.7, confirming the instrument's reliability for data collection purposes.

Table 3
Reliability Test Results

Number of Items	Cronbach 's Alpha Value	Threshold Value	Status
25	0,825	0,7	Reliabel

Source: Data processed by researchers (2025)

Results showed that PLP successfully achieved its objectives in providing direct experience for prospective teacher students to apply learning theories, understand educator roles, and develop teaching skills through guidance from lecturers and mentor teachers. The program is also relevant in preparing students to face school dynamics while opening career opportunities in education, with structured activities including orientation, observation, guided teaching practice, and practical examinations. PLP targets were achieved both academically (mastery of learning technology, preparation of teaching materials) and non-academically (extracurricular mentoring, laboratory management), although variations in achievement occurred due to differences in student mental readiness. Overall, PLP is effective as a bridge between campus theory and field practice, but strengthening preparation, mentoring, and guideline adjustments are needed for future optimization.

Input evaluation aspects showed that PLP guidelines obtained 71% percentage, although updates are still needed to adjust with the Independent Curriculum. Supporting facilities and infrastructure for PLP achieved 61% percentage, indicating minimal adequacy but with several limitations such as projector availability and internet signal. Student basic competency preparation obtained the highest score (72%), indicating that preparation from study programs was adequate, although socialization from UP2KT needs improvement.

In process evaluation, student roles were assessed as very good at 83%, especially in school activity contributions and learning innovations. The roles of supervising lecturers and mentor teachers reached 78%, with notes on the need to improve consistency in guidance intensity from lecturers. Student discipline obtained 76%, while responsibility in completing tasks reached 89%, although obstacles in timeliness and creativity of task results were still encountered.

Product evaluation results showed comprehensive student competency improvement with 81% percentage, especially in pedagogical, professional, personality, and social aspects. However, student readiness to become educators remained in the moderate category (49%), indicating the need for strengthening preparation programs. Teaching practice experience was assessed as highly successful (90%), providing complete understanding of responsibilities as educators. Student satisfaction levels reached 77%, with variations depending on partner school conditions and mentoring quality.

The comprehensive results across all CIPP dimensions are summarized in Table 4. As presented in Table 4, the evaluation revealed varying performance levels across different aspects, with teaching practice experience achieving the highest score (90%) and educator readiness showing the lowest score (49%).

Table 4
Percentage Results Across CIPP Components

No	Aspect	Component	Percentage per Aspect
1	Input	PLP Guidelines	71%
2		Facilities and Infrastructure	61%
3		Student Basic Competency Preparation	72%
4	Process	Student Role	83%
5		Supervising Lecturer and Mentor Teacher Role	78%
6		Student Discipline	76%
7		Student Responsibility	89%
8	Product	Student Competency Improvement	81%
9		Readiness to Become Educator	49%
10		Teaching Practice Experience	90%
11		Student Satisfaction	77%

Discussion

Research findings demonstrate that the School Internship Program (PLP) successfully provides direct experience for students in applying learning theories in schools, aligning with its original objectives as a vehicle for developing prospective teacher pedagogical

competencies. These results are reinforced by Khaerunnas and Rafsanjani (2021) and Sherly et al. (2025), who emphasized PLP as an essential program for developing practice-based teaching skills. However, disparities were found with research by Dwi et al. (2024), who identified low student adaptation abilities to new curricula, particularly the Independent Curriculum. This difference is suspected to be caused by variations in pre-PLP preparation intensity at respective institutions.

Stufflebeam's (1971) theory in Muryadi (2017) regarding context evaluation emphasizes the importance of program alignment with field needs, so these findings indicate the need for PLP curriculum alignment with educational policy developments. Improvement recommendations focus on intensive preparation for current curricula and school environment adaptation training to minimize theory-practice gaps.

Analysis of PLP guideline quality revealed that respondents assessed guideline completeness and clarity as adequate, supported by research by Handayani et al. (2023), who stated guidelines as main references for developing prospective teacher professionalism. However, these findings are not entirely consistent with field conditions, where guidelines are assessed as less responsive to Independent Curriculum changes. The cause lies in guideline update mechanisms that have not been integrated with national curriculum dynamics. Therefore, the research recommends three improvement aspects: acceleration of material updates, synchronization with curriculum policies, and optimization of distribution.

In process evaluation, research revealed that School Internship Program (PLP) implementation generally proceeded according to procedures, with student participation levels reaching 83% in school activities, but weaknesses remained in learning innovation and mentoring aspects. These results align with research by Nugraheni (2021), who emphasized the importance of experiential learning in PLP, but differ from Sopandi's (2019) findings regarding student discipline as a reflection of prospective educator professionalism, which achieved 90% success rates.

This gap is caused by lack of intensive supervision from supervising lecturers—only 78% of students received adequate guidance due to lecturer time limitations and unsynchronized schedules with mentor teachers. Monitoring consistency becomes key to program success, so these findings indicate the need for mentoring mechanism restructuring. Improvement recommendations include: (1) implementation of structured guidance schedules with fixed frequency, (2) utilization of digital platforms for lecturer-mentor teacher coordination, and (3) special training for innovative media development to enhance teaching creativity.

Research by Rahmawati et al. (2023) elaborated that teaching skills are important for teachers, especially in basic abilities such as questioning skills, support, variation, explaining, opening and closing lessons, guiding small group discussions, classroom management, and small group or individual teaching.

Student readiness levels to become educators post-PLP recorded only 49%, contrasting with findings by Geraldine (2023), who stated PLP as an effective vehicle for developing teaching readiness. This low figure particularly occurred among students without initial interest in becoming teachers, indicating that PLP has not fully functioned as a transformative learning experience. Findings by Koç et al. (2022) strengthen this analysis by showing that prospective teachers participating in professional development activities outside formal education have higher teaching readiness levels and 21st-century skills mastery compared to those who do not participate.

This aligns with theory by Suharto et al. (2022), who explained that PLP success must be measured not only from technical achievements but also from professional identity formation. Therefore, improvement recommendations through continuous mentoring programs and teacher world introduction from early semesters are not only aimed at closing competency gaps but also building continuous commitment as prospective educators.

Conclusion

This research found that School Internship Program (PLP) implementation generally proceeded according to plans and successfully provided practical experience for prospective teacher students in applying learning theories, although several limitations persist. Context evaluation demonstrated that PLP is relevant to pedagogical competency development needs, while Input evaluation revealed that PLP guidelines, facilities and infrastructure, and student competency preparation were adequate despite requiring updates to align with the Independent Curriculum. In process aspects, student performance was assessed as good in school contributions and task completion, but improvement in consistency of guidance from lecturers and mentor teachers is needed. Product evaluation results showed significant student competency improvements, although readiness to become educators remained in the moderate category. Overall, PLP is assessed as effective, but improvements in mentoring, monitoring, and guideline adjustments are needed to enhance future implementation quality. This research's limitations lie in the sample scope limited to one study program and dependence on respondents' subjective perceptions in questionnaire completion, which may not fully reflect real conditions. Additionally, this research has not tested PLP's long-term impact on graduate work readiness, requiring follow-up studies with broader scope and longitudinal approaches. Future research should consider expanding the sample to include multiple study programs and institutions to enhance generalizability. Longitudinal studies examining the long-term impact of PLP on graduate career success would provide valuable insights for program improvement. Additionally, incorporating perspectives from school administrators and students taught by PLP participants could offer more comprehensive evaluation data.

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Effects of Internship Experience and Digital Literacy on SMK Student Work Readiness

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Abstrak

Penelitian ini bertujuan untuk mengetahui: (1) pengaruh pengalaman PKL terhadap kesiapan kerja; (2) pengaruh kemampuan digital literacy terhadap kesiapan kerja; dan (3) pengaruh pengalaman PKL dan kemampuan digital literacy secara simultan terhadap kesiapan kerja siswa kelas XII SMK Batik 2 Surakarta. Penelitian ini menggunakan pendekatan kuantitatif dengan metode korelasional. Populasi penelitian ini adalah siswa kelas XII SMK Batik 2 Surakarta berjumlah 132 siswa dengan sampel 100 responden yang dipilih melalui teknik proportional random sampling serta sisa. Pengumpulan data menggunakan kuesioner, dan analisis data dilakukan dengan regresi berganda. Hasil penelitian menunjukkan: (1) pengalaman PKL berpengaruh positif dan signifikan terhadap kesiapan kerja Sig. 0,000 < 0,05 ($t_{hitung} 5,858 > t_{tabel} 1,984$); (2) kemampuan digital literacy juga berpengaruh positif dan signifikan Sig. 0,000 < 0,05 ($t_{hitung} 3,592 > t_{tabel} 1,984$); (3) secara simultan, keduanya berpengaruh signifikan terhadap kesiapan kerja Sig. 0,000 < 0,05 ($F_{hitung} 98,357 > F_{tabel} 3,94$). Nilai R Square sebesar 0,670 menunjukkan bahwa 67% variasi kesiapan kerja dipengaruhi oleh pengalaman PKL dan kemampuan digital literacy. Penelitian selanjutnya diharapkan menggunakan metode yang lebih beragam dan menggali variabel lain yang turut memengaruhi kesiapan kerja.

Kata kunci: dunia industri; kesiapan siswa; kompetensi kerja; literasi teknologi; pengalaman belajar

Abstract

This study aimed to investigate: (1) the influence of industrial work practice (IWP) experience on work readiness; (2) the influence of digital literacy capabilities on work readiness; and (3) the simultaneous influence of IWP experience and digital literacy capabilities on work readiness among 12th-grade students at SMK Batik 2 Surakarta. Employing a quantitative approach with correlational methodology, this research involved a population of 132 12th-grade students at SMK Batik 2 Surakarta, with 100 respondents selected through proportional random sampling. Data collection utilized questionnaires, and data analysis employed multiple regression analysis. The findings

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revealed that: (1) IWP experience demonstrated a positive and significant influence on work readiness (Sig. 0.000 < 0.05; $t_{\text{count}} 5.858 > t_{\text{table}} 1.984$); (2) digital literacy capabilities also showed a positive and significant influence (Sig. 0.000 < 0.05; $t_{\text{count}} 3.592 > t_{\text{table}} 1.984$); (3) simultaneously, both variables significantly influenced work readiness (Sig. 0.000 < 0.05; $F_{\text{count}} 98.357 > F_{\text{table}} 3.94$). The R Square value of 0.670 indicated that 67% of work readiness variation was influenced by IWP experience and digital literacy capabilities. Future research should employ more diverse methodologies and explore additional variables that influence work readiness.

Keywords: industrial world; learning experience; student readiness; technology literacy; work competence

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Introduction

Indonesia, as a developing nation, possesses significant potential to become one of the world's economic powers. The current era of globalization and digital transformation is characterized by increasing quality competition, resulting from economic growth and advances in science and technology that demand high-quality human resources capable of competing with professional expertise. Consequently, the government must prepare various critical aspects, particularly the enhancement of human resource (HR) competencies. Low education levels in Indonesia result in decreased workforce quality, increased unemployment rates, and weakened workforce competitiveness. Indonesia should create quality human resources with high skills, capabilities, and competitiveness to face global competition. These improvements can be achieved through educational enhancement and equalization, relevant workforce training, and provision of industry-supporting facilities to create quality human resources beginning from the education sector, particularly graduates who must be able to compete. This aligns with the educational function outlined in the Republic of Indonesia Law Article 3 Number 20 concerning the National Education System (2003), which states: "National education functions to develop capabilities and form the character and dignity of the nation's civilization in order to educate the nation's life, aiming to develop students' potential to become human beings who believe and fear God Almighty, have noble character, are healthy, knowledgeable, capable, creative, independent, and become democratic and responsible citizens."

Vocational High Schools (SMK) serve as educational foundations designed to prepare human resources ready to work according to their respective strengths and expertise (Yusadinata et al., 2021). Therefore, SMK graduates are expected to possess readiness to enter the workforce and have professional skills and attitudes. This constitutes part of the National Education System outlined in Republic of Indonesia Law Number 20 of 2003 concerning the National Education System, which states: "Vocational education is secondary education that prepares students primarily to work in specific fields."

According to data from the Central Statistics Agency (2024), the Open Unemployment Rate (TPT) in August 2024 reached 7.47 million people or 4.91% of the total workforce. In August 2024, the open unemployment rate at the SMK education level remained the highest compared to other education level graduates, at 9.01%. This indicates that SMK graduates, despite having undergone vocational education, are not yet fully prepared to enter the workforce. This condition suggests the need for attention to improving student work readiness.

Work readiness encompasses the overall physical, mental, and experiential conditions of individuals that enable them to be ready to perform work (Muspawi & Lestari, 2020). Two factors influence work readiness: internal factors such as physical and mental maturity, motivation, interest,

talent, intelligence, and knowledge mastery, and external factors such as family roles, school support, facilities and infrastructure, and industrial practice experience (Susanti & Mulyoto, 2020). Knowledge and skills factors can be observed from digital technology mastery. Industrial Work Practice (IWP) experience, on the other hand, can be assessed from students' understanding of work processes and their development of technical skills in their field of expertise. Therefore, both IWP experience as part of external factors and digital literacy capabilities influence student work readiness in facing a competitive and digital technology-based work environment.

Industrial Work Practice (IWP) is a training program conducted in the field or outside the classroom as part of learning activities integral to training programs (Kusnaeni et al., 2016). Digital literacy, as proposed by Paul Gilster in 1997, is the ability to understand and use information in various forms and sources widely accessed through computer devices (Naufal, 2021).

Work readiness problems occur among SMK Batik 2 Surakarta graduates. Based on graduate tracking data from SMK Batik 2 Surakarta in 2023, 37% of students obtained employment, 29% were unemployed or engaged in other activities, 4% chose to continue their education, and 30% were interested in entrepreneurship. The following gap was identified through researcher interviews with graduates and 12th-grade students, revealing that the work practice experience undertaken was not relevant to their vocational field. One student from the Health Services (LK) department was placed in a non-prescription pharmacy, only tasked with maintaining room cleanliness and arranging goods, rather than receiving training in basic health services or medical administration as appropriate. Additionally, low digital technology mastery was found, such as difficulties using basic computer software like Microsoft Office for compiling IWP reports or completing other learning requirements, and limitations in accessing and effectively utilizing digital learning media.

Problems emerging specifically at the SMK level involve two main aspects that pose challenges in the workforce. Many graduates still have not obtained employment or face waiting periods, and students have limitations in using digital technology. Yet, digital technology mastery has become a key skill in almost all work fields. Basic capabilities such as data processing, professional document preparation, and communication through digital platforms are minimum requirements expected by the industrial world. This represents one of the important aspects that must be possessed and needed in almost all modern work fields. This misalignment demonstrates the importance of more comprehensive skills, including through digital literacy strengthening and work practice relevant to the needs of the workforce and industrial world (DUDI).

IWP can be mentioned as a factor influencing work readiness. Previous research conducted by Habibah and Dwijayanti (2023) showed that field work practice has positive and significant effects on work readiness. Different research results by Purba (2024) stated that industrial work practice has very low influence on student work readiness due to lack of relevance between practice locations and student competency expertise and minimal student involvement in relevant tasks.

Capabilities in operating hardware and software play important roles in information mastery and readiness to enter the workforce. Individuals are expected to possess competencies suitable for Industrial Revolution 4.0 era needs to compete professionally. Previous research by Abrosimova (2020) showed that digital literacy capabilities provide positive roles because individuals can possess good thinking abilities and solve problems, especially in work fields. Different research results by Prianto and Nur Qomariyah (2021) stated that digital literacy does not influence work readiness because most students do not yet have clear career goals or direct work experience, while non-digital factors such as motivation, work attitudes, and direct practical experience become more dominant in influencing work readiness.

Based on the background explanation, it can be understood that work readiness among 12th-grade students at SMK Batik 2 Surakarta remains low. This is because IWP experience, which should serve as a means of real learning, has not been fully utilized optimally as some receive work irrelevant to their vocational field. Additionally, digital literacy capabilities remain suboptimal, demonstrated by more frequent technology use for entertainment compared to supporting learning and skill development. This research focuses on relevant combinations for work challenges: IWP experience as industry-based learning and digital literacy capabilities as essential skills in the digital era. Therefore, this study aims to determine the influence of IWP experience and digital literacy capabilities on work readiness among 12th-grade students at SMK Batik 2 Surakarta.

Research Method

This research was conducted at SMK Batik 2 Surakarta, located at Jalan Sere Pajang, Laweyan District, Surakarta City, Central Java. SMK Batik 2 Surakarta was selected as the research location due to its relevant information sources and required data, as well as its alignment with the research problems concerning SMK graduate work readiness issues highly relevant to the main objective of vocational education: producing graduates ready to enter the workforce. However, in reality, students still lack optimal work readiness levels.

The population used in this research comprised 132 12th-grade students at SMK Batik 2 Surakarta from 6 classes. The sample consisted of 100 students from the total population, calculated using the Slovin formula with a 5% error rate. The sampling technique employed proportional random sampling to ensure each class was proportionally represented according to its student numbers, providing accurate population representation and ensuring research results could be generalized. The sample distribution from each class was as follows: 10 LK students, 14 KCS students, 20 MPLB 1 students, 16 MPLB 2 students, 20 BCF 1 students, and 20 BCF 2 students.

Data collection utilized questionnaires with indicators according to Nasrullah et al. (2022) as follows: work readiness variable instruments used indicators: 1) having logical and objective considerations; 2) ability and willingness to cooperate with others; 3) ability to control oneself or emotions; 4) having critical attitudes; 5) courage to accept individual responsibility; 6) ability to adapt to environmental and technological developments; 7) ambition to advance and efforts to follow developments in expertise fields. For the Industrial Work Practice (IWP) experience variable, indicators according to Kusnaeni and Martono (2016) were used: 1) knowledge about the work world; 2) building work habits; 3) work skills and work attitudes; 4) creating cooperative relationships; 5) developing responsibility; 6) appreciating work and workers. The digital literacy capability variable used indicators according to Paul Gilster in Fajriati Fauzi's research (2022): 1) internet searching; 2) hypertextual navigation; 3) content evaluation; 4) knowledge assembly.

Instruments in this research were measured using a modified 4-point Likert scale that underwent validity and reliability testing using product moment correlation and Cronbach Alpha. The questionnaire was tested on 30 respondents who were not research samples. Requirements for declaring items valid in this research were $r_{\text{count}} > r_{\text{table}}$ (0.361) with 5% significance level. Items could be declared reliable if Cronbach Alpha values > 0.60 . Validity test results showed $r_{xy} > r_{\text{table}}$, enabling instruments to be declared valid. Reliability testing showed that student work readiness variables had values of 0.859, IWP experience variables had values of 0.843, and digital literacy capability variables had values of 0.830, enabling research instruments to be declared reliable.

The data analysis technique used multiple linear regression analysis to determine whether influences existed between two independent variables and the dependent variable. Before conducting data analysis, researchers performed classical assumption tests consisting of data normality tests, linearity tests, multicollinearity tests, and heteroscedasticity tests. After passing classical assumption tests, researchers conducted hypothesis testing to test whether proposed hypotheses were accepted or rejected. In hypothesis testing, researchers used t-tests, F-tests, multiple linear regression analysis, determination coefficient tests, and effective and relative contributions.

Results and Discussion

Research Results

This research involved three variables: two independent variables IWP experience (X_1) and digital literacy capabilities (X_2) and one dependent variable work readiness (Y). The instruments used comprised questionnaires consisting of 22 work readiness variable statements, 19 IWP experience variable statements, and 14 digital literacy capability variable statements. Research instruments underwent validity and reliability testing. Instruments were distributed through closed questionnaires to 100 research sample respondents. Data were collected, processed, and analyzed using IBM SPSS Statistics version 25. Research results included descriptive data analysis presented in Table 1.

Table 1
Descriptive Data Analysis

	Industrial Work Practice (IWP)	Digital Literacy	Work Readiness
Valid	100	100	100
Missing	0	0	0
Mean	54.79	39.09	62.09
Median	54.00	39.00	63.00
Mode	53	39	65
Std. Deviation	5.934	4.876	6.037
Variance	35.218	23.780	36.446
Range	36	29	28
Minimum	40	27	46
Maximum	76	56	74
Sum	5479	3909	6209

As shown in Table 1, descriptive data results for the work readiness variable obtained maximum values of 74, minimum values of 46, mean values of 62.09, and standard deviations of 6.037. The total value sum for work readiness variables based on collected data was 6209. The IWP experience variable obtained maximum values of 76, minimum values of 40, mean values of 54.79, and standard deviations of 5.934. The total value sum for work readiness variables based on collected data was 5479. The digital literacy capability variable obtained maximum values of 56, minimum values of 27, mean values of 39.09, and standard deviations of 4.876. The total value sum for work readiness variables based on collected data was 3909.

Classical assumption tests in this research included normality tests, linearity tests, multicollinearity tests, and heteroscedasticity tests. This research used Kolmogorov-Smirnov normality tests with decision-making bases for normality tests requiring significance values > 0.05 . Normality test results obtained values of 0.200, enabling conclusions that collected data were normally distributed.

Linearity tests in this research showed significant linear relationships between X variables and Y variables. Data could be considered linear if significance values > 0.05 . Linear test results for IWP experience on work readiness were $0.083 > 0.05$, while results for digital literacy capabilities on work readiness were $0.066 > 0.05$.

Multicollinearity tests were used to observe no multicollinearity symptoms if tolerance values > 0.10 and Variance Inflation Factor (VIF) values < 10 . Multicollinearity test results showed tolerance values for IWP experience and digital literacy capability variables of 0.405 with VIF values for each variable of 2.469. Based on these results, no multicollinearity symptoms existed between the two independent variables.

Heteroscedasticity tests using Glejser tests produced values for IWP experience variables of 0.299 and digital literacy capability variables of 0.993. Based on these results, no heteroscedasticity symptoms occurred.

Hypothesis testing results in this research used t-tests, F-tests, determination coefficient tests (R^2), and effective and relative contributions of X_1 and X_2 to Y. T-test results showed that IWP experience (X_1) had significance values of $0.000 < 0.05$ and obtained t_{count} values of $5.858 > t_{\text{table}}$ 1.984. Therefore, H_0 was rejected and H_1 was accepted, concluding significant influences between IWP experience and work readiness partially. T-test results also showed that digital literacy capabilities (X_2) had significance values of $0.000 < 0.05$ and obtained t_{count} values of $3.592 > 1.984$. Therefore, H_0 was rejected and H_2 was accepted, concluding significant influences between digital literacy capabilities and work readiness partially.

F-test results showed obtained significance values of $0.000 < 0.05$ with F_{count} 98.357 $> F_{\text{table}}$ 3.94. From these results, H_0 was rejected and H_3 was accepted, meaning significant influences existed between IWP experience and digital literacy capabilities on work readiness simultaneously.

The determination coefficient (R^2) obtained results of 0.670 or 67%, interpreted as IWP experience and digital literacy capability variables together influencing work readiness by 67%, with

the remaining 33% influenced by other variables not explained in this research.

Multiple linear regression analysis results obtained the regression equation $Y = 16.218 + 0.546 X_1 + 0.408 X_2$. Based on these results, if X_1 and X_2 values were 0, work readiness values obtained were 16.218. If one-point increases occurred in IWP experience variables, increases of 0.546 would occur in work readiness variables. If one-point increases existed in digital literacy capability variables, work readiness variables would increase by 0.408.

Effective contributions were obtained through calculations of IWP experience on work readiness of 42.45%, while effective contribution values for digital literacy capabilities on work readiness were 24.48%. The total of both effective contribution values aligned with determination coefficient test results (R Square) of 67%, with the remaining 33% representing contributions from other variables not researched in this study. Relative contribution results for IWP experience on work readiness were 63.42%, and relative contribution values for digital literacy capabilities on work readiness were 36.58%. The sum of both relative contributions was 100%.

Discussion

The first hypothesis in this research stated that influences were suspected between IWP experience and student work readiness. To prove this hypothesis, t-test calculations were performed with significance values of $0.000 < 0.05$ and obtained t_{count} values of $5.858 > t_{\text{table}} 1.984$. Based on these results, H_0 was rejected and H_1 was accepted, concluding that IWP experience positively and significantly influenced work readiness among 12th-grade students at SMK Batik 2 Surakarta. Students who participated in IWP and were placed in institutions relevant to their vocational fields and received active guidance from field supervisors tended to show higher confidence levels and work skills compared to students placed in institutions less relevant to their vocations and not receiving optimal guidance. Good IWP experiences can increase student work readiness in facing industrial challenges. These analysis results strengthen Bartle's (2015) theory that effective learning occurs when individuals obtain direct experience, reflect on that experience, and connect it with previously learned theories or concepts. Results in this research also strengthen research by Habibah and Dwijayanti (2023) showing that field work practice (IWP) experiences have positive and significant impacts on work readiness, and research by Putra et al. (2023) regarding IWP benefits for students in forming good thinking patterns and work ethics, training professionalism, and honing skills according to expertise fields.

The second research hypothesis stated that influences were suspected between digital literacy capabilities and student work readiness. To prove this hypothesis, t-test calculations were performed with significance values of $0.000 < 0.05$ and obtained t_{count} values of $3.592 > t_{\text{table}} 1.984$. Based on these results, H_0 was rejected and H_2 was accepted, concluding that digital literacy capabilities positively and significantly influenced work readiness among 12th-grade students at SMK Batik 2 Surakarta. Digital literacy capabilities are greatly needed to support work productivity and have become not only additional skills but fundamental parts that must be possessed to face the all-digital industrial world, especially for students. These research results strengthen research by Putri and Supriansyah (2021) stating that digital literacy becomes one of the most influential factors on work readiness, especially for Generation Z, and research by Abrosimova (2020) indicating that digital literacy provides positive roles because individuals can possess good thinking abilities and solve problems, especially in work fields.

The third hypothesis in this research stated that influences were suspected between IWP experience and digital literacy capabilities simultaneously on work readiness among 12th-grade students at SMK Batik 2 Surakarta. This could be proven through F-test calculations obtaining significance values of $0.000 < 0.05$ with $F_{\text{count}} 98.357 > F_{\text{table}} 3.94$. Based on these results, H_0 was rejected and H_3 was accepted, so IWP experience and digital literacy capabilities together positively and significantly influenced work readiness among 12th-grade students at SMK Batik 2 Surakarta. Improvements in field work practice (IWP) experience and digital literacy capabilities can increase student work readiness. These research results align with learning theory applications, particularly connectionism theory pioneered by Edward Lee Thorndike, stating that every individual behavior results from stimulus-response relationships. To obtain or achieve good results in learning, working,

and any activities, readiness is required (Hamruni et al., 2021). Results in this research also strengthen research by Azky and Mulyana (2024) stating that student readiness or unreadiness for work is influenced by various factors basically determined by students themselves, while external factors serve as support but deserve consideration.

Conclusion

Based on the research results presented above, conclusions were reached that positive and significant influences existed between IWP experience and work readiness, followed by positive and significant influences between digital literacy capabilities and work readiness. Additionally, positive and significant influences existed between IWP experience and digital literacy capabilities together on work readiness. These conclusions prove that research hypotheses were relevant to research results. Other findings in this research showed that IWP experience and digital literacy capabilities simultaneously influenced student work readiness by 67%, while the remaining 33% was influenced by other variables not explained in this research. Based on these conclusions, suggestions that researchers can provide to the Principal of SMK Batik 2 Surakarta include: research results showed that IWP experience had dominant influences on work readiness, but digital literacy capabilities remained important. Therefore, recommendations include not only strengthening IWP program implementation quality through closer cooperation with business and industrial worlds (DUDI) but also designing training programs or project-based learning activities supporting basic digital literacy improvements. For teachers, suggestions include providing guidance, positive feedback, and student-centered learning approaches to strengthen practical experience and technology mastery. For students, active development of digital literacy capabilities through training and relevant technology exploration is needed to prepare for digital-based work environments, not just relying on social media usage habits. For future researchers, expectations include uncovering other variables or factors influencing work readiness such as work motivation, academic achievement, work interest, work world information, and others. Research limitations include scope covering only one school and data collection processes requiring longer time due to waiting for students to complete IWP activities, affecting overall research implementation time effectiveness.

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Digital entrepreneurship education: A systematic review and contextual conceptual design

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Abstrak

Transformasi digital telah melahirkan bentuk baru kewirausahaan yang dikenal sebagai kewirausahaan digital. Perkembangan ini menempatkan pendidikan kewirausahaan digital sebagai elemen penting untuk membekali generasi menghadapi tantangan ekonomi modern. Penelitian ini menyajikan sintesis sistematis literatur dalam sepuluh tahun terakhir, mencakup analisis kata kunci, tren tahunan, distribusi geografis, pendekatan metodologis, kerangka teoretis, fokus kajian, dan rekomendasi rancangan desain konseptual pembelajaran. Metode yang digunakan adalah Systematic Literature Review (SLR) dengan pedoman PRISMA terhadap 40 artikel terpilih dari basis data Scopus yang terbit pada tahun 2015-2025. Hasil menunjukkan peningkatan signifikan publikasi dan perhatian global, terutama di Asia, dengan dominasi kontribusi dari China. Theory of Planned Behaviour menjadi kerangka teoritis paling sering digunakan, sedangkan metode penelitian yang paling dominan adalah survei. Fokus kajian umumnya meliputi pengembangan kompetensi kewirausahaan, inovasi kurikulum, literasi digital, dan ekosistem digital, namun konteks komunitas dan wilayah terpinggir masih jarang dibahas. Untuk mengisi kesenjangan tersebut, diusulkan desain konseptual praktikum berbasis lapangan yang melibatkan mahasiswa dalam pendampingan pelaku usaha lokal, memadukan konstruktivisme, problem-based learning, pembelajaran tim, dan prinsip teach others. Model ini ditujukan untuk mengembangkan keterampilan abad 21 sekaligus mendorong pendidikan kewirausahaan digital yang lebih kontekstual, inklusif, dan berorientasi pemberdayaan masyarakat.

Kata kunci: desain pembelajaran; edukasi kewirausahaan digital; kewirausahaan berbasis komunitas; tinjauan literatur sistematis

Abstract

Digital transformation has created new forms of entrepreneurship known as digital entrepreneurship, making its education vital for preparing future generations for modern economic challenges. This study synthesizes literature from the past decade, examining yearly trends, geographic distribution, methodological approaches, theoretical frameworks, research focus, and proposes conceptual learning design. We employed a Systematic Literature Review (SLR) following PRISMA guidelines to

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analyze 40 Scopus-indexed articles published between 2015-2025. Findings revealed steady publication growth and increasing global attention, especially in Asia, with China as the leading contributor. The Theory of Planned Behaviour emerged as the most applied theoretical framework, while survey methods dominated research approaches. Research topics largely addressed entrepreneurial competence development, curriculum innovation, digital literacy, and digital ecosystem enhancement. However, studies rarely focused on community-based and marginalized contexts. To address this gap, we propose a field-based practicum model in which students mentor local entrepreneurs. The design integrates constructivism, problem-based learning, team learning, and the "teach others" principle, aiming to cultivate twenty-first century skills while promoting digital entrepreneurship education that is more contextual, inclusive, and empowerment-driven.

Keywords: community-based entrepreneurship; digital entrepreneurial education; learning design; systematic literature review

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Introduction

The advancement of digital technology has brought significant transformations across various life domains, including business environments. Entrepreneurship, previously dependent on physical resources and direct interactions, has evolved into digital entrepreneurship. In this form, technologies such as the internet, artificial intelligence, blockchain, and digital platforms are utilized to create value, reach markets, and enhance business efficiency (Vorbach et al., 2019; Zhang et al., 2021). This transformation opens new opportunities for various groups to participate in modern economies based on innovation and global connectivity. Beyond serving as adaptation to technological disruption, digital entrepreneurship is also considered an approach with potential to drive more inclusive and sustainable economic growth (Mei et al., 2022; Sánchez Vera & López Vicent, 2024; Wang & Ye, 2024).

In this context, digital entrepreneurship education plays crucial roles. According to Lopes et al. (2025), digital entrepreneurship education is a field that integrates digital technology and platforms into entrepreneurship curricula. This education is designed to equip individuals with knowledge, skills, and attitudes aligned with demands of continuously evolving business worlds. Besides teaching entrepreneurship fundamentals, this education emphasizes digital literacy importance, innovation capabilities, and readiness to face rapid changes (Gillani et al., 2022; Wibowo et al., 2023). The development demonstrates increasingly widespread technology integration in learning processes. The use of artificial intelligence, including tools like ChatGPT, has been employed to strengthen learning personalization, enhance confidence, and foster student creativity (Duong et al., 2024; Weng et al., 2025). Additionally, online platforms such as massive open online courses (MOOCs) enable more open and flexible learning access (Jardim, 2021; Vorbach et al., 2019). Thus, digital entrepreneurship education has evolved into a system that not only teaches theory but also provides learning experiences connected to real-world practices and cutting-edge technology.

Despite various developing initiatives, important questions remain regarding how far digital entrepreneurship education truly addresses needs across various social and economic contexts. Several studies show that this approach can enhance entrepreneurial intention, strengthen digital literacy, and build individual motivation for starting businesses (Gillani et al., 2022; Udekwe & Iwu, 2024). However, existing literature reveals various limitations. Many studies remain focused on specific regions or countries, use descriptive approaches, and have not fully integrated technological,

cultural, and educational practice aspects comprehensively (Bulto et al., 2025; Linzalone et al., 2020). Some empirical findings have also not been linked to strong theoretical frameworks, complicating development of educational strategies suitable for socially and culturally diverse community needs (Nguyen & Nguyen, 2024; Zeng et al., 2022). This emphasizes the need for systematic studies that not only collect findings but also organize them into more comprehensive understanding.

Based on this background, this article aims to develop systematic synthesis of digital entrepreneurship education literature over the past decade. This study is directed toward achieving four main objectives. First, mapping research results conducted in contexts of keywords, annual trends, geographic distribution, methodological approaches, theoretical frameworks, and study focus. Second, identifying research gaps that remain open and under-discussed. Third, developing conceptual design recommendations for digital entrepreneurship education relevant to formal education in universities or school levels. Fourth, providing future research directions more relevant to challenges and opportunities in digital transformation era. Through systematic literature review approach combining thematic exploration and bibliometric analysis, this article is expected to contribute to strengthening scientific understanding and developing digital entrepreneurship education practices that are more contextual, adaptive, and innovative.

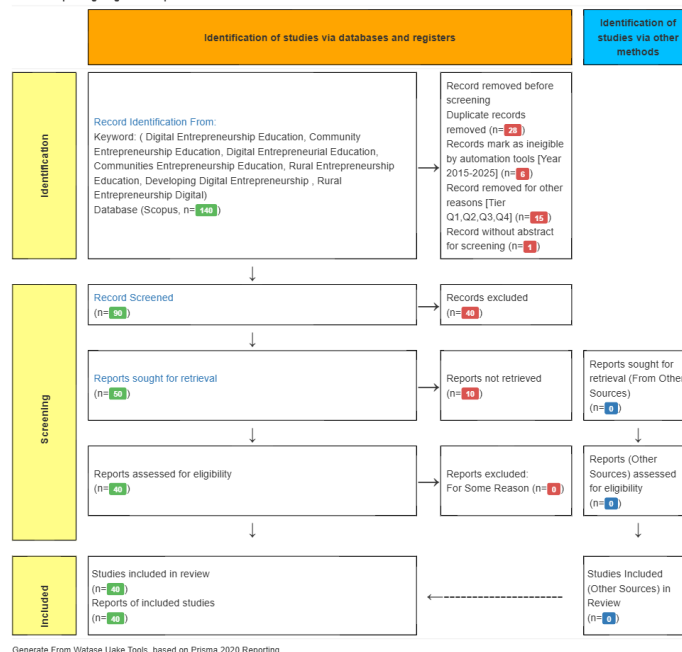
Research Methods

This research employed a Systematic Literature Review (SLR) methodology structured according to PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines as formulated by Moher et al. (2009). This approach was selected to ensure that identification, selection, and analysis of articles were conducted systematically, transparently, and replicably. Study focus was directed toward digital entrepreneurship education themes, including variations such as community entrepreneurship education and rural entrepreneurship. The Scopus database was utilized as the primary source due to its rigorous indexing standards and strong academic reputation (Rocha et al., 2019).

Figure 1

Prisma Diagram

Prisma Reporting: Digital Entrepreneurial Education



The search strategy employed Boolean operators with the following search string: ("Digital Entrepreneurship Education" OR "Community Entrepreneurship Education" OR "Digital Entrepreneurial Education" OR "Communities Entrepreneurship Education" OR "Rural Entrepreneurship Education" OR "Developing Digital Entrepreneurship" OR "Rural Entrepreneurship Digital"). To validate the effectiveness of these keywords, pilot testing was conducted initially to assess search results relevance to the study's topical focus. The initial search yielded 140 articles, which were subsequently filtered through several stages. The filtering process began with duplicate removal (n = 28), followed by elimination of articles outside the target timeframe (2015-2025), exclusion from journals not classified within Scopus Q1-Q4 indices (n = 15), and removal of articles without abstracts (n = 1). This process resulted in 50 articles proceeding to the next filtering stage.

As illustrated in Figure 1, the PRISMA diagram demonstrates the systematic selection process. From the 50 articles that passed initial selection, 10 were inaccessible in full-text format, leaving 40 articles for further analysis. The inclusion criteria applied encompassed: articles published within 2015-2025, availability in reputable Scopus Q1-Q4 international journals, clear abstract availability, and explicit discussion of digital entrepreneurship education in various forms. Exclusion criteria were applied to duplicate articles, those irrelevant to the core theme, or those from unclassified journals. To maintain analysis accuracy and traceability, this research utilized Wase Uake, a visual and analytical support tool that facilitates SLR activities through PRISMA modules, article classification, and data visualization (Wahyudi, 2024). However, this tool was not used as the primary determinant but as support that still required direct assessment and interpretation from the authors. Through qualitative thematic approaches to the 40 selected articles, this study aimed to provide comprehensive mapping of dynamics and research directions in digital entrepreneurship education over the past decade.

Results and Discussion

Research Results

Keyword Analysis

Figure 2
Keyword Wordcloud



To examine research directions and trends in digital entrepreneurship education more closely, visual analysis of keywords was conducted using WordCloud. As demonstrated in Figure 2, terms such as "entrepreneurship education," "digital entrepreneurship," "entrepreneurial intention," "innovation," and "education" emerged as the most frequently appearing keywords. This indicates that main focus of studies over the past decade has largely centered on institutional-level education, entrepreneurial intention development, and technology utilization in learning processes.

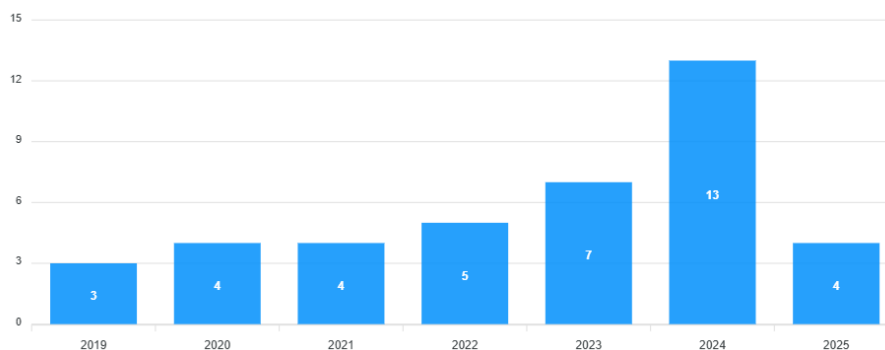
Additionally, terms such as "digital literacy," "technology transfer," "gamification," and "simulation games" appeared, indicating attention toward technology-based and experiential learning approaches. Several popular theories such as "The Theory of Planned Behavior" and "Social Cognitive Theory" also appeared to be widely used. Based on visualization in Figure 2, terms related to community, rural areas, or vulnerable groups were barely visible as part of dominant terminology. Words such as "community," "rural," or "marginalized" were not prominent and tended not to appear at all. This indicates that digital entrepreneurship education approaches involving grassroots communities remain under-discussed in academic literature.

Publication Trends

The number of publications on digital entrepreneurship education themes shows an increasing trend year over year. Figure 3 illustrates the publication trend, revealing that in 2019, only 3 articles existed, rising to 4 articles in 2020 and maintaining the same number in 2021. The increase became noticeable in 2022 with 5 articles, then surged to 7 articles in 2023. This development shows gradual growth in researcher attention toward this issue.

Figure 3

Publication Trend Diagram

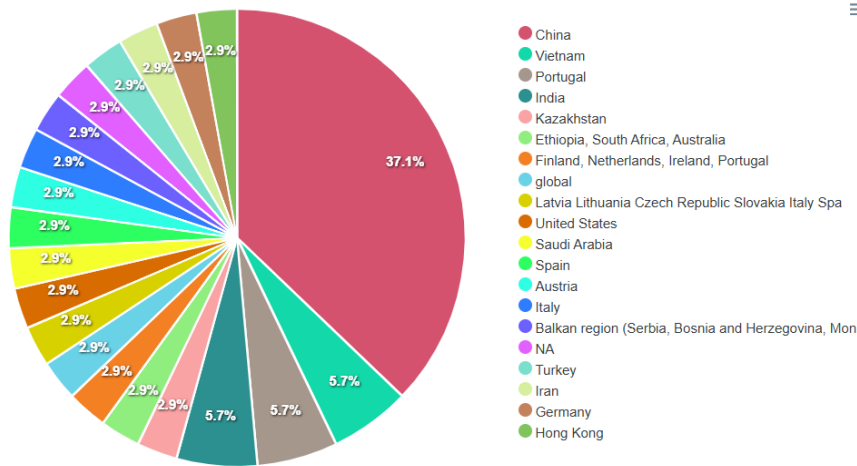


As shown in Figure 3, the peak number of publications occurred in 2024 with a total of 13 articles, indicating significant surge in research interest. Meanwhile, by 2025, 4 articles have been recorded, which may still increase. Overall, this graph reflects consistent growth in research numbers, with 2022-2024 as particularly notable increase phase. This indicates that digital entrepreneurship education has increasingly become primary focus in academic studies.

Geographic Distribution

The geographic distribution of digital entrepreneurship education research shows strong dominance from one country: China, contributing more than one-third of total analyzed studies. As illustrated in Figure 4, with a percentage reaching 37.1%, China becomes the primary research center in this topic. This demonstrates the seriousness of this country in developing innovation and digital integration in entrepreneurship education.

Figure 4
Geographic Distribution Diagram



Besides China, several other countries such as Vietnam and Portugal also recorded significant contributions, each at 5.7%. The remainder is distributed evenly among various other countries, including India, Kazakhstan, Austria, Italy, and several combined global regions, each around 2.9%. The distribution map reflected in Figure 4 shows that digital entrepreneurship research has reached various world regions, though still concentrated in certain countries.

Research Approach Types

Based on analysis results, the most dominant research approach in digital entrepreneurship education studies was the survey method, with a total of 9 studies. As presented in Figure 5, this was followed by quantitative approaches with 5 studies, case studies with 4, and empirical analysis and mixed-method each with 3 studies. This pattern indicates that the majority of studies attempt to collect large-scale data for statistical analysis to describe phenomena generally.

Figure 5
Research Approach Type Diagram



Figure 5 demonstrates that although not as numerous as quantitative methods, qualitative and mixed approaches were also used in several studies, reflecting efforts to understand contexts and

participant experiences more deeply. Additionally, diversity in other methods such as bibliometric, experimental, and systematic literature review was evident, each used in 1-2 studies.

Theoretical Frameworks

We identified the Theory of Planned Behavior (TPB) as the most dominant conceptual framework in digital entrepreneurship education studies. Scholars use this theory to explain the formation of entrepreneurial intentions in digital contexts. The theory focuses on three elements: attitudes toward behavior, subjective norms, and perceived behavioral control. Researchers consider these elements relevant for explaining individual motivation in deciding to become digital entrepreneurs. Educators regard TPB as appropriate in learning settings because intention, perception, and self-efficacy of students or trainees represent essential outcomes of digital entrepreneurship education.

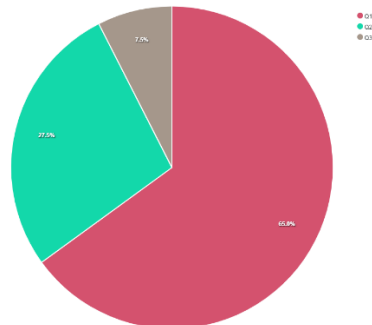
Several studies adopt Social Cognitive Theory (SCT) to highlight the role of social learning processes, self-efficacy, and observational learning through role models in shaping entrepreneurial competence and motivation. Some researchers apply alternative frameworks with contextual and structural perspectives. The Organisational Resilience framework emphasizes institutional capacity to adapt and innovate during digital disruption. The Entrepreneurship Teaching Model provides systematic approaches to designing and evaluating entrepreneurship education strategies.

Journal Classification and Distribution

From the total 40 analyzed articles, digital entrepreneurship education research was distributed across various reputable international journals, with main concentration in *Frontiers in Psychology*, *International Journal of Entrepreneurial Behavior & Research*, and *Sustainability*. These three became dominant publication channels and show community scientific attention directions. Based on journal classification using the Scopus quartile system shown in Figure 6, the majority of studies were published in Q1 journals, namely 26 out of 40 articles.

Figure 6

Journal Level Diagram



The Q1 category represents the highest ranking in the Scopus journal assessment system, indicating that research in this field has high quality, significant impact, and strong international relevance. Several other articles were distributed in Q2 and Q3 journals, with much smaller numbers. This fact reflects that digital entrepreneurship education has become competitive and globally valued topic.

Research Focus

Analysis of 40 reviewed articles indicates that research in digital entrepreneurship education concentrates on several central themes. The first theme emphasizes development of digital entrepreneurial competence and attitudes. Researchers examine how education enhances confidence, creativity, and readiness among students to engage in technology-based entrepreneurship. Studies by Zeynalov and Doğantan (2025), Li et al. (2024), and Wibowo et al.

(2023) reveal that both quantitative and qualitative approaches are widely applied to assess effectiveness of educational interventions in shaping digital entrepreneurial mindset. The second theme addresses innovation in curriculum design and development of adaptive skills for digital transformation. Wang et al. (2024) and Zhang et al. (2021) stress the importance of digital-based approaches in fostering innovative abilities, including use of online learning and project-based methods to enhance relevant and contextual entrepreneurial experiences.

Digital literacy and technological readiness represent another major area of concern. Researchers demonstrate that digital literacy not only strengthens technological understanding but also relates closely to entrepreneurial motivation and intention. Weng et al. (2025) and Zhao (2021) confirm that students with higher levels of digital literacy show greater readiness and stronger interest in pursuing digital entrepreneurship. The final theme highlights significance of building integrated digital entrepreneurship ecosystem. Autio et al. (2024) and Sitaridis and Kitsios (2024) demonstrate that effective digital entrepreneurship education requires collaboration among multiple actors, including educational institutions, government, and industry. Scholars emphasize that such collaboration plays crucial roles in creating ecosystems that sustain innovation and support long-term digital entrepreneurship growth.

Discussion

Digital entrepreneurship education has experienced rapid growth over the past decade. Researchers have employed diverse approaches in terms of theory, methodology, and regional context. This development demonstrates that digital entrepreneurship is increasingly regarded as essential component of higher education aimed at preparing young generations to face digital economy challenges. The rising trend of publications, spread of reputable journals that accommodate this field, and diversity of research topics indicate that this issue has gained attention in many countries, particularly in Asia, including China, Indonesia, and Vietnam.

Progress in this field, however, remains uneven. Scholars frequently investigate themes such as competence development, curriculum innovation, digital literacy, and ecosystem building. Most studies focus on higher education institutions located in urban areas with adequate technological infrastructure. Researchers often assume that students already possess access to digital resources, sufficient digital capabilities, and supportive entrepreneurial environment. Actual conditions, however, do not always reflect these assumptions. Many regions and communities still lack access to programs that promote digital entrepreneurship education.

An important issue emerges from lack of attention to digital entrepreneurship education within marginalized communities and rural areas. Only limited numbers of studies directly address educational efforts for rural societies or vulnerable groups. Mei et al. (2022) and Autio et al. (2024) mention initiatives such as digital village development and local ecosystem building, but these findings remain exceptions rather than part of mainstream research. This gap indicates that current research agenda does not fully capture importance of extending digital entrepreneurship education to socially and geographically disadvantaged populations.

This problem carries significant implications because digital entrepreneurship education holds strong potential as tool for community empowerment. Appropriate educational approaches can help rural communities develop local businesses, increase income, and expand employment opportunities. Educational strategies that remain relevant only to universities or urban centers, however, risk deepening social and economic inequalities rather than reducing them. Future research and practice must therefore direct greater attention to outreach in peripheral areas and among groups that have not yet received adequate educational opportunities.

The discussion suggests that digital entrepreneurship education has advanced in terms of methods and topics, yet it continues to face challenges related to social and spatial equity. Locality, marginalization, and technological access require stronger emphasis to ensure that digital entrepreneurship education truly reaches all segments of society. Future studies should adopt more contextualized approaches, involve communities directly, and design learning models that align with needs and capacities of local populations.

Conceptual Design Recommendations

Digital entrepreneurship education continues to face challenges in reaching local communities and marginalized groups. Social and geographical gaps in business digitalization application highlight need for learning approaches that emphasize not only technological innovation but also direct social engagement. To address these challenges, the following conceptual design provides concrete model of experiential, collaborative, and impactful digital entrepreneurship learning. The design aims to integrate theoretical understanding with practical engagement, encouraging students to actively participate in local entrepreneurship ecosystems, particularly among small business actors and marginalized communities in their surroundings. Students gain knowledge not only about technical aspects of digitalization but also about social dynamics, structural barriers, and entrepreneurial values emerging from local communities.

The first stage positions students as active learners who work in teams. Each group collaborates with one or more entrepreneurs. The practicum is grounded in constructivist learning theory, which emphasizes that knowledge is actively built through direct experiences, social interactions, and reflection on real-life contexts. The approach employs problem-based learning, requiring students to begin with identifying real challenges in field rather than applying classroom practices as universal solutions. Solutions are developed collaboratively with business partners based on their needs and capacities.

The second stage involves classroom preparation before field engagement. Instructors provide students with training on principles of digital entrepreneurship, use of simple digital tools such as business-oriented social media, digital catalogs, QRIS payment systems, and relevant communication strategies. Ethical values also form essential components of this preparation. Instructors emphasize humility, respect for local knowledge, and equal relationships to ensure that students act as empathetic facilitators rather than authoritative instructors.

The third stage focuses on fieldwork where students conduct interviews and direct observations with entrepreneurs. Students gather information on motivation, constraints, and patterns of technological adaptation. Students then provide accessible digital assistance such as setting up WhatsApp Business accounts, organizing digital product catalogs, promoting products through social media, or introducing QRIS-based cashless payment systems. The process also allows students to learn from entrepreneurs, particularly regarding persistence, improvisation, and entrepreneurial values that are often absent from formal classroom instruction.

The fourth stage concludes with student presentations that showcase project outcomes. Presentations function as reflective sessions where groups exchange experiences, compare approaches, discuss challenges, and evaluate real impacts of their interventions. Instructors provide comprehensive feedback to ensure that students gain meaningful insights from both successes and limitations.

The conceptual design aligns with development of six core twenty-first-century skills or 6C as illustrated in Figure 7. Students are challenged to think critically in analyzing business partner situations, demonstrate creativity in designing digital solutions, collaborate within teams and

communities, communicate empathetically, act responsibly as active citizens, and develop resilience that embraces diversity and social realities.

Figure 7
21st Century Skills

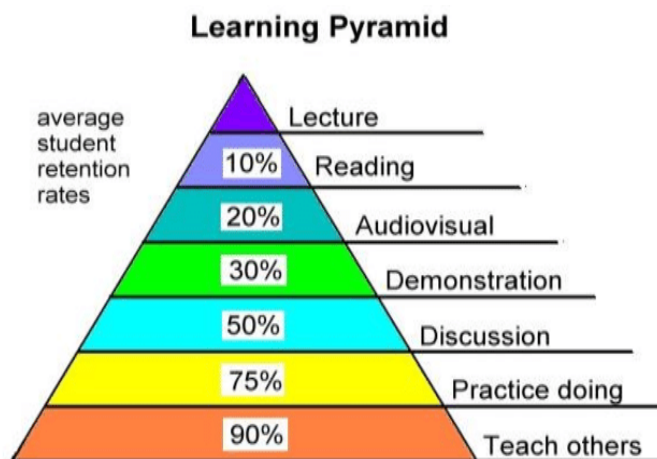


6C 21st Century Skills



Additionally, this design adopts the "teach others" principle which becomes the largest part in the learning pyramid, whose levels can be seen in Figure 8. By sharing knowledge with business actors, students not only help business partners access digital skills but also deepen their own understanding. Teaching something requires material mastery, explanation skills, and sensitivity toward audiences with different backgrounds.

Figure 8
Learning Pyramid



This makes learning processes more meaningful, reflective, and contextual. Through this approach, students not only learn to become digital entrepreneurs but also learn to become change facilitators, community drivers, and lifelong learners. This practicum not only strengthens cognitive aspects but also forms social sensitivity and real contributions to surrounding communities.

Conclusion

This study demonstrates that digital entrepreneurship education represents strategic approaches in preparing young generations to face technology-based economic transformation, with significant academic attention increase over the past decade, evident from growing publication numbers, diverse methodologies, and theoretical frameworks used, where Theory of Planned Behavior emerges as dominant theory, survey methods become the most widely used approach, and China emerges as the most prominent research region. Digital entrepreneurship education not only equips learners with entrepreneurship knowledge and skills but also promotes digital literacy strengthening, creativity, and innovation in facing rapid economic changes. Nevertheless, most research remains focused on urban contexts and higher education, while studies explicitly targeting local communities and marginalized areas remain minimal. Future development directions need to position inclusivity, contextuality, and sustainability as primary orientations, as reflected in the proposed field-based digital entrepreneurship practicum conceptual design that encourages students to engage directly in small business actor environments and marginalized communities to apply knowledge contextually and collaboratively. This recommendation integrates constructivism theory, problem-based learning, team-based learning, and "teach others" principles to sharpen digital and entrepreneurship competencies while building social empathy, reflective capabilities, and 21st century skills such as critical thinking, creativity, collaboration, communication, citizenship concern, and adaptive resilience. Digital entrepreneurship education designed participatively and context-based has potential to produce resilient digital entrepreneurs while serving as change agents in society. However, this study has limitations including single use of Scopus database that risks bias by not covering literature from other databases or local publications that might be more representative of community contexts, subjectivity in article selection, and limited access to paid publications. Future research should expand literature sources, explore Indonesian local contexts, and adopt transdisciplinary approaches that integrate economic, technological, educational, and social empowerment perspectives to produce richer, more relevant, and applicable findings.

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APPENDIX

No	Analyzed Articles
1	Shovqi, Zeynalov; Ece, Doğantan, 2025, The Effect of Digital Literacy and Entrepreneurship Education on Digital Entrepreneurship Intention: The Mediating Role of Personal Innovativeness, <i>Technology, Knowledge and Learning</i>
2	Arezou, Mirhabibi; Ali, Shayan; Shaghayegh, Sahraei, 2025, Improving digital entrepreneurship readiness of business students: The moderating roles of digital mindset and digital education, <i>International Journal of Management Education</i>
3	Phuong Ngoc Duy, Nguyen; Huan Hong, Nguyen, 2024, Unveiling the link between digital entrepreneurship education and intention among university students in an emerging economy, <i>Technological Forecasting and Social Change</i>
4	Xiaojing, Weng; Michelle Mingyue, Gu; Qi, Xia; Thomas K.F., Chiu, 2025, SWOT analysis of AI empowered entrepreneurship education: Insights from digital learners in higher education, <i>Thinking Skills and Creativity</i>
5	Agus, Wibowo; Bagus Shandy, Narmaditya; Ari, Saptono; Mohammad Sofwan, Effendi; Saparuddin, Mukhtar; Muhammad Hakimi, Mohd Shafiai, 2023, Does Digital Entrepreneurship Education Matter for Students' Digital Entrepreneurial Intentions? The Mediating Role of Entrepreneurial Alertness, <i>Cogent Education</i>
6	Raihan Taqui, Syed; Rashed A., Alzahmi; Urwa, Tariq, 2024, Digital entrepreneurship education in universities through the lens of educators: evidence from the United Arab Emirates, <i>Cogent Education</i>
7	Sihui, Li; Yajing, Bu; Zeyuan, Zhang; Yangjie, Huang, 2024, Digital entrepreneurship intention and digital entrepreneurship behavior: the mediating role of managing learning and entrepreneurship education, <i>Education and Training</i>
8	Ioannis, Sitaridis; Fotis, Kitsios, 2024, Digital entrepreneurship and entrepreneurship education: a review of the literature, <i>International Journal of Entrepreneurial Behaviour and Research</i>
9	Roberto, Linzalone; Giovanni, Schiuma; Salvatore, Ammirato, 2020, Connecting universities with entrepreneurship through digital learning platform: functional requirements and education-based knowledge exchange activities, <i>International Journal of Entrepreneurial Behaviour and Research</i>
10	Giustina, Secundo; Pierluigi, Rippa; Michele, Meoli, 2020, Digital transformation in entrepreneurship education centres: preliminary evidence from the Italian Contamination Labs network, <i>International Journal of Entrepreneurial Behaviour and Research</i>
11	Cong, Wang; Yuening, Liu; Huamin, Yin, 2024, Research on Curriculum Construction and Capacity Cultivation of Innovation and Entrepreneurship Education in Colleges and Universities in the Context of Digital Curriculum Civics and Politics, <i>Applied Mathematics and Nonlinear Sciences</i>
12	Yanwei, Xu, 2024, Research on the Construction Problems of Innovation and Entrepreneurship Education Programs in Higher Vocational Colleges and Universities under the Background of Digital Technology Era, <i>Applied Mathematics and Nonlinear Sciences</i>
13	Tadesse Weyuma, Bulto; Abdella Kosa, Chebo; Berhanu, Endeshaw; Birhanu Chalchisa, Werku; Shepherd, Dhliwayo, 2025, Visualizing digital transformation in entrepreneurship education: a bibliometric analysis study from 2018 to 2022, <i>Frontiers in Education</i>
14	Jie, Zhang; Mingming, Zhang; Yaqian, Liu; Ruimin, Lyu; Rongrong, Cui, 2021, Research on the Integration of Media Literacy Innovative Concept and Entrepreneurship Education and Digital Dynamic Creative Expression Talents, <i>Frontiers in Psychology</i>
15	Yang, Zhao, 2021, Examining Digital Entrepreneurship: The Goal of Optimization of Transformation Path Normal Education in China, <i>Frontiers in Psychology</i>
16	Emmanuel, Udekwe; Chux Gervase, Iwu, 2024, The Nexus Between Digital Technology, Innovation, Entrepreneurship Education, and Entrepreneurial Intention and Entrepreneurial Motivation: A Systematic Literature Review, <i>Education Sciences</i>

17	Xiyuan, Xiang; Jing, Wang; Zehai, Long; Yangjie, Huang, 2023, Improving the Entrepreneurial Competence of College Social Entrepreneurs: Digital Government Building, Entrepreneurship Education, and Entrepreneurial Cognition, <i>Sustainability</i>
18	Kristaps, Lesinskis; Inese, Mavlutova; Aivars, Spilbergs; Janis, Hermanis, 2023, Digital Transformation in Entrepreneurship Education: The Use of a Digital Tool KABADA and Entrepreneurial Intention of Generation Z, <i>Sustainability</i>
19	María, del Mar Sánchez-Vera; Patricia, López-Vicent, 2024, The competence of digital entrepreneurship in education: Analysis of the perception of university students, <i>Intangible Capital</i>
20	Stefan, Vorbach; Elisabeth, Maria Poandl; Ines, Korajman, 2019, Digital entrepreneurship education: The role of MOOCs, <i>International Journal of Engineering Pedagogy</i>
21	Qingfang, Wang, 2021, Higher education institutions and entrepreneurship in underserved communities, <i>Higher Education</i>
22	Sucheta, Agarwal; Veland, Ramadani; Shqipe, Gerguri-Rashiti; Vivek, Agrawal; Jitendra Kumar, Dixit, 2020, Inclusivity of entrepreneurship education on entrepreneurial attitude among young community: evidence from India, <i>Journal of Enterprising Communities</i>
23	Maria José, Sousa; Manuel, Carmo; Ana Cristina, Gonçalves; Rui, Cruz; Jorge Miguel, Martins, 2019, Creating knowledge and entrepreneurial capacity for HE students with digital education methodologies: Differences in the perceptions of students and entrepreneurs, <i>Journal of Business Research</i>
24	Cong Doanh, Duong; Thanh Hieu, Nguyen; Tuan Vu, Chu; Thanh Van, Pham; Ngoc Diep, Do, 2024, Whether ChatGPT adoption inspires higher education students' digital entrepreneurial intention? An integrated model of the SCCT and the TPB, <i>International Journal of Innovation Science</i>
25	Saltanat, Aubakirova; Maira, Kozhamzharova; Gaukhar, Zhumabekova; Gulzhan, Artykbayeva; Zauresh, Iskakova; Ramilya, Zhayabayeva, 2023, Experience in forming entrepreneurial education in Kazakhstan universities in the conditions of information and digital development, <i>Frontiers in Education</i>
26	Jacinto, Jardim, 2021, Entrepreneurial skills to be successful in the global and digital world: Proposal for a frame of reference for entrepreneurial education, <i>Education Sciences</i>
27	Saeed, Alzahrani; Anish Kumar, Bhunia, 2024, A Serial Mediation Model of the Relationship between Digital Entrepreneurial Education, Alertness, Motivation, and Intentions, <i>Sustainability</i>
28	Syed M.Afraz Hassan, Gillani; Aslan Bin Amat, Senin; Jürgen, Bode; , Muniba; Syed M.Ahmad Hassan, Gillani, 2022, Bibliometric Analysis of Digital Entrepreneurial Education and Student Intention; Reviewed and Analyzed by VOSViewer from Google Scholar, <i>International Journal of Interactive Mobile Technologies</i>
29	Tarja, Römer-Paakkanen; Maija, Suonpää, 2023, Entrepreneurship Education with Purpose: Active Ageing for 50+ Entrepreneurs and Sustainable Development for Rural Areas, <i>Education Sciences</i>
30	Minling, Zeng; Yanling, Zheng; Yu, Tian; Abdelhamid, Jebbouri, 2022, Rural E-Commerce Entrepreneurship Education in Higher Education Institutions: Model Construction via Empirical Analysis, <i>Sustainability</i>
31	Jonas, Soluk; Nadine, Kammerlander; Solomon, Darwin, 2021, Digital entrepreneurship in developing countries: The role of institutional voids, <i>Technological Forecasting and Social Change</i>
32	Erkko, Autio; Éva, Komlósi; László, Szerb; Mónika, Galambosné Tiszberger; Donghyun, Park; Yothin, Jinjark, 2024, Digital entrepreneurship landscapes in developing Asia: insights from the Global Index of Digital Entrepreneurship Systems, <i>European Journal of Innovation Management</i>
33	Franklin, Nakpodia; Folajimi, Ashiru; Jacqueline Jing, You; Oluwasola, Oni, 2024, Digital technologies, social entrepreneurship and resilience during crisis in developing countries: evidence from Nigeria, <i>International Journal of Entrepreneurial Behaviour and Research</i>

34	Jingwen, Li; Haoliang, Wang; Wei Ni, Soh, 2024, Digital transformation, financial literacy and rural household entrepreneurship, <i>Finance Research Letters</i>
35	Christian, Bergholz; Lena, Fünér; Moritz, Lubczyk; Rolf, Sternberg; Johannes, Bersch, 2024, Infrastructure required, skill needed: Digital entrepreneurship in rural and urban areas, <i>Journal of Business Venturing Insights</i>
36	Xiaohong, He, 2019, Digital entrepreneurship solution to rural poverty: Theory, practice and policy implications, <i>Journal of Developmental Entrepreneurship</i>
37	Gen Nian, Tang; Fei, Ren; Jie, Zhou, 2022, Does the digital economy promote “innovation and entrepreneurship” in rural tourism in China?, <i>Frontiers in Psychology</i>
38	Yan, Mei; Jingyi, Miao; Yuhui, Lu, 2022, Digital Villages Construction Accelerates High-Quality Economic Development in Rural China through Promoting Digital Entrepreneurship, <i>Sustainability</i>
39	Yunwen, Zhou; Zhijian, Cai; Jie, Wang, 2023, Digital Rural Construction and Rural Household Entrepreneurship: Evidence from China, <i>Sustainability</i>
40	Ying, Wang; Daoliang, Ye, 2024, Enhancing Rural Revitalization in China through Digital Economic Transformation and Green Entrepreneurship, <i>Sustainability</i>

Office layout and communication effects on employee work morale

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Abstrak

Terdapat permasalahan mengenai semangat kerja pegawai yang rendah. Semangat kerja pegawai merupakan aspek yang sangat penting karena berperan dalam mempercepat pencapaian tujuan suatu organisasi. Penelitian ini bertujuan untuk mengetahui (1) pengaruh tata ruang kantor terhadap semangat kerja pegawai; (2) pengaruh komunikasi kantor terhadap semangat kerja pegawai; (3) pengaruh tata ruang kantor dan komunikasi kantor terhadap semangat kerja pegawai di kantor Dinas Penanaman Modal dan Pelayanan Terpadu Satu Pintu Kabupaten Karanganyar. Penelitian ini menggunakan pendekatan kuantitatif dengan metode kausalitas. Populasi berjumlah 48 pegawai dengan sampel penelitian seluruh pegawai di kantor DPMPTSP Kabupaten Karanganyar yaitu sebanyak 48 pegawai. Sampel penelitian menggunakan teknik non-probability sampling dan teknik pengumpulan data menggunakan angket. Teknik analisis data menggunakan teknik analisis regresi linear berganda dengan bantuan software SPSS Statistic 26 for Windows. Hasil penelitian menunjukkan bahwa (1) terdapat pengaruh positif dan signifikan antara variabel tata ruang kantor terhadap semangat kerja pegawai DPMPTSP Kabupaten Karanganyar yang dibuktikan melalui nilai $t_{hitung} 2,295 > t_{tabel} 2,014$; (2) terdapat pengaruh positif dan signifikan antara variabel komunikasi kantor terhadap semangat kerja pegawai DPMPTSP Kabupaten Karanganyar. Hal ini dibuktikan melalui nilai $t_{hitung} 2,283 > t_{tabel} 2,014$; (3) terdapat pengaruh positif dan signifikan antara variabel tata ruang kantor dan komunikasi kantor terhadap semangat kerja pegawai di kantor DPMPTSP Kabupaten Karanganyar. Hal ini dibuktikan melalui nilai $F_{hitung} 10,338 > F_{tabel} 3,20$. Berdasarkan hasil tersebut, maka dapat disimpulkan bahwa tata ruang kantor dan komunikasi kantor berpengaruh positif dan signifikan secara simultan terhadap semangat kerja pegawai di kantor DPMPTSP Kabupaten Karanganyar.

Kata kunci: interaksi organisasi; lingkungan kerja fisik; produktivitas pegawai; ruang kerja

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Abstract

This research addressed low employee work morale problems at the Investment and One-Stop Integrated Services Office of Karanganyar Regency. The study examined: (1) office layout influence on employee work morale; (2) office communication influence on employee work morale; and (3) their combined influence. Using quantitative causal methodology, this research involved 48 employees as both population and sample through non-probability sampling. Data collection utilized questionnaires, with multiple linear regression analysis conducted using SPSS Statistics 26. Results revealed: (1) office layout positively and significantly influenced employee work morale ($t_{\text{count}} = 2.295 > t_{\text{table}} = 2.014$); (2) office communication positively and significantly influenced employee work morale ($t_{\text{count}} = 2.283 > t_{\text{table}} = 2.014$); and (3) both variables simultaneously demonstrated positive and significant influence on employee work morale ($F_{\text{count}} = 10.338 > F_{\text{table}} = 3.20$). The determination coefficient showed 31.5% variance explanation, with remaining 68.5% attributed to other factors. These findings confirm that effective office layout and communication are crucial determinants of employee work morale in public service organizations.

Keywords: employee productivity; organizational interaction; physical work environment; workspace

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Introduction

Organizations require high-quality human resources (HR) to generate excellent results and achieve desired objectives. When organizations possess high-quality HR, employees can optimally execute their duties and responsibilities (Kusuma, 2016). Human resources play vital roles in companies and are expected to enhance organizational productivity. Employee work morale represents one factor influencing company productivity.

Employees with high work morale contribute to organizational advancement and goal achievement. Greater employee work morale correlates with higher company productivity levels. According to Madjidu et al. (2022), work morale can be defined as the work atmosphere or climate within organizations that reflects enthusiasm in task execution, thereby encouraging individuals to work better and more productively. Work morale encompasses an individual's desire and commitment to performing tasks well, maintaining discipline, achieving maximum performance, and demonstrating willingness and satisfaction toward their work (Basri & Rauf, 2021). When work morale is low, employee participation tends to be limited to following instructions only. Conversely, high work morale indicates that individuals will participate with full enthusiasm and commitment. Employee work morale is reflected through their work patterns in completing responsibilities. Employees with high work morale not only demonstrate responsibility toward their work but also can face challenges that arise during task execution (Kusuma, 2016).

Various factors can influence employee work morale, including office layout (Prabudi et al., 2018). Effective office layout is arranged efficiently to avoid wasting energy, time, or space. These research findings align with studies by Elfrina and Ranu (2015), which demonstrated that office layout positively and significantly influences employee work morale, evidenced by t_{count} values of 1.970 with significance levels of 0.000. Similar research findings were also discovered in studies by Prabudi et al. (2018), concluding that office layout provides significant influence of 19.36% on employee work morale. These research results are supported by recent studies by Ashari Prabudi (2014) and Elva Elviana et al. (2022), proving that office layout significantly and positively influences employee work morale. This indicates that better office layout positioning correlates with

higher employee work morale. Additionally, office space must be adequately sufficient to enable employees to move more freely, facilitating communication between employees, easing coordination, and simplifying supervision processes (Waluyo et al., 2021). Meanwhile, Asmaria (2020) defines office layout as workspace arrangement and placement of office equipment and furniture in available areas to support worker comfort and productivity. Creating effective office layout requires attention to the 5S principles: sort, set in order, shine, standardize, and sustain (Mariam & Narasis, 2015).

Proper office space arrangement can minimize energy and time waste caused by unnecessary movement while increasing space utilization efficiency. Furthermore, appropriate space arrangement can prevent disruptions from other sections. Office layout that aligns with workflow can contribute positively to achieving arrangement objectives such as work activity flow, maintaining employee health, effective control, and work morale enhancement. Research results by Herdina Paramitha Elfrina and Meylia Elizabeth Ranu (2015) demonstrated that office layout positively and significantly influences employee work morale at the Karang Pilang District Office, Surabaya City.

Another factor that can influence employee work morale is office communication. Office communication is also considered a factor with significant influence on employee work morale. Sabil (2018) states that communication is the process of sending stimuli, usually verbal, to influence others' behavior. This perspective is supported by Sumilat et al. (2017), who add that communication involves conveying symbols in the form of words to change communicant behavior. Communication can be conducted directly (face-to-face) or indirectly (using gestures, expressions, or media) (Febriana, 2018).

Office communication represents the process of conveying information, instructions, or commands related to specific tasks, which can be performed by leaders to employees or vice versa, as well as between employees both inside and outside the office. Such communication can be conducted directly or through specific media, aiming to ensure organizational goal achievement (Elva Elviana et al., 2022). Communication constitutes one of the most important aspects of teamwork, especially in work settings. Effective communication is highly necessary because interactions between leaders and employees become key to building employee work morale. Good communication between leaders and employees creates workplace comfort for both parties due to established closeness (Franky Sugara, 2020).

Based on preliminary observations and surveys, employee work morale at the DPMPSTSP Karanganyar Regency office remains low. Sixty percent of employees stated that office layout arrangement at DPMPSTSP Karanganyar Regency does not provide comfort, and 58.3% of employees do not arrive according to established work hours, lack enthusiasm in executing tasks, and several employees appear less energetic and often seem drowsy or lethargic while working. Therefore, it is crucial to enhance work morale by eliminating unproductive habits during work hours. Regarding office communication, misunderstandings between employees still exist in interpreting conveyed messages and insufficient active questioning to colleagues when experiencing obstacles in work completion. This can cause errors in task execution due to inadequate communication and coordination; only 41.7% of employees stated that office communication at DPMPSTSP Karanganyar Regency functions well. Fifty-eight point three percent stated that office communication does not function well, causing some employees to tend to complete tasks individually or rely on other employees considered more experienced. Such actions can trigger personal conflicts that negatively impact organizational communication overall. Therefore, this research aims to determine the influence of office layout and office communication on employee work morale at the Investment and One-Stop Integrated Services Office (DPMPSTSP) of Karanganyar Regency.

Research Method

This research was conducted at the Investment and One-Stop Integrated Services Office (DPMPSTSP) of Karanganyar Regency, located at Jalan Slamet Riyadi, Ngaliyan, Lalung, Karanganyar Regency, Central Java Province, postal code 57716, situated within the same area as

the Public Service Mall (MPP) of Karanganyar Regency from September 2024 to June 2025. The researcher chose this research location at the DPMPTSP Karanganyar Regency office for several reasons: 1) problems exist regarding insufficient employee work morale at the DPMPTSP Karanganyar Regency office; 2) research with this title has never been conducted at the DPMPTSP Karanganyar Regency office; 3) the institution was willing to provide research permission, particularly for all employees at the DPMPTSP Karanganyar Regency office; 4) required data and information for conducting research were available. This research employed quantitative methodology. The approach used was quantitative causal research, aimed at testing hypotheses regarding the influence of independent variables office layout (X_1) and office communication (X_2) on work morale (Y) as the dependent variable. Research procedures included preparation, proposal development, instrument determination and construction, data collection, data processing and analysis, conclusion drawing, and report compilation.

The population used in this research comprised 48 employees at DPMPTSP Karanganyar Regency. The research sample included all employees at the DPMPTSP Karanganyar Regency office, totaling 48 employees. For this research sampling, the researcher employed saturation sampling technique.

Data collection utilized questionnaires with the following indicators: employee work morale variable instruments used indicators of: 1) work productivity; 2) attendance level; 3) work tranquility. Office layout variable instruments used indicators of: 1) office layout design dimensions; 2) employee placement dimensions; 3) office physical environment dimensions. Office communication variable instruments included: 1) ease of obtaining information; 2) communication intensity; 3) communication effectiveness; 4) attitude changes. Research instruments were measured using modified 4-point Likert scales that underwent validity and reliability testing using product moment correlation and Cronbach Alpha. Validity test results indicated that $r_{xy} > r_{table}$, enabling instruments to be declared valid. Reliability test results showed that employee work morale variables had values of 0.885, office layout variables had values of 0.818, and office communication variables had values of 0.827, enabling research instruments to be declared reliable.

Data analysis stages were conducted after implementing validity and reliability tests on research instruments and declaring them valid and reliable. Data analysis in this research utilized SPSS 26 program assistance through normality tests, linearity tests, multicollinearity tests, and heteroscedasticity tests. After completing these stages, hypothesis testing was conducted, consisting of multiple linear regression analysis, t-tests, F-tests, determination coefficient analysis, and effective and relative contribution calculations.

Results and Discussion

Research Results

Research instruments used in this study underwent validity and reliability testing, consisting of 16 employee work morale variable statements (Y), 13 office layout variable statements (X_1), and 14 office communication variable statements (X_2). These instruments were distributed through closed questionnaires to 48 employees serving as research samples. Data were collected, processed, and analyzed using SPSS Statistics 26. Research results included descriptive data analysis of independent variables office layout (X_1) and office communication (X_2), as well as dependent variable employee work morale (Y).

Descriptive data results for employee work morale variable (Y) as the dependent variable showed minimum values of 42 and maximum values of 62. Mean values were 49.50, median values were 48.50, and mode was 52. Total scores were 2,376 with value ranges of 20, standard deviations of 4.51, and this variable consisted of 16 statement items. Descriptive data results for office layout variable (X_1) showed minimum values of 30 and maximum values of 51. Mean values were 40.94, median values were 40.00, and mode was 38. Total scores were 1,965 with value ranges of 21, standard deviations of 4.76, and this variable consisted of 13 statement items. Descriptive data results for office communication variable (X_2) showed minimum values of 38 and maximum values of 54. Mean values were 44.46, median values were 43.00, and mode was 41. Total scores were

2,134 with value ranges of 16, standard deviations of 4.24, and this variable consisted of 14 statement items.

Based on questionnaires distributed to 48 employees, classical assumption test results included normality tests to prove whether data were normally distributed using Kolmogorov-Smirnov tests indicating significance values > 0.05 , enabling conclusions that data were normally distributed. Normality test results in this research obtained values of 0.185, enabling conclusions that collected data were normally distributed. Linearity tests in this research demonstrated significant linear relationships between X variables and Y variables. Data could be considered linear if significance values > 0.05 . Linear test results for office layout on employee work morale were $0.097 > 0.05$, while results for office communication on employee work morale were $0.272 > 0.05$. Multicollinearity tests were used to observe no multicollinearity symptoms if tolerance values > 0.10 and Variance Inflation Factor (VIF) values < 10 . Multicollinearity test results showed tolerance values for office layout and office communication variables of 0.757 with VIF values for each variable of 1.321. Based on these results, no multicollinearity symptoms existed between the two independent variables.

Subsequently, hypothesis testing was conducted using t-tests, F-tests, multiple linear regression analysis, determination coefficients, and effective and relative contributions of independent variables (X) and dependent variables (Y). T-test results were performed to determine relationships between independent variable Office Layout (X_1) and dependent variable Employee Work Morale (Y), and independent variable Office Communication (X_2) and dependent variable Employee Work Morale (Y).

T-test results processed by researchers obtained t_{count} office layout values of $2.295 > t_{\text{table}}$ values of 2.014. Therefore, H_0 was rejected and H_1 was accepted, indicating that office layout positively and significantly influenced employee work morale. Office communication t_{count} results were $2.283 > t_{\text{table}}$ values of 2.014. Therefore, H_0 was rejected and H_2 was accepted, meaning that office communication positively and significantly influenced employee work morale. F-test results in this research obtained F_{count} values of 10.338 with F_{table} values of 3.20. Based on decision-making foundations of $F_{\text{count}} (10.338) > F_{\text{table}} (3.20)$, H_0 was rejected and H_3 was accepted. Therefore, in this research, employee work morale was positively and significantly influenced by office layout and office communication simultaneously. Determination coefficients (R^2) obtained results of 0.315 or 31.5%, interpreted as office layout and office communication variables together influencing employee work morale by 31.5%, with the remaining 68.5% influenced by other variables not explained in this research. Multiple linear regression analysis results obtained regression equation $\hat{Y} = 21.550 + 0.309X_1 + 0.345X_2$. Based on these results, if X_1 and X_2 values were 0, employee work morale values obtained were 21.550. If one-point increases occurred in office layout variables, increases of 0.309 would occur in employee work morale variables. If one-point increases existed in office communication variables, employee work morale variables would increase by 0.345. Effective contributions were obtained through calculations of office layout on employee work morale of 15.8%, while effective contribution values for office communication on employee work morale were 15.7%. Relative contribution results for office layout on employee work morale were 50.2%, and relative contribution values for office communication on employee work morale were 49.8%.

Discussion

The first hypothesis in this research stated that influences were suspected between office layout and employee work morale. To prove this hypothesis, t-test calculations were performed with t_{count} results of $2.295 > t_{\text{table}}$ values of 2.014 and significance values of $0.026 < 0.05$. Based on these results, H_0 was rejected and H_1 was accepted, concluding that office layout positively and significantly influenced employee work morale. Regarding office layout, Sari et al. (2021) argued that effective layout can utilize space effectively, create comfortable work environments, provide positive impressions to guests, and ensure workflow efficiency, thereby increasing employee productivity. Effective space management can provide employee satisfaction in executing work and create positive impressions. Adequate space enables employees to move freely, facilitates

communication, enhances coordination, and eases supervision. Office layout must also support employee work comfort; pleasant offices can encourage work morale and improve office activity quality, thereby supporting company goal achievement. These research results align with studies by Elfrina and Ranu (2015), demonstrating that office layout positively and significantly influences employee work morale, evidenced by t_{count} values of 1.970 with significance levels of 0.000. Similar research findings were also discovered in studies by Prabudi et al. (2018), concluding that office layout provides significant influence of 19.36% on employee work morale. These research results are supported by recent studies by Ashari Prabudi (2014) and Elva Elviana et al. (2022), proving that office layout significantly and positively influences employee work morale. This indicates that better office layout positioning correlates with higher employee work morale.

The second research hypothesis stated that influences were suspected between office communication and employee work morale. T-test calculations were performed with t_{count} results of $2.283 > t_{\text{table}}$ values of 2.014 and significance values of $0.027 < 0.05$. Based on these results, H_0 was rejected and H_2 was accepted, confirming that office communication positively and significantly influenced employee work morale. In this regard, communication represents important aspects of teamwork, especially in work environments. Communication relationships between leaders and employees become keys to creating work morale. Effective communication can provide work comfort for both leaders and employees. Communication roles significantly determine task execution success because all work requires communication processes. Asri (2022) defines communication as complex information sending and receiving processes that enable individuals to exchange thoughts, expand perspectives, and increase effectiveness in work and daily life. Office communication can be interpreted as processes of creating and exchanging messages in interdependent relationship networks to face dynamic and continuously changing environments. Effective office communication is crucial in supporting company smoothness and success. Five effective communication principles according to Nurhayati et al. (2022) include REACH: 1) Respect, mutual respect that encourages cooperation and performance effectiveness; 2) Empathy, abilities to understand others' conditions to build openness and trust; 3) Audible (understanding), ensuring messages can be received and well understood; 4) Clarity, message clarity to avoid misunderstandings; and 5) Humble, attitudes that foster respect for others. These results are also relevant to previous research findings. These research results align with studies by Franky Sugara et al. (2020), concluding that office communication positively and significantly influences employee work morale, evidenced by t_{count} values of 2.970 at significance levels of 0.004. Similar research findings were also discovered in studies by Lestari et al. (2021), demonstrating that office communication provides significant influence of 70.8% on employee work morale. These research results are supported by studies by Buulolo et al. (2021) and Elva Elviana et al. (2022), proving that office communication significantly and positively influences employee work morale. This indicates that better office communication correlates with higher employee work morale in completing office work.

The third hypothesis in this research stated that influences were suspected between office layout and office communication simultaneously on employee work morale. This could be proven through F-test calculations obtaining F_{count} values (10.338) $> F_{\text{table}}$ values (3.20) and significance values of $0.000 < 0.05$. Based on these results, H_0 was rejected and H_3 was accepted, confirming that office layout and office communication together positively and significantly influenced employee work morale. Office layout and office communication together positively and significantly influenced employee work morale at the DPMPSTP Karanganyar Regency office. Results demonstrated that better implemented office layout and office communication correlated with higher employee work morale levels in completing assigned tasks. This means that improvements in office layout and office communication will enhance employee work morale at the DPMPSTP Karanganyar Regency office. These research results align with research findings by Kurniyanto (2024) and Elva Elviana et al. (2022), demonstrating that office layout and office communication simultaneously or together influence employee work morale.

Conclusion

Based on the research results presented above, the following conclusions were reached: office layout demonstrated positive and significant influences on employee work morale, followed by positive and significant influences of office communication on employee work morale. Additionally, office layout and office communication together exerted positive and significant influences on employee work morale. These conclusions prove that research hypotheses were relevant to research results. Other findings in this research showed that office layout and office communication simultaneously influenced employee work morale by 31.5%, while the remaining 68.5% was influenced by other variables not explained in this research. Based on these conclusions, suggestions that researchers can provide to DPMPTSP Karanganyar Regency leadership include enhancing employee work morale by improving office layout positioning and office communication quality. As office layout and communication improve, employee work morale will also increase through re-evaluating arrangement and equipment placement in each employee's work area. All office equipment should be stored in designated places and not placed on work desks. This aims to maintain tidiness, increase space efficiency, and ensure work desks can function optimally. Information delivery in office environments should be conducted clearly, openly, and transparently to all employees without exception. This ensures that every employee can obtain necessary information easily and timely without excessive effort to search independently. This approach is expected to create communicative, efficient work environments while enhancing coordination and productivity between employees. For DPMPTSP Karanganyar Regency employees, recommendations include maintaining tidiness and cleanliness of personal work desks. Office equipment not currently in use should be stored appropriately and not placed carelessly on work desks. Proper arrangement will prevent disruptions in daily task execution and create more comfortable work atmospheres. Every employee obtaining work-related information, whether directly or indirectly, should immediately convey it to colleagues or other employees. This is part of efforts to create effective, transparent, and collaborative communication within organizations. For future researchers, expectations include considering other variables that might influence employee work morale to expand theoretical knowledge regarding employee work morale.

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Role play method to increase student learning motivation in public relations and protocol management

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Abstrak

Penelitian ini bertujuan untuk meningkatkan motivasi belajar siswa melalui penerapan metode bermain peran pada mata pelajaran Hubungan Masyarakat dan Manajemen Keprotokolan. Penelitian ini dilakukan dengan pendekatan Penelitian Tindakan Kelas (PTK) yang dilaksanakan dalam dua siklus. Subjek penelitian adalah siswa kelas XI MPLB 2 sebanyak 36 orang. Data diperoleh melalui observasi, wawancara, dan angket motivasi belajar. Hasil penelitian menunjukkan adanya peningkatan motivasi belajar siswa dari prasiklus sebesar 56,39%, menjadi 64,38% pada siklus I, dan meningkat menjadi 73,33% pada siklus II. Penerapan metode bermain peran membuat siswa lebih aktif, percaya diri, dan memahami materi secara kontekstual melalui pengalaman langsung. Data dianalisis secara deskriptif kualitatif untuk menggambarkan respon siswa terhadap proses pembelajaran dan secara kuantitatif dengan menghitung persentase skor motivasi belajar pada setiap siklus untuk melihat peningkatan yang terjadi. Penelitian ini menyimpulkan bahwa pembelajaran dengan metode bermain peran efektif dalam meningkatkan motivasi belajar siswa. Namun, keterbatasan waktu pelaksanaan menjadi kendala dalam mengukur hasil belajar secara keseluruhan. Oleh karena itu, disarankan untuk melakukan penelitian lebih lanjut dalam jangka waktu yang lebih panjang dan mengeksplorasi dampaknya terhadap pencapaian kompetensi lainnya.

Kata kunci: keterlibatan siswa; pembelajaran aktif; pembelajaran kontekstual; pendekatan reflektif; siklus pembelajaran

Abstract

This study aims to increase student learning motivation through the application of the role play method on the elements of Public Relations and Protocol Management. The research was conducted with a Classroom Action Research (CAR) approach which was carried out in two cycles. The research subjects were students of class XI MPLB 2 as many as 36 people. Data were obtained through observation, interviews, and questionnaires of learning motivation. The results showed that there was an increase

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in student learning motivation from pre-cycle of 56.39%, to 64.38% in cycle I, and increased to 73.33% in cycle II. The application of the role play method makes students more active, confident, and understand the material contextually through direct experience. Data were analyzed descriptively qualitatively to describe students' responses to the learning process and quantitatively by calculating the percentage of learning motivation scores in each cycle to see the improvement that occurred. This study concludes that learning with the role play method is effective in increasing students' learning motivation. However, the limited implementation time is an obstacle in measuring learning outcomes as a whole. Therefore, it is recommended that further research be conducted over a longer period of time and explore the impact on other competency achievements.

Keywords: active learning; contextual learning; learning cycle; student engagement; reflective approach

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Introduction

Education constitutes a fundamental human need that can be pursued throughout life. Education is important for directing individuals to become persons with noble character, quality, and global competitiveness (Rohimah, 2024). The success of learning processes can be observed through achievement of learning objectives carried out in classrooms. One aspect affecting learning objective achievement is students' encouragement and motivation to participate in learning processes. According to Emda (2018), one of teachers' important tasks is generating student learning motivation as an effort to achieve learning goals. Learning motivation is an internal condition within individuals that encourages students to engage in learning activities and carry out various specific activities to achieve optimal learning results and goals (Mayasari et al., 2021). In line with this opinion, Oktiani (2017) argues that motivation is the overall driving force within students that causes learning activities to achieve goals. Therefore, learning objectives will be achieved optimally if motivation exists that forms students' interest in materials and learning topics provided by teachers. This occurs because students motivated to learn will show serious efforts to focus attention, plan, and carry out activities supporting their learning. Individuals tend to have high energy and drive to learn if based on strong motivation (Hoerudin, 2024).

SMK Negeri 6 Surakarta is one of the vocational schools located in Surakarta City, Central Java. SMK Negeri 6 Surakarta has a vision of realizing graduates with strong character, ready to work and engage in entrepreneurship based on technology with environmental perspective. One expertise program owned by SMK Negeri 6 Surakarta is Office Management and Business Services. There are subjects or elements taught in Class XI MPLB, namely Public Relations and Protocol Management, where one learning objective to be achieved is the ability to apply and design protocol activity flows according to applicable regulations and ethics in official event contexts. Several materials are presented, including protocol activity functions, types of protocol activities, and steps to design effective protocol activities. When students enter real work environments later, these competencies can be useful as foundations for applying theory and their ability to carry out protocol activities.

Interview results conducted by researchers with students from Class XI MPLB 2 indicated that some students sometimes feel bored when at school and lack excitement when taking lessons in final hours. Some also stated they were happier when hours were empty or learning finished early. Preliminary observation results conducted in Class XI MPLB 2 of SMK Negeri 6 Surakarta showed that most students still had low learning motivation, especially when teachers only conducted

conventional learning without using various learning methods. In learning processes, teachers need to realize the understanding that not all material can be delivered with just one learning method, so teachers must be able to adjust methods used with materials to be taught (Setiawan & Bahtiar, 2023). Based on these conditions, improvements or changes must be made to ongoing learning processes with aims of increasing student learning activeness and motivation. For example, by applying learning methods that are more innovative, interactive, and not boring or monotonous.

Teachers must be able to determine learning methods that are appropriate and can be applied in delivering learning materials. Use of appropriate learning methods is expected to increase students' motivation and interest in participating in learning, so classroom atmospheres become more active and not monotonous. Suyono and Hariyanto (2014) argue that learning methods are plans or procedures in learning. Meanwhile, according to Sani (2015), learning methods are steps or strategies determined to achieve learning goals. Based on these opinions, it can be concluded that method selection must also be adjusted to student characteristics and predetermined learning objectives, so students can master certain knowledge and skills more optimally.

Learning motivation itself determines students' active involvement in understanding and mastering competencies needed by vocational schools, especially in Office Management and Business Services majors. One competency that MPLB students need to master is the field of public relations and protocol. Elements of public relations and protocol management require not only theoretical understanding but also practical skills that align with work environments. Therefore, learning methods are needed that can build learning atmospheres to be more enjoyable, active, and interactive. One method that can be used to increase learning motivation and student activeness is the role play method.

According to Rahmawati and Puspitasari (2020), the role play learning method is a method that can be implemented by imitating activities, ideas, roles, and characters that align with real situations in everyday life creatively. This role play method provides opportunities for students to play roles in real situations, so they can learn with direct experience. Meanwhile, according to Azizah (2022), role play is one of the effective learning methods, where students are involved in activities of playing certain characters deeply and creatively, according to roles in cases that are relevant to learning materials being discussed. Based on these expert views, it can be concluded that the role play method has great potential in creating meaningful and contextual learning experiences for students, especially in materials that demand practical and communication skills. In contexts of learning elements of public relations and protocol management, this role play method is relevant because it allows students to practice roles such as MC, receptionist, and event committee directly.

According to Faturrohman (2017), the steps or syntax of the role play learning method include: (1) teachers compile/prepare scenarios according to actual situations; (2) teachers choose roles and describe roles that must be performed; (3) teachers divide students into several small groups; (4) teachers provide explanations of competencies to be achieved; (5) teachers call students who have been appointed in groups to demonstrate scenarios that have been prepared; (6) each student sits in their group and observes scenarios being demonstrated; (7) after displays are complete, students are given papers as worksheets to discuss; (8) each group presents its conclusions; (9) teachers give general conclusions; (10) evaluation; (11) closing.

The application of the role play learning method can provide space and opportunities for students to convey their ideas, actions, and expressions freely through roles played. Students in role play not only imitate but are also asked to live roles as if they are characters being played. All students' actions and speech come from their own awareness and inspiration, not from scripts determined by teachers because interactions that occur when playing roles take place spontaneously. Meanwhile, students who are not directly involved as actors still have active roles as observers. These students are invited to pay attention, observe, and appreciate role-playing performances that have been carried out, as well as capture messages that want to be conveyed through scenarios displayed. Therefore, it is expected that all students are involved in learning, both directly and indirectly, and learning processes become more lively, reflective, and meaningful.

The novelty in this research lies in contextual application of the role play method in Public Relations and Protocol Management elements at Vocational High Schools oriented toward vocational practice. This research not only evaluates students' cognitive understanding but also

measures increases in student learning motivation through real experiences that resemble activities in work environments. This has not been the main focus of similar research in vocational education contexts.

Based on this background, this classroom action research was conducted with aims of applying the role play method to increase students' learning motivation in Public Relations and Protocol Management elements in Class XI MPLB 2.

Research Method

This research was conducted at SMK Negeri 6 Surakarta, located at Jalan Adi Sucipto Number 38, Kerten, Laweyan, Surakarta, Central Java. Research subjects included MPLB productive teachers teaching Public Relations and Protocol Management elements and students from Class XI MPLB 2, totaling 36 students. The approach used in this research was Classroom Action Research (CAR). CAR aims to improve learning quality through reflective actions taken by teachers in classrooms (Arikunto, 2021).

The role play method was chosen because it is considered aligned with protocol element characteristics that emphasize practical skills, formal communication, and role mastery in official activities. With this method, students not only understand theory but can also live and practice protocol roles in contexts resembling real work environments. This supports achievement of protocol competencies that include self-confidence, communication skills, ethics mastery, and procedures in protocol activities.

Data used in this study were qualitative and quantitative. Qualitative data consisted of data about learning processes using the role play method and interviews with students. Observation during learning processes was carried out to observe student activeness, interaction in role play, involvement in discussion, and deepening of roles obtained by each student. The instrument used was an observation sheet compiled based on learning engagement indicators. For interviews, semi-structured interviews were conducted with several students chosen purposively to represent motivation and involvement levels to explore their learning experiences in depth.

Quantitative data for this study consisted of data regarding research questionnaire results filled out by students in each cycle. The type of questionnaire used was a closed questionnaire. According to Darwin et al. (2021), a closed questionnaire is a type of questionnaire whose answers have been prepared by researchers so respondents are not free to provide answers because respondents only have to choose provided answers. Before questionnaire distribution, validity and reliability testing is necessary. According to Paramita et al. (2021), validity tests are tests conducted to determine the extent to which prepared research instruments can explore needed information. Meanwhile, reliability tests are tests carried out to determine the extent to which prepared instruments can provide the same results if measurements are carried out again on the same subjects but at different times. In this study, validity and reliability tests were not carried out because researchers used existing instruments from previous studies. The instrument or questionnaire in this study used a research instrument by Komariyah (2023).

Data analysis techniques in this study were carried out descriptively qualitatively and quantitatively. This research was a mixed method research because it combined quantitative data and qualitative data in an integrated manner. This approach was chosen by researchers to obtain comprehensive pictures of processes and impacts of learning using the role play method, both in terms of interaction processes in classrooms and from results of numerical measurements taken through motivation questionnaires. Qualitative data analysis was used to describe learning processes that took place during role play method application, including student responses and behavior during learning. Quantitative data were analyzed by calculating percentages of student learning motivation scores which were then compared between cycles to observe improvements that occurred. To obtain significant test results regarding learning differences between cycles, researchers used one-way ANOVA statistical tests because data consisted of three groups: pre-cycle, Cycle I, and Cycle II. One-way ANOVA test results showed significant differences from the three cycles. Furthermore, analysis results from each cycle were used as bases for reflection and action improvement in subsequent cycles.

In Cycle I, the planning stage began with coordination between researchers and teachers. Steps taken included preparation of teaching modules on protocol role materials, making observation sheets, and preparing questionnaires to assess learning outcomes after role play method application. The implementation stage was carried out to implement planned learning improvements to increase student motivation and involvement in learning processes.

Results and Discussion

Research results

This classroom action research was carried out in two cycles with aims of understanding increases in student learning motivation through application of the role play method in Public Relations and Protocol Management elements. During implementation, researchers collected two types of data. Quantitative data were obtained from student learning motivation questionnaire results, which showed how much they were motivated during learning with the role play method in each cycle. Qualitative data were collected through observations and interviews to understand students' responses and engagement levels during activities. For assessing students' learning motivation levels, the following reference scale was used as listed in Table 1, which divides motivation categories into five ranges based on questionnaire result percentages, ranging from very low to very high.

Table 1

Reference Scale for Student Learning Motivation Categories

Reference Scale	Category
87 - 100%	Very High
73 - 86%	High
58 - 72%	Medium
41 - 57%	Low
> 40%	Very low

Meanwhile, improvements and changes in student learning motivation can be seen in Table 2 and Figure 1 below:

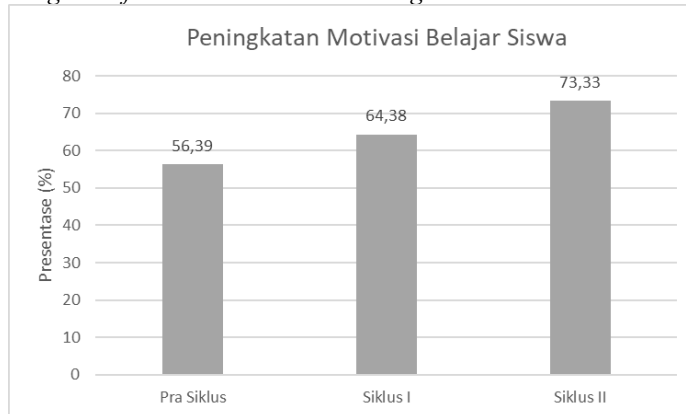
Table 2

Comparison of Student Learning Motivation in Pre-Cycle, Cycle I and Cycle II

Respondent No	Percentage of Each Cycle (%)			Description
	Pre Cycle	Cycle I	Cycle II	
1	60.00%	65.00%	77.50%	Improved
2	57.50%	62.50%	67.50%	Increased
3	60.00%	67.50%	72.50%	Increased
4	47.50%	57.50%	62.50%	Increased
5	52.50%	65.00%	77.50%	Increased
6	50.00%	60.00%	67.50%	Increased
7	47.50%	50.00%	60.00%	Increased
8	52.50%	70.00%	87.50%	Increased
9	70.00%	77.50%	87.50%	Increased

10	45.00%	57.50%	70.00%	Increased
11	55.00%	62.50%	70.00%	Increased
12	45.00%	50.00%	62.50%	Increased
13	60.00%	65.00%	75.00%	Increased
14	65.00%	70.00%	82.50%	Increased
15	57.50%	60.00%	70.00%	Improved
16	55.00%	67.50%	75.00%	Improved
17	67.50%	77.50%	85.00%	Improved
18	60.00%	62.50%	75.00%	Increased
19	55.00%	65.00%	67.50%	Increased
20	55.00%	60.00%	65.00%	Increased
21	60.00%	70.00%	80.00%	Improved
22	55.00%	62.50%	67.50%	Improved
23	57.50%	67.50%	75.00%	Improved
24	55.00%	57.50%	72.50%	Increased
25	45.00%	50.00%	65.00%	Increased
26	65.00%	67.50%	77.50%	Increased
27	45.00%	57.50%	62.50%	Increased
28	62.50%	70.00%	75.00%	Improved
29	60.00%	72.50%	80.00%	Increased
30	55.00%	65.00%	82.50%	Increased
31	47.50%	62.50%	72.50%	Increased
32	67.50%	75.00%	77.50%	Improved
33	62.50%	70.00%	80.00%	Improved
34	50.00%	62.50%	72.50%	Increased
35	57.50%	62.50%	65.00%	Increased
36	67.50%	72.50%	77.50%	Improved
Average	56.39%	64.38%	73.33%	Increased

Before action was taken, researchers distributed learning motivation questionnaires to students. This pre-action stage was carried out with aims of understanding real conditions in classrooms before researchers carried out research. Results obtained showed that students' learning motivation in participating in learning on Public Relations and Protocol Management elements was low, with an average score of 56.39%. This could also be seen from lack of student participation in class discussions, lack of enthusiasm when answering questions, and many students who appeared passive.

Figure 1*Diagram of Increased student learning motivation*

From interview results with several students, it was found that most felt protocol material was theoretical and difficult to understand if only delivered through lecture methods. One student said, "Sometimes I am confused to imagine what protocol tasks are like, because they are only explained through slides."

Based on research action results carried out in Cycle I, the following data were obtained:

Table 3*Data on Student Learning Motivation Cycle I*

Indicator	Pre-cycle	Cycle I	Increase (%)
Discipline to attend	63.27%	70.99%	7.72%
Awareness of attendance	60.19%	72.53%	12.35%
Attitude towards the teacher	63.27%	74.85%	11.57%
Study regularly	66.36%	72.53%	6.17%
Learning challenge	65.59%	73.30%	7.72%
Discussion when it's hard	63.27%	68.67%	5.40%
Never give up	57.87%	70.22%	12.35%
Focus on learning	63.27%	71.76%	8.49%
Achievement motivation	59.41%	70.22%	10.80%
Utilize time	64.04%	70.22%	6.17%
Average	62.65%	71.53%	8.87%

The role play method was applied in Cycle I. As a result, student learning motivation increased by 7.99%, from 56.39% to 64.38%, which can be seen in Figure 1 and is classified as a moderate category. During learning processes, students began to show greater interest and involvement, especially when acting out protocol tasks such as MC and receptionist. Based on observations, students seemed more enthusiastic and cooperative in official event simulations. Some students began to show initiative in proposing ideas related to event arrangements and improvising when presenting events, although some were still passive and only followed directions. This was reinforced by an interview with one accompanying teacher. The teacher stated, "I see that they are

more lively when practicing directly. Students who are usually passive become active because they have roles to play."

In Cycle II, role play learning was finalized with more complex scenarios and equitable role distribution, so all students received fair chances to be directly involved in protocol role play methods either as receptionists, MCs, old officials, new officials to be inaugurated, prayer readers, and other roles. This comprehensive involvement aimed to increase students' confidence, responsibility, and active participation in learning processes. With varieties of diverse and realistic roles, students understood protocol activity flows more easily and were able to apply them contextually in official event simulations. As a result, learning motivation increased to 73.33%, including the high category with an increase of 8.96% from the first cycle. In general, almost all students showed positive changes. They looked more confident when performing, were able to establish cooperation in groups, and showed clearer understanding of protocol sequences. Class atmospheres also became more active and interactive. One student revealed, "Now I understand how to organize events and what protocol tasks are, because I have directly practiced being an MC and part of events." Teachers also said this method really helped students understand material that was previously considered abstract.

Referring to Table 3, indicators of awareness to attend and unyielding attitude showed significant increases compared to other indicators, followed by increases in positive attitude towards teachers. Students also began to show interest in learning with the role playing method. Even so, average student learning motivation only reached 71.53% and was still in the medium category. These results had not yet reached targets determined before CAR implementation, so learning continued to Cycle II.

Based on action results in research carried out in Cycle II, the following data were obtained:

Table 4
Data on Student Learning Motivation Cycle II

Indicator	Cycle I	Cycle II	Increase (%)
Discipline to attend	70.99%	81.02%	10.03%
Awareness of attendance	72.53%	78.70%	6.17%
Attitude towards the teacher	74.85%	80.25%	5.40%
Study regularly	72.53%	81.02%	8.49%
Learning challenge	73.30%	82.56%	9.26%
Discussion when it's hard	68.67%	81.02%	12.35%
Never give up	70.22%	81.79%	11.57%
Focus on learning	71.76%	84.88%	13.12%
Achievement motivation	70.22%	79.48%	9.26%
Make use of time	70.22%	81.02%	10.80%
Average	71.53%	81.17%	9.65%

The data in Table 4 show increases in student learning focus, followed by other indicators as learning duration increases. Average learning motivation reached 81.17%, with an increase of 9.65% from Cycle I to Cycle II.

To determine whether increases in student learning motivation occurring in each cycle changed significantly, one-way ANOVA statistical tests were conducted. One-way ANOVA tests were used because there were three data groups: pre-cycle, Cycle I, and Cycle II. One-way ANOVA analysis test results showed that F values were 51.51 and significance values (p-values) were 0.000 ($p < 0.05$). Thus these results show that there were significant differences between average student

learning motivation in each cycle, meaning that role play method application had significant impacts on statistically increasing student learning motivation.

Discussion

The application of the role play learning method in Public Relations and Protocol Management elements proved able to increase learning motivation of students in Class XI MPLB 2 SMK Negeri 6 Surakarta. Learning motivation questionnaire results showed significant increases, from 56.39% in pre-cycle to 64.38% in Cycle I, and increased again to 73.33% in Cycle II. In addition to increasing motivation scores, this approach also built students' confidence, cooperation, and understanding of materials contextually. Consistent increases in learning motivation from pre-cycle to Cycle II reflected that meaningful learning that actively involves students can improve overall learning process quality. These study results are reinforced by findings of Yulianto et al. (2020) which state that role playing method application is proven to have positive influences on increasing student self-confidence, where self-confidence is directly related to learning motivation. If students play protocol roles with enthusiasm and high self-confidence, it will impact increasing their active participation and motivation during learning. Consistent increases in learning motivation from pre-cycle, Cycle I, and Cycle II reflect that meaningful learning actively involving students in learning can improve overall learning process quality. These results are also reinforced through statistics with one-way ANOVA tests which show that there are significant differences between average learning motivation in pre-cycle, Cycle I, and Cycle II. This shows that increases that occurred were not just ordinary fluctuations but were really effects of role play method application in learning processes.

In line with these results, research conducted by Khotimah (2021) also showed increases in student learning motivation after role play method application. Before role play methods were applied, students tended to be passive and less involved in learning activities, but after using role play methods, positive changes occurred which could be seen from increasing enthusiasm and involvement of students in classrooms. This shows that role play method application is effective in providing good results and influences on student learning motivation because it is able to create more interactive, enjoyable learning atmospheres where students are not only recipients of information but also become subjects in learning processes. Additionally, similar results were also found in Hoerudin's research (2024) which showed that role play methods were able to increase student learning motivation. Through application of these methods, students became more active, dared to ask questions, were encouraged when they saw their friends could succeed, and were encouraged to study harder so as not to be left behind. Supportive and participatory learning environments make students feel more confident and motivate each other. Thus, role play methods not only create enjoyable learning atmospheres but also foster cultures of motivating each other and increasing confidence in learning.

Furthermore, in addition to domestic research, there are also various international studies showing that these role play methods have positive impacts on increasing student learning motivation in various education levels and various learning contexts. For example, research conducted by Alsubaie (2020) in Saudi Arabia shows that use of role play methods in English lessons can significantly increase students' learning motivation. This study states that students will feel more motivated because they can actively engage and understand materials in real contexts, not just theoretically.

Furthermore, research by Tipmontree and Tasanameelarp (2020) in Thailand also showed that role play application in learning has significant impacts on improving students' speaking ability and self-confidence. This self-confidence is a form of intrinsic motivation, which is drive from within students to want and dare to learn. This finding indicates that role play methods are not only effective in Indonesia but also relevant in global contexts.

Then, Kawulich (2018) from the United States stated that use of role play methods in social science learning provides more meaningful and contextualized learning experiences. Results showed that students showed increases in intrinsic motivation because they felt they had important roles in learning simulations.

Another study by Khan, Iqbal, and Tasneem (2022) from Pakistan proved that role play-based learning can improve student interaction, encourage collaboration, and strengthen students' understanding and confidence in expressing their opinions. The study emphasized the importance of active approaches in 21st century learning where students are not only listeners but also active in learning processes.

Conclusion

Based on research results and discussion, it can be concluded that role play method application is proven to increase learning motivation of students in Class XI MPLB 2 SMK Negeri 6 Surakarta on Public Relations and Protocol Management elements. This is indicated by increases in average student learning motivation questionnaire scores from pre-cycle of 56.39% to 64.38% in Cycle I, and reached 73.33% in Cycle II which shows high category. Additionally, during learning processes, students looked more active, confident, and could understand materials better through hands-on experience. However, this study has limitations, including implementation time which is quite limited and has not touched deeply on aspects of achieving cognitive learning outcomes. Research subjects were also limited to one class and one element, so it is not certain that role play learning methods can increase learning motivation in students in other classes and in other elements. Therefore, teachers are advised to make role play methods as one of learning strategies to increase student learning motivation. Future research should involve more than one class with longer implementation duration so results obtained can be compared and more representative of actual conditions. Additionally, role play method application can also be applied to different elements to determine effectiveness of these methods in various learning contexts. Future research can also consider achievement of students' cognitive learning outcomes to obtain more comprehensive results about success of these method applications.

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Improving learning outcomes of SMK students through window shopping model with mind mapping media

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Abstrak

Penelitian ini bertujuan untuk meningkatkan hasil belajar siswa kelas X SMK Saraswati Sukoharjo pada mata pelajaran Dasar-Dasar Program Keahlian Manajemen Perkantoran melalui penerapan model pembelajaran window shopping yang dipadukan dengan media mind mapping. Latar belakang penelitian ini berangkat dari rendahnya motivasi dan capaian akademik siswa, yang sebagian besar belum memenuhi kriteria ketuntasan minimal. Penelitian dilakukan dalam dua siklus dengan pendekatan Penelitian Tindakan Kelas (PTK), yang mencakup tahap perencanaan, pelaksanaan tindakan, observasi, dan refleksi. Hasil penelitian menunjukkan adanya peningkatan signifikan dalam ketuntasan belajar, dari 70% pada siklus pertama menjadi 88,89% pada siklus kedua. Selain itu, terjadi peningkatan dalam pelaksanaan pembelajaran, baik dari segi interaksi siswa maupun peran aktif guru. Hal ini ditunjukkan oleh skor observasi yang meningkat dari kategori "cukup baik" menjadi "sangat baik" serta nilai rata-rata keaktifan siswa dimana kondisi awal dengan nilai rata-rata 46,3% mengalami peningkatan dengan kondisi akhir pada siklus II menjadi 85,2%. Temuan ini mengindikasikan bahwa strategi pembelajaran yang bersifat kolaboratif dan visual mampu menciptakan pengalaman belajar yang lebih menarik dan efektif, serta mendukung penguasaan materi secara lebih mendalam.

Kata kunci: ketuntasan belajar; motivasi belajar; pembelajaran kolaboratif

Abstract

This study aimed to improve learning outcomes of Grade X students at SMK Saraswati Sukoharjo in Basic Office Management Skills through implementation of the window shopping learning model combined with mind mapping media. The research background stemmed from low motivation and academic achievement among students, with the majority not meeting minimum competency criteria. We conducted the research in two cycles using Classroom Action Research (CAR) approach, including planning, action implementation, observation, and reflection stages. Results showed significant improvement in learning mastery, increasing from

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70% in the first cycle to 88.89% in the second cycle. Additionally, notable improvement occurred in the learning process, both in student interaction and teacher's active role. This was indicated by observation scores increasing from "quite good" to "very good" category and average student activity scores improving from initial conditions of 46.3% to final conditions of 85.2% in Cycle II. These findings indicate that collaborative and visual learning strategies can create more engaging and effective learning experiences while supporting deeper subject matter understanding.

Keywords: collaborative learning; learning mastery; learning motivation

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Introduction

Education plays crucial roles in national development as it produces high-quality, creative, and competitive human resources. Through education, people acquire knowledge, skills, and values needed to contribute to various life sectors. With sound education systems, nations can reduce poverty, improve people's welfare, and create more sustainable futures. The objectives of Indonesian National Education, as outlined in Law Number 20 of 2003 concerning the National Education System, are to develop students' potential to become individuals who believe in and fear God Almighty, possess noble character, are healthy, knowledgeable, capable, creative, independent, and become democratic and responsible citizens (Law Number 20 of 2003, Article 3).

In education, teachers play crucial roles in advancing education. According to Law No. 14 of 2005 concerning Teachers and Lecturers, teachers serve as professional educators with primary responsibility for designing, implementing, evaluating, and guiding learning processes to improve education quality (Law No. 14 of 2005, Articles 1 and 20). Designing and implementing learning processes should emphasize not only cognitive aspects but also character development and 21st-century skills. Therefore, every learning activity in classrooms should be directed toward fostering students' holistic growth. Twenty-first-century skills such as critical thinking, collaboration, and communication can be optimally developed through active learning models that involve teamwork and real-life problem-solving in classrooms (Putri & Yuliana, 2021). Furthermore, teachers serve as facilitators, motivators, and role models in shaping students' character and overall competency. Teachers' roles are key in identifying learning problems, designing innovative solutions, and reflecting on action results for continuous improvement.

The learning process at Saraswati Vocational High School, Sukoharjo, specifically in the Office Management and Business Services expertise program for Class X MPLB, on office equipment and supplies subjects, shows tendencies toward one-way learning, lack of interaction, and insufficient space for students to develop creativity. This results in boring learning atmospheres and declining student interest in learning. Factors contributing to low learning motivation in vocational high school students can also be linked to monotonous teaching styles and lack of student involvement in learning processes (Wijaya & Pratiwi, 2019). In line with findings by Susanti et al. (2024), monotonous teaching methods can lead to boredom, fatigue, and decreased student learning motivation due to lack of variation in learning methods and minimal use of creative media. Additionally, research by Pulumoduyo et al. (2024) identified that learning boredom in vocational school students can be caused by teachers' less interesting teaching strategies, uninteresting learning materials, and lack of infrastructure, all of which contribute to decreased student learning interest.

Students in Class X of SMK Saraswati Sukoharjo in the Office Management and Business Services expertise program Class X MPLB consisted of 27 students, with 6 students showing active participation in learning processes, while the majority of others tended to be passive and less enthusiastic. This reflects lack of motivation or interest in learning for most students, which can impact learning effectiveness and overall learning outcome achievement. This lack of enthusiasm

has potential to hinder learning processes because minimal interaction makes classroom atmospheres passive without critical thinking processes or discussions. As a result, their ability to master expected competencies decreases, which is reflected in low academic grades or achievements. Learning outcomes of Class X MPLB students at SMK Saraswati Sukoharjo in office equipment and supplies materials are still below set standards. Based on conducted evaluations, most students have not been able to achieve expected minimum scores of 75. This achievement indicates that students' understanding of materials is still less than optimal. This could be an indicator that learning processes are not fully effective in helping students master important concepts taught. Therefore, more varied and interactive approaches are needed so students can more easily understand materials and improve their academic performance.

Using learning methods that encourage interaction between students is crucial for creating active and enjoyable learning environments, which will positively impact learning outcomes. One suitable method to support this is the window shopping type learning model. This method allows students to exchange information and discuss directly with their peers, creating collaborative learning processes. Application of this model is considered suitable for Fundamentals of Office Management Expertise Program, particularly for office equipment and supplies materials. With this method, students not only understand materials theoretically but also actively explore knowledge through meaningful interactions, which ultimately can improve their understanding and learning outcomes.

Use of the window shopping method in learning processes is designed to encourage students to actively exchange information, materials, concepts, and ideas interactively with other groups, thereby creating dynamic and collaborative learning atmospheres. This method not only enhances in-depth conceptual understanding but also plays important roles in honing students' social skills, such as abilities to communicate, collaborate, and respect others' opinions. Thus, window shopping method application is expected to enrich students' learning experiences while developing social skills that are essential for their success in both social and academic environments (Sari & Nur, 2022). Furthermore, the window shopping method has been shown to significantly enhance student learning activities through fun approaches that encourage active participation (Fauziah & Hidayati, 2020).

One media that can be used to support interactive student learning is mind mapping. Mind mapping is a visualization technique used to structure information by connecting main ideas to subtopics or supporting ideas through tree-like branches. This method helps brains process and remember information more effectively because it combines visual elements, colors, and keywords, making it easier to understand complex concepts. One of mind mapping's main benefits is that it improves students' memory, creativity, and critical thinking skills, as they can see interrelationships between concepts holistically. Mind mapping has been proven effective in improving students' conceptual understanding through systematic and engaging visualizations (Yusri & Fitriyani, 2023).

Use of flipbook-based interactive media in learning processes makes it easier for students to understand materials because it presents information visually, attractively, and accessibly. Flipbooks allow integration of text, images, animations, and other interactive elements that can increase appeal and strengthen understanding of presented concepts. With displays that resemble real books and intuitive navigation, students are more motivated to learn independently and collaboratively. Furthermore, flipbooks also support technology-based learning that aligns with today's digital generation needs (Wulandari & Zainuddin, 2021). This aligns with findings by Thahlia and Paseleng (2024), which showed that interactive media use can significantly increase student learning interest in vocational high schools. Interactive media has also been shown to improve student learning outcomes by making it easier for them to absorb materials in more engaging and efficient manners (Amalia & Wulandari, 2022). Other digital media support can also be implemented through development of web-based media containing problem-based learning content. This media has proven effective in increasing student learning interest, particularly in simulation-based and digital communication-based lessons, as students are directly involved in solving real-world problems through interactive content presented in engaging and contextual manners (Yunianto, 2021).

Several previous studies have used learning approaches such as Problem Based Learning, Discovery Learning, or Project Based Learning models in productive learning in vocational schools,

but these models tend to require more time in designing and managing projects. Unlike the window shopping approach, which is simple, flexible, and emphasizes active collaboration and rapid exchange of ideas between groups. Using mind mapping as supporting medium also strengthens students' visual understanding.

Based on the previous description, we felt compelled to conduct classroom action research to address low student learning outcomes. This research focused on application of the window shopping learning model combined with mind mapping media as an effort to improve students' understanding of materials. With the title "Improving Learning Outcomes of Class X SMK Students through Window Shopping Model with Mind Mapping Media," this research is expected to be an effective solution in creating more active, communicative, and enjoyable learning atmospheres. This approach was chosen because it is believed to be able to facilitate students in understanding concepts visually and interactively, thus having positive impacts on improving their academic achievements. Additionally, this research is expected to be able to provide real contributions in answering vocational education challenges, especially in increasing student engagement, competence, and readiness to face work world demands through adaptive, contextual learning approaches that align with 21st century needs.

Research Methods

The research method used in this study was the Classroom Action Research (CAR) approach, which is a form of reflective study by action actors (teachers) to improve learning quality in classrooms. With activities carried out as usual, researchers entered classrooms and conducted learning. It was hoped that obtained data would be as objective as possible because it was used to assess validity and validity of obtained data. According to Afandi (2016), CAR is a scientific activity carried out by teachers in their own classrooms with aims of improving and enhancing learning processes and outcomes. According to Awaliah et al. (2023), CAR is a real-life activity in routine situations carried out by teachers to improve learning quality through systematically designed actions. Results of this study have potential to be generalized to other vocational high school contexts with similar characteristics, particularly in productive subjects that require active collaboration and conceptual understanding. The window shopping method and mind mapping media are flexible and can be widely applied to subjects that emphasize critical thinking skills and collaborative communication.

This research was conducted at Saraswati Vocational High School, Sukoharjo, located at Jalan Ir. Soekarno, Grogol, Sukoharjo, in the 2024/2025 academic year. CAR implementation was carried out in two cycles. The first cycle was held on April 14, 2025, and the second cycle on April 21, 2025. Each cycle consisted of one meeting with duration of 90 minutes (2×45 minutes), in accordance with the school's regular learning schedule. This research obtained official permission from the school, namely Saraswati Vocational High School, as evidenced by a research permit letter. Additionally, before carrying out actions in classrooms, researchers explained objectives, benefits, and procedures of research to principals, supervising teachers, and students. Approval was obtained in writing through consent forms signed by schools and supervising teachers. This research also ensures confidentiality of all student data and is used only for academic purposes and learning development.

The learning model used was window shopping, because it can create collaborative, interactive, and enjoyable learning atmospheres. In Cycle I, this model was implemented with aims of encouraging students to actively exchange information between groups that had low participation due to dominance of one-way learning. Meanwhile, in Cycle II, strategies were enhanced by integrating mind mapping media as visual aids for discussion results. This strategy was chosen based on first cycle reflection results, which demonstrated needs for visual media support to deepen student understanding.

End of cycle test results were checked and scored with students who obtained scores equal to or greater than 75 declared to have completed learning because the KKM set by the school was 75. With provisions using the following classical formula:

$$\text{Completeness Classical} = \frac{\text{Number of students who passed}}{\text{Total number of students}} \times 100$$

According to Syaifudin (2020), classical learning completion is stated to have been achieved if at least 85% of students in concerned class groups have achieved or met criteria for student learning completion as a group if they achieve absorption rates of 75% or above. Observation assessment scores used scales of 0-4, as in the table below:

Table 1
Guidelines for Assessment of Learning Implementation

Category	Score Weight
Very accurate	4
Accurate	3
Fairly accurate	2
Less accurate	1
Inaccurate	0

Based on Table 1 in guidelines for assessing learning implementation, several categories are included: very accurate, accurate, fairly accurate, less accurate, and inaccurate. Scoring for learning implementation was adjusted to situations and available score weights. Once learning implementation assessment scores were obtained, they were calculated to determine learning implementation quality using the following formula:

$$\text{Percentage of Average Value (NR)} = \frac{\text{Total Score}}{\text{Total Maximum Score}} \times 100\%$$

Table 2
Assessment Score Criteria

Nilai (%)	Criteria
90-100	Very good
70-89	Good
50-69	Fairly good
29-49	Less good
10-29	Not good

In assessments that have been carried out, there are assessment score criteria as shown in Table 2, adjusted to percentages of total scores obtained. These criteria include very good, good, fairly good, less good, and bad, adjusted to percentages of values received. Observation data collection was carried out directly during learning processes by two observers (colleague teachers), using prepared observation sheets. Each observer monitored teacher and student activities based on learning implementation indicators. Assessment criteria for student activities included aspects such as active discussion, ability to express opinions, group collaboration, independence, and courage in presenting results.

Instruments, both tests and observations, were analyzed based on indicators' suitability to competency aspects being measured (knowledge, skills, and attitudes). This was done to assess whether test items correctly measured intended concepts and whether observation indicators reflected expected dimensions of active learning activities. Instruments were revised based on input from experts and practicing teachers. Revisions were made to correct ambiguous question wording, remove overlapping indicators, or add observation items deemed important but not yet included. The purpose of this step was to improve clarity, accuracy, and completeness of instruments.

Instrument validation was carried out through review processes by experts and practitioners to ensure that instruments could measure relevant aspects and align with achieved indicators.

Furthermore, data validity was strengthened through verification by Mr. Wisnu Wibisono, M.Pd., a mentor teacher and principal, who acted as an inter-rater. He helped check consistency of observation and assessment results between observers to ensure greater objectivity and reliability. With involvement of mentors as verifiers, obtained data were considered more valid and representative of learning activity implementation in classrooms. To minimize potential for subjectivity because researchers also acted as teachers, observations were conducted by two independent observers who were fellow teachers and were not directly involved in teaching. Assessments were conducted using validated and previously agreed-upon observation instruments. Observation results were compared and consolidated to ensure objectivity, and analyzed using triangulation to obtain comprehensive and fair pictures of ongoing learning processes.

Result and Discussion

Research Result

Before intervention, students were less enthusiastic about participating in learning processes. This was due to learning methods which were still one-way and dominated by teachers. Of the 27 students, only 6 students were seen actively interacting during learning processes. This condition had impacts on low student learning outcomes in Basic Office Management Expertise Program subjects on office equipment and supplies. This was reflected in student test scores, where average scores obtained were only 60, even though Minimum Completion Criteria (KKM) had been set at 75. After implementing cooperative learning models of window shopping type combined with mind mapping media on office equipment and supplies materials, there were increases in student learning completion.

Data on student learning completion after implementing this method can be seen in the following table:

Table 3
Student learning outcomes in cycle 1

Cycle 1			
Learning Completion		Mark	
Completed	Incomplete	Highest	Lowest
19	8	95	50

Based on teacher observation results and student assessments in Cycle I, as shown in Table 3, 8 students did not complete learning, with learning completion percentage of 70%. Although there were score increases after implementing window shopping learning models, overall learning outcomes still did not meet classical completion criteria.

Table 4
Student learning outcomes in cycle 2

Cycle 2			
Learning Completion		Mark	
Completed	Incomplete	Highest	Lowest
24	3	95	70

Based on results shown in Table 4, numbers of students who did not complete lessons in Cycle II decreased to 3, with learning completion percentage of 88.89%. This indicates that students achieved classical completion in Cycle II. Data from observations during learning processes, conducted by researchers as teachers and accompanied by two teachers as observers, can be seen in Table 5 below:

Table 5*Teacher observation data during learning cycle I*

No.	Activity	Score
1	The teacher conveys the learning objectives and motivates students	3
2	The teacher explains the Office Equipment and Supplies material clearly and systematically	3
3	The teacher guides students to understand the Window Shopping method that will be used	2
4	The teacher explains the group formation technique clearly and appropriately	2
5	The teacher guides students during the window shopping activity	2
6	The teacher provides feedback when students create mind maps based on their observations	3
Total		15
Learning Implementation Assessment Score		62%

Description: 1) Not Good 2) Quite Good 3) Good 4) Very Good

Based on Table 5, learning conducted in Class X MPLB using window shopping learning models showed improvement in learning implementation compared to previous meetings. Assessment of learning implementation in Cycle I obtained scores of 62%, which is included in "quite good" category according to score ranges of 50%-69%.

Table 6*Teacher observation data during cycle 2 learning*

No.	Activity	Score
1	The teacher conveys the learning objectives and motivates students	4
2	The teacher explains the Office Equipment and Supplies material clearly and systematically	4
3	The teacher guides students to understand the Window Shopping method that will be used	4
4	The teacher explains the group formation technique clearly and appropriately	3
5	The teacher guides students during the window shopping activity	4
6	The teacher provides feedback when students create mind maps based on their observations	4
Total		23
Learning Implementation Assessment Score		96%

Description: 1) Not Good 2) Quite Good 3) Good 4) Very Good

In Cycle II, teacher observation data presented in Table 6 indicate increases in learning implementation, from 62% in Cycle I to 96%. Input from colleagues acting as observers during learning processes was also used for improvement and evaluation. This input was used to assess and improve learning implementation. Student engagement showed positive development with increases. This is evident from observations of learning implementation, which followed planned stages and focused on developing student skills. Increases in student engagement are shown in the following table.

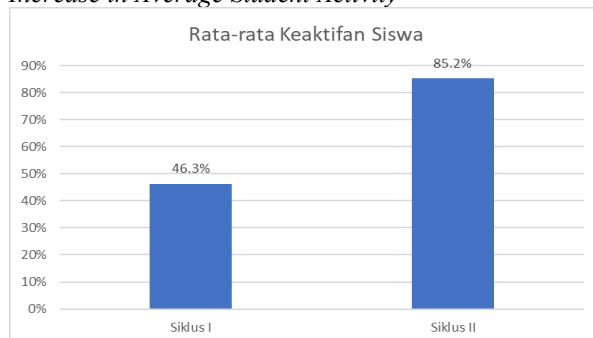
Table 7*Observation data on increasing student activity*

Criteria	Cycle I		Cycle II	
	Number of Students	%	Number of Students	%
High	2	7,4%	23	85,2%
Medium	4	14,8%	4	14,8%
Low	15	55,6%	0	0%
Very Low	6	22,2%	0	0%
Total	27	100%	27	100%

Table 8*Observation data on increasing student activity*

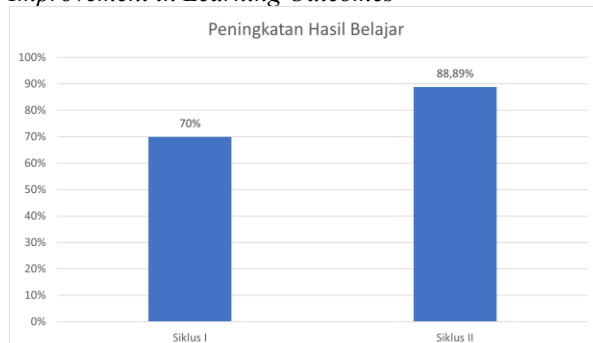
Criteria	Cycle I	Cycle II
Average	46,3%	85,2%

Tables 7 and 8 show that student activity increased. Based on data in tables, it can be seen that student activity in Cycle I of total numbers of 27 students, student activity in Cycle I was classified as low. This can be seen from tables which show that student activity was still low, namely 55.6% or 15 students. After implementing Cycle II by implementing window shopping type learning models and use of mind mapping media, there were increases in student activity with medium activity categories of 4 students (14.8%) and high activity categories of 23 students (85.2%), with averages of 85.2% (high). The 23 students were declared to have met criteria for activity indicators that had been determined in this study. With average student activity having reached expected performance indicator targets, this classroom action research (CAR) was stopped at that stage.

Figure 1*Increase in Average Student Activity*

Source: Documentation of observation results and data analysis (2025)

Based on the graph in Figure 1, it can be seen that through implementation of window shopping learning models and use of mind mapping media, activeness of students at Saraswati Sukoharjo Vocational School can be increased. The graph in Figure 1 shows surges in student activeness from average values of 46.3% to increases with final conditions in Cycle II to 85.2% after there were different interventions.

Figure 2*Improvement in Learning Outcomes*

Source: Documentation of observation results and data analysis (2025)

The graph in Figure 2 shows increases in student learning outcomes. In Cycle I, learning completion only reached 70%, while in Cycle II, it increased to 88.89%. These increases reflect that collaborative and visual learning approaches implemented significantly improved students'

understanding and mastery of materials. This is in line with increased active student participation, which also contributed to learning success.

Discussion

In classroom action research conducted by Class X MPLB at SMK Saraswati Sukoharjo on office equipment and supplies materials, it succeeded in improving learning outcomes and student activity through implementation of Window Shopping learning models combined with mind mapping media. This is in line with Novitami's research (2024) which shows that with Window Shopping learning approaches equipped with mind mapping, students showed increased conceptual understanding and higher enthusiasm for learning compared to conventional methods. Furthermore, this method strengthens student participation in learning because they actively exchange information and ask questions within groups, resulting in more lively and effective learning atmospheres. Research results by Silalahi et al. (2024) also showed that Window Shopping learning model application was able to significantly increase student engagement, from 46% to 85%, driven by intensive and collaborative intergroup interactions throughout learning processes. This method strengthens student participation in learning because they actively exchange information and ask questions within groups, resulting in more lively and effective learning environments.

In Cycle I, learning only focused on application of Window Shopping models to improve interaction between groups. However, observations showed that although learning objectives, material explanations, and appreciation were well implemented, there were still weaknesses in group formation, discussion guidance, and presentation of results. Student activity was still limited, and conceptual understanding was not yet in-depth due to lack of material visualization. Therefore, in Cycle II, corrective actions were taken by adding mind mapping media to visualize discussion results in structured manners. Improvements in action in Cycle II were proven to increase learning completion from 70% to 88.89%. Observation scores for learning implementation increased from "fairly good" to "very good," and student activity increased from 46.3% to 85.2%. Thus, application of Window Shopping learning models combined with mind mapping media proved to be able to improve learning outcomes and student activity through intergroup interactions that encourage conceptual understanding and active participation in learning processes.

To strengthen findings in each cycle, observations and reflections were conducted jointly by supervising teachers and observers. Input provided in each cycle served as important bases for designing improvements in subsequent cycles. This comprehensive evaluation encompassed not only aspects of learning implementation but also effectiveness of strategies used in improving student engagement and learning outcomes. Details of observations and input are presented in the following table.

Table 9
Suggestions from observers

Meeting to-	Suggestion
P-1	Learning implementation has been quite good, especially in conveying objectives, explaining material, and providing appreciation to students. However, improvements are needed in group formation, discussion guidance, and presentation of results. Teachers can provide written instructions and rotate guidance between groups.
P-2	Learning is excellent and has improved significantly. Consistent guidance and varied rewards are needed to improve students' overall motivation. Use observation checklists and provide simple appreciation such as points or praise.

Based on observations and feedback shown in Table 9, each cycle demonstrated progressive improvements in learning implementation. Implementing observer suggestions at each meeting positively impacted classroom learning outcomes, from planning, implementation, and evaluation. This improvement was reflected in increased observation scores and student engagement in learning processes.

Conclusion

Application of window shopping learning models combined with mind mapping media has proven effective in improving student learning outcomes in Office Management Expertise Program subjects, especially in office equipment and supplies materials. Through two learning cycles conducted, there were significant increases in active student participation, interaction quality, and learning outcome completeness. In the first cycle, percentages of student learning completeness reached 70%, then increased to 88.89% in the second cycle. Learning activities also showed improvements in terms of implementation, seen from increases in teacher observation scores from 62% to 96%. Additionally, student activeness experienced increases where initial conditions with average scores of 46.3% increased with final conditions in the second cycle to 85.2%. This shows that collaborative and visual learning strategies can create more interesting learning atmospheres, as well as increase student motivation and overall understanding. Based on results of this study, we recommend that teachers consider wider application of window shopping learning models, especially for materials that require conceptual understanding and active student involvement. Use of visual media such as mind mapping also needs to be continuously developed because it has been proven to help students organize information and improve memory. Furthermore, it is important for teachers to consistently evaluate learning processes and integrate feedback from colleagues to ensure that learning is effective and adaptive to student needs. In the future, application of similar methods can also be combined with digital technology to make learning more relevant to current student characteristics. This research is still limited to classroom action implementation in one school and within scope of specific materials. Therefore, future researchers are advised to expand research objects to various school contexts and different grade levels, as well as explore other similar learning models to enrich alternative approaches to improving learning quality.

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Student learning readiness and teacher creativity effects on learning outcomes

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Abstrak

Langkah awal menciptakan pendidikan berkualitas adalah dengan memperhatikan kualitas komponen sistem pendidikan, terutama SDM. Pendidikan dinilai berkualitas jika siswa mampu menguasai tugas belajar sesuai tujuan dan target yang ditetapkan. Penelitian ini bertujuan untuk mengetahui pengaruh kesiapan belajar siswa dan kreativitas mengajar guru terhadap hasil belajar mata pelajaran Job Profile siswa kelas X Manajemen Perkantoran dan Layanan Bisnis (MPLB) SMK Negeri 1 Sukoharjo Tahun Ajaran 2024/2025 baik secara parsial maupun simultan. Penelitian ini menggunakan pendekatan kuantitatif kausal-komparatif. Populasi berjumlah 107 siswa, sedangkan sampel berjumlah 84 yang dipilih menggunakan teknik simple random sampling. Pengumpulan data dilakukan melalui penyebaran kuesioner. Data dianalisis dengan regresi linear berganda menggunakan bantuan IBM SPSS Statistic 26. Hasil penelitian menunjukkan bahwa: (1) terdapat pengaruh positif dan signifikan kesiapan belajar siswa terhadap hasil belajar, dibuktikan dengan nilai $t_{hitung} > t_{tabel}$ ($5,245 > 1,989$) dan nilai signifikansi $0,00 < 0,05$; (2) terdapat pengaruh positif dan signifikan kreativitas mengajar guru terhadap hasil belajar, dibuktikan dengan nilai $t_{hitung} > t_{tabel}$ ($6,506 > 1,989$) dan nilai signifikansi $0,00 < 0,05$; (3) terdapat pengaruh positif dan signifikan kesiapan belajar siswa dan kreativitas mengajar guru secara bersama-sama terhadap hasil belajar, dibuktikan dengan nilai $F_{hitung} > F_{tabel}$ ($113,292 > 3,12$) dan nilai signifikansi $0,00 < 0,05$.

Kata kunci: inovasi pengajaran; kuantitatif; persiapan; prestasi akademik

Abstract

Creating quality education requires attention to educational system components, particularly human resources. Education is considered quality when students master learning tasks according to established goals and targets. This study examined the influence of student learning readiness and teacher teaching creativity on learning outcomes in Job Profile subject among Grade X Office Management and Business Services students at SMK Negeri 1 Sukoharjo during the 2024/2025 academic year, both partially and simultaneously. Using quantitative causal-comparative methodology, this research involved 107 students as population and 84 as sample

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selected through simple random sampling. Data collection utilized questionnaires, with multiple linear regression analysis conducted using IBM SPSS Statistics 26. Results revealed: (1) student learning readiness positively and significantly influenced learning outcomes ($t\text{-calculated} > t\text{-table}$: $5.245 > 1.989$; significance $0.00 < 0.05$); (2) teacher teaching creativity positively and significantly influenced learning outcomes ($t\text{-calculated} > t\text{-table}$: $6.506 > 1.989$; significance $0.00 < 0.05$); (3) both variables simultaneously demonstrated positive and significant influence on learning outcomes ($F\text{-calculated} > F\text{-table}$: $113.292 > 3.12$; significance $0.00 < 0.05$). The determination coefficient showed 73.7% variance explanation, with remaining 26.3% attributed to other factors not examined in this study.

Keywords: academic achievement; preparation; quantitative; teaching innovation

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Introduction

Vocational High Schools (SMK) represent formal secondary education levels focusing on developing students' practical and vocational competencies. SMK serves as a key component in the national education system contributing to improving human resource quality in Indonesia (Baedhowi et al., 2017). The fundamental initial step in creating quality educational outcomes involves serious attention to educational system component quality, particularly human resources (Suryani et al., 2023). Education is considered quality in terms of results when students can master learning tasks according to goals and targets determined in the educational process.

One primary indicator of this success is academic learning achievement, reflected in student learning outcomes (Roseno & Wibowo, 2019). Istiqomah et al. (2024) define learning outcomes as student achievements after undergoing learning processes, serving as evidence of their success based on studied subjects. Therefore, learning outcomes play crucial roles in learning processes by providing teachers with information about student progress in achieving learning objectives, enabling design and adjustment of subsequent teaching-learning activities (Nabillah & Abadi, 2019).

In practice, SMK education still faces various obstacles, particularly regarding suboptimal learning outcome achievement. Research by Roseno and Wibowo (2019) showed that SMK student academic performance remains relatively low, caused by less varied learning methods not fully relevant to industry needs. Based on researcher observations in Grade X Office Management and Business Services (MPLB) classes, suboptimal learning achievement problems existed in Job Profile subjects. The average Job Profile subject scores for Grade X MPLB students at SMK Negeri 1 Sukoharjo over three recent years (2022/2023, 2023/2024, and 2024/2025 academic years) showed significant declining learning completion rate trends. In the 2022/2023 academic year, completion rates reached 78.10%, decreasing to 71.30% in 2023/2024, and further declining to 62.62% in 2024/2025. This condition indicates continuing problems in Job Profile subject learning outcome achievement at SMK Negeri 1 Sukoharjo.

Initial observations conducted by researchers in November 2024 on 30 Grade X MPLB students at SMK Negeri 1 Sukoharjo revealed several obstacles in learning processes affecting student learning outcomes. Observation results showed 43.3% of students appeared less enthusiastic, 33.3% seemed inattentive to teacher explanations, while 43.3% tended to be drowsy during learning. Additionally, 16.7% of students did not take notes on teacher-delivered material, and 43.3% appeared busy talking and joking with seatmates. When teachers asked questions, only 46.7% of students actively provided responses or answers, while 53.3% tended to be passive and unresponsive, as recorded in participatory observation sheets.

These problems were exacerbated by suboptimal teacher creativity in teaching. Observation results indicated teachers had not fully developed creativity skills in teaching. Based on observation data, teacher creativity skill development levels were only 65%, with tendencies toward conventional learning methods like lectures oriented toward teachers. The combination of poor student learning habits and minimal teaching method innovation caused learning processes to become less effective. This impacted low student learning outcome achievement in both concept understanding and skills needed in Office Management and Business Services fields.

Tran et al. (2025) stated that student learning outcomes are influenced by internal and external factors. Internal factors encompass all aspects originating from within learning individuals, such as intelligence, interests, talents, motivation, readiness, and adaptation. Conversely, external factors originate from environments outside individuals, such as school, family, and community environments. Student success in learning is influenced not only by single factors but involves various interconnected factors, including student learning readiness. Fathoni (2020) explained that learning readiness represents conditions directly experienced by students in undergoing learning processes, aimed at changing behavior and enhancing potential within students.

Siagian et al. (2021) stated that learning readiness is influenced by three main aspects: body, mind, and emotional conditions; student support and needs; and knowledge, abilities, and understanding already mastered by students. Learning stages supported by learning readiness not only enhance learning effectiveness but also shape student character to become independent and self-confident individuals. These conditions impact learning outcome achievement. Therefore, fostering learning readiness must become primary focus in creating quality and meaningful learning (Zuschaiya et al., 2021).

Another factor influencing learning outcomes is external factors, including teacher teaching creativity. According to Adams et al. (2025), teacher creativity can be understood as abilities to generate innovative and beneficial teaching ideas and find solutions to various classroom problems. Teacher teaching creativity plays important roles in learning processes because it not only develops student creativity but also enhances learning process quality affecting student learning outcome acquisition (Yeremia et al., 2024). Rezkia and Rivilla (2017) revealed that creating meaningful learning and encouraging optimal learning achievement requires teachers to possess creativity and innovation in designing learning activities throughout learning processes. Teacher creativity in teaching enables creation of enjoyable learning environments, which can increase student motivation and learning interest. This aligns with Sudarma's (2014) opinion that teacher creativity development is important in improving human resource quality and productivity while contributing significantly to supporting educational service improvement.

The key to achieving learning success lies in student readiness to follow learning processes and teacher abilities in managing learning to create effective educational interactions. Therefore, student-achieved learning outcomes are influenced by student learning readiness and teacher teaching creativity. This aligns with research results by Sari and Ritonga (2021), finding that student learning readiness significantly influences student learning outcomes in economics subjects. Conversely, research by Pardede et al. (2023) also showed that teacher creativity in teaching provides positive and significant impacts on student learning outcomes in economics subjects. However, characteristic differences shown by both studies have not fully provided comprehensive understanding regarding simultaneous influences of student learning readiness and teacher teaching creativity on student learning outcomes that researchers will conduct.

This research focuses on Grade X SMK students with MPLB competency expertise in Job Profile subjects, aiming to explore deeply student learning readiness levels and teacher creativity in learning processes, while examining deeply student understanding regarding roles and competencies needed in the workforce, particularly office administration. Job Profile subjects are important because they provide deep insights into the workforce, help students recognize various profession types with required qualifications, and develop professional attitudes and entrepreneurial capabilities. Thus, these subjects equip students to become workers and entrepreneurs, making them crucial elements in building careers in office administration fields.

Research examining combinations of student learning readiness and teacher teaching creativity simultaneously offers novelty and substantial significance, particularly due to its focus on

interactional effects exceeding mere addition of individual variable influences separately. Based on previous research, factors influencing learning outcomes are still studied separately. Additionally, this research population and sample possess different characteristics compared to previous studies. These conditions represent research gaps underlying the need for further research focusing on contexts and characteristics regarding: (1) whether student learning readiness influences Job Profile subject learning outcomes among Grade X MPLB students at SMK Negeri 1 Sukoharjo in the 2024/2025 academic year; (2) whether teacher teaching creativity influences Job Profile subject learning outcomes among Grade X MPLB students at SMK Negeri 1 Sukoharjo in the 2024/2025 academic year; (3) whether student learning readiness and teacher teaching creativity simultaneously influence Job Profile subject learning outcomes among Grade X MPLB students at SMK Negeri 1 Sukoharjo in the 2024/2025 academic year.

Research Methods

This research was conducted at SMK Negeri 1 Sukoharjo with Grade X Office Management and Business Services (MPLB) competency students as research subjects. Research implementation lasted nine months, from November 2024 to July 2025. The approach used was quantitative with causal-comparative methodology. Independent variables in this research were student learning readiness and teacher teaching creativity, while the dependent variable was learning outcomes.

The population encompassed all Grade X MPLB program students at SMK Negeri 1 Sukoharjo in the 2024/2025 academic year, totaling 107 students. Sample determination employed simple random sampling technique, namely random sampling with balanced proportions without considering strata divisions in the population. Sample size calculations referred to Slovin's formula with 5% error rates, yielding 84 student samples. Data collection utilized closed questionnaires modified using 1-4 Likert scales through Google Forms containing statements according to research variables. Respondents were asked to complete identities and questionnaires according to provided instructions. Respondent identities and provided answers were kept confidential and used only for this research.

Research instruments were systematically arranged based on indicators representing each research variable. For student learning outcome variables, this research used indicators proposed by Krisnayanti and Wijaya (2022), focusing on cognitive aspects. Student learning readiness indicators referred to Ahsani and Utami (2024), encompassing physical readiness, psychological readiness, emotional conditions, learning needs, and studied knowledge. Meanwhile, teacher teaching creativity indicators were adopted from Arnawati (2018), including skills in developing learning strategies, creating attractive learning media, managing classes, developing varied teaching materials, empathy toward students, and skills in composing quality questions.

To ensure research instrument feasibility, validity and reliability tests were conducted on 30 Grade XI MPLB students. Selection of Grade XI MPLB as trial respondents was based on several considerations. First, Grade XI students possessed more mature learning experiences compared to Grade X, enabling more objective and measured responses to instrument items. Second, they had completely studied Job Profile materials in previous academic years, ensuring concept understanding and related skills were formed. Third, teacher similarity ensured teaching method consistency, minimizing external variables that could affect trial results. Thus, selected respondents were expected to optimally represent instrument validity and reliability levels before use on main research subjects.

Data analysis utilized IBM SPSS Statistics version 26 software. First, data tabulation involved inputting raw data into tables for easier management, followed by conversion and data cleaning to avoid input errors/outliers. Subsequently, regression analysis prerequisite tests were conducted, including normality tests, linearity tests, multicollinearity tests, and heteroscedasticity tests. After regression assumptions were met, hypothesis testing was performed, including t-tests, multiple linear regression analysis, F-tests, determination coefficient analysis, and relative and effective contribution calculations of X_1 and X_2 variables toward Y variable. Analysis results were then interpreted and presented narratively, in tables, and graphs to answer problem formulations and test research hypotheses.

Results and Discussion

Research Results

Based on validity test results distributed to 30 respondents, 16 items were declared valid and 2 items invalid for student learning readiness variables. Meanwhile, for teacher teaching creativity variables, 19 items were valid and 2 items invalid. Subsequently, reliability tests on 35 valid items showed student learning readiness variables had Cronbach's Alpha values of 0.875, while teacher teaching creativity variables obtained values of 0.888. Both values exceeded established minimum limits of 0.60, enabling conclusions that research instruments used met reliability criteria. Thus, these instruments were suitable for measuring studied variables.

Table 1
Descriptive Data Analysis

	N	Min	Max	Mean	Std. Deviation
Student Learning Readiness	84	43	62	51.82	4.592
Teacher Teaching Creativity	84	50	73	61.98	5.362
Learning Outcomes	84	70	96	81.69	6.872

(Source: Data processed by researcher, 2025)

Based on Table 1, descriptive data results for learning outcome variables showed highest values of 96, lowest values of 70, means of 81.69, medians of 82, modes of 80, and standard deviations of 6.872. Total scores for learning outcome variables based on collected data were 4353. Meanwhile, student learning readiness variables obtained highest values of 62, lowest values of 43, means of 51.82, medians of 51, modes of 50, and standard deviations of 4.592. This variable consisted of 16 statements using modified 1-4 Likert scale measurements. Total scores for student learning readiness variables based on collected data were 5206. Subsequently, teacher teaching creativity variables obtained highest values of 73, lowest values of 50, means of 61.98, medians of 62, modes of 62, and standard deviations of 5.362. Total scores for teacher teaching creativity variables based on collected data were 6862.

Prerequisite tests used in this research included normality, linearity, multicollinearity, and heteroscedasticity tests. SPSS calculation output results showed Asymp. Sig (2-tailed) values of 0.20 > 0.05, indicating data in this research were normally distributed. Student learning readiness variable linearity test results toward learning outcomes showed linearity significance of 0.000 and deviation from linearity of 0.246 > 0.05, enabling conclusions that student learning readiness and learning outcomes had linear relationships. Teacher teaching creativity variable linearity tests toward learning outcomes showed linearity significance of 0.000 and deviation from linearity of 0.148 > 0.05, enabling conclusions that teacher teaching creativity and learning outcomes had linear relationships.

Multicollinearity test results showed student learning readiness variable tolerance values of 0.517 and teacher teaching creativity variables of 0.517. Both variables had tolerance values exceeding 0.1. VIF values for student learning readiness variables were 1.933 and teacher teaching creativity variables were 1.933. Both independent variables had VIF values less than 10. Therefore, both independent variables experienced no multicollinearity. Heteroscedasticity tests using Glejser tests showed significance values for student learning readiness variables of 0.779 and teacher teaching creativity variables of 0.609. Since both values exceeded 0.05, both variables showed no heteroscedasticity indications.

Subsequently, hypothesis testing results using t-tests, multiple regression analysis, F-tests, determination coefficient analysis, and relative and effective contributions of X_1 and X_2 toward Y are presented in the following tables.

Table 2*t-Test Results*

	T	Sig.
Constant	1.738	.086
Student Learning Readiness	5.245	.000
Teacher Teaching Creativity	6.506	.000

(Source: Data processed by researcher, 2025)

Based on Table 2, t-test results between student learning readiness (X_1) and learning outcomes (Y) showed student learning readiness (X_1) obtained t-calculated > t-table values ($5.245 > 1.989$) and significance values of $0.00 < 0.05$. With t-calculated > t-table values and significance values < 0.05, H_0 was rejected and H_1 was accepted, meaning significant partial influences existed between student learning readiness variables (X_1) and learning outcome variables (Y). Meanwhile, t-test results for teacher teaching creativity (X_2) obtained t-calculated > t-table values ($6.506 > 1.989$) and significance values of $0.00 < 0.05$. With t-calculated > t-table values and significance values < 0.05, H_0 was rejected and H_1 was accepted, meaning significant partial influences existed between teacher teaching creativity variables (X_2) and learning outcome variables (Y).

Table 3*Multiple Linear Regression Analysis Results*

	B	Std. Error	Beta
Constant	8.483	4.880	
Student Learning Readiness	.622	.119	.416
Teacher Teaching Creativity	.661	.102	.516

(Source: Data processed by researcher, 2025)

Based on Table 3, the regression equation obtained in this research was $\hat{Y} = 8.483 + 0.622X_1 + 0.661X_2$, explained as follows: (1) Constants of 8.483 indicated that if student learning readiness (X_1) and teacher teaching creativity (X_2) both valued 0, then learning outcome variable (Y) values were 8.483; (2) Regression coefficients for student learning readiness variables (X_1) were 0.622, meaning if X_1 increased one unit with X_2 assumptions remaining 0, learning outcomes would increase by 0.622; (3) Regression coefficients for teacher teaching creativity variables (X_2) were 0.661, meaning if X_2 increased one unit with X_1 assumptions remaining 0, learning outcomes would increase by 0.661.

Table 4*F-Test Results*

	Sum of Squares	df	Mean Square	F	Sig.
Regression	2887.662	2	1443.831	113.292	.000 ^b
Residual	1032.290	81	12.744		
Total	3919.952	83			

(Source: Data processed by researcher, 2025)

Based on Table 4, F-test results showed F-calculated > F-table values ($113.292 > 3.12$). Additionally, probability values in Sig. columns were 0.00, values < 0.05. From these results, H_0 was rejected, meaning significant simultaneous influences existed between student learning readiness variables (X_1) and teacher teaching creativity variables (X_2) toward learning outcomes (Y).

Table 5*Determination Coefficient Analysis Results*

R	R Square	Adjusted R Square	Std. Error of The Estimate
.858 ^a	.737	.730	.3570

(Source: Data processed by researcher, 2025)

As shown in Table 5, determination coefficient (R square) values were 0.737. This indicated that student learning readiness and teacher teaching creativity together contributed 73.7% toward learning outcomes. The remaining 26.3% (100% - 73.7%) was possibly influenced by other factors or variables not studied in this research.

Discussion

Based on conducted data analysis, t-test results for student learning readiness variables showed t-calculated > t-table values ($5.245 > 1.989$) and significance values of $0.00 < 0.05$. This indicated positive and significant influences of student learning readiness on Job Profile subject learning outcomes among Grade X MPLB students at SMK Negeri 1 Sukoharjo. These research results aligned with previous research by Rohmah and Jatiningsih (2021), showing student learning readiness significantly and positively influenced learning outcome improvements. Consistent with these findings, Gazi et al. (2023) also confirmed positive influences of learning readiness on learning outcomes. Other research by Dangol and Shrestha (2019) stated positive relationships existed between learning readiness and educational achievement among school students.

Based on these findings, learning readiness embedded within students represents crucial factors contributing significantly to academic achievement. Specifically, students demonstrating high learning readiness levels proportionally reflect this in superior learning outcomes. This phenomenon occurs because students in optimal readiness conditions tend to mobilize more intense cognitive and behavioral efforts, enabling them to provide constructive responses and active engagement toward various learning stimuli such as questions, directions, or explanations delivered by educators during teaching-learning processes (Effendi, 2017).

Teacher teaching creativity variable data analysis also showed positive and significant influences on Job Profile subject learning outcomes. T-test results showed t-calculated > t-table values ($6.506 > 1.989$) and significance values of $0.00 < 0.05$. Findings in this research aligned with study results by Pardede et al. (2023), showing teacher creativity in teaching had positive and significant influences on student learning outcomes. These research results aligned with findings proving positive significant influences of teacher teaching creativity on learning outcomes. This consistency was strengthened by research by Rizki and Nasution (2021), also confirming that teacher creativity statistically significantly affected student learning outcomes.

Teacher creativity in learning processes plays central roles in building conducive and enjoyable learning atmospheres while encouraging increased student learning motivation (Sari, 2018). These capabilities not only make learning materials more attractive but also facilitate student understanding. Studies proved that creative and innovative methods, such as media use or varied instructional strategies, could significantly increase student understanding. Furthermore, teacher creativity also encourages critical and innovative thinking capabilities. Rahmawati (2017) stated that creative teaching approaches, such as challenging questions and deep reflection stimulation, were effective in developing critical thinking patterns. These findings confirmed that teacher creativity was not merely material delivery tools but also catalysts for student cognitive competency development.

The third hypothesis stated positive and significant influences existed between student learning readiness and teacher teaching creativity simultaneously on Job Profile subject learning outcomes among Grade X MPLB students at SMK Negeri 1 Sukoharjo. F-test calculation results showed F-calculated values ($113.292 > 3.12$) with significance values of $0.000 < 0.05$. These findings suggested that higher student learning readiness levels correlated with better learning outcome achievements. The same applied to teacher teaching creativity variables, where

higher creativity in learning processes resulted in more optimal student learning outcomes.

This was supported by empirical research by Saeid and Eslaminejad (2017) and Zakiyyan et al. (2025), strengthening these research results by showing significant influences of learning readiness on learning outcomes. Students with high learning readiness tended to actively respond to instructions, study more diligently, and quickly absorb materials, supporting optimal learning outcome achievement. Conversely, lack of readiness could decrease achievements, reduce teaching effectiveness, and waste government educational investments. Without learning readiness, quality education provision efforts risked becoming ineffective.

Research results by Ashlichati et al. (2022) found that teacher creativity in teaching processes significantly influenced student learning outcomes. Creativity enabled teachers to design relevant and dynamic teaching materials, which in turn increased understanding and student participation (Suwartono et al., 2022). Creative teachers tended to adopt constructivist teaching methods, encouraging deeper student engagement and active learning (Ucus & Acar, 2018). Conversely, teachers less optimal in using learning media and minimal creativity tended to make learning processes feel rigid and boring, causing students to easily lose interest. Collaboration between student learning readiness and teacher teaching creativity created conducive learning environments where students felt comfortable, motivated, and actively engaged. Consequently, material understanding became deeper, skills improved, and learning outcomes became better.

Conclusion

Research results showed that student learning readiness and teacher teaching creativity had positive and significant influences on Job Profile subject learning outcomes among Grade X MPLB students at SMK Negeri 1 Sukoharjo in the 2024/2025 academic year, both partially and simultaneously. This could be observed that higher student learning readiness levels correlated with better achieved learning outcomes. The same applied to teaching creativity variables, where higher teacher creativity in learning processes resulted in more optimal student outcomes. Although these research results provided significant understanding, this research had limitations: research only examined two independent variables (student learning readiness and teacher teaching creativity), thus not covering all potential factors possibly affecting learning outcomes. Additionally, research scope was limited to one location, one competency expertise, and one academic year, so findings might not necessarily represent conditions in different schools, majors, or periods. Therefore, for future researchers interested in studying student learning outcomes, consideration for adding other variables potentially affecting student learning outcome achievement is recommended. Additionally, increasing population numbers, samples, and conducting research in different locations is also advised to provide more significant contributions toward developing effective learning strategies and improving overall student learning outcomes.

Theoretical implications of this research showed that simultaneous improvements in student learning readiness and teacher teaching creativity significantly contributed to academic achievements. Dangol and Shrestha (2019) proved positive relationships between learning readiness and educational achievement, making it fundamental components for optimal learning. Without learning readiness, educational efforts and investments risked being wasted. Consistent with findings by Pardede et al. (2023), teacher creativity positively influenced learning outcomes through integrated learning strategy design, class management, methods, and evaluation. Tuwa and Faraz (2018) emphasized transformative teacher roles in creating enjoyable and contextual learning experiences. Practical implications require improving SMK Negeri 1 Sukoharjo teacher competencies in developing teaching creativity through intensive professional development programs, work environments supporting innovation, and proportional resource allocation for creativity training.

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Implementation of SRIKANDI in the Karanganyar Regency Tourism and Sports Department

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Abstrak

Penelitian ini bertujuan untuk mengetahui: (1) penerapan SRIKANDI di Disparpora Kabupaten Karanganyar, (2) kendala yang dihadapi dan solusi dalam pengelolaan SRIKANDI di Disparpora Kabupaten Karanganyar, dan (3) persepsi pegawai terhadap SRIKANDI di Disparpora Kabupaten Karanganyar. Penelitian ini menggunakan pendekatan kualitatif deskriptif dengan pendekatan studi kasus. Teknik pengambilan sampel dilakukan dengan purposive sample menggunakan teknik wawancara, observasi, dan analisis dokumen. Uji validitas data dilakukan dengan triangulasi metode dan sumber, sedangkan analisis data menggunakan model analisis interaktif yang meliputi reduksi data, penyajian data, serta penarikan kesimpulan. Hasil penelitian menunjukkan bahwa: (1) pengimplementasian SRIKANDI di Disparpora Kabupaten Karanganyar mempermudah proses surat menyurat secara elektronik, mempercepat disposisi, dan mengurangi penggunaan kertas sehingga meningkatkan efisiensi kerja (2) kendala yang dihadapi dalam pengimplementasian SRIKANDI ialah: a) keterbatasan kompetensi SDM, b) gangguan jaringan dan server, serta c) prosedur pembaruan akun setiap tiga bulan yang dianggap kurang efektif, (3) pegawai menilai sistem ini bermanfaat dalam pengarsipan, mempercepat pencarian dokumen, dan meningkatkan produktivitas kerja, didukung pelatihan serta bantuan teknis. Meskipun demikian, Secara keseluruhan, SRIKANDI merupakan inovasi digitalisasi administrasi yang berpotensi meningkatkan kinerja dan responsivitas pegawai, tetapi keberhasilannya sangat bergantung pada kesiapan SDM dan infrastruktur teknis yang memadai.

Kata kunci: digitalisasi arsip; efisiensi administrasi; sistem informasi

Abstract

This study examines: (1) the implementation of SRIKANDI at the Tourism, Youth, and Sports Office (Disparpora) of Karanganyar Regency, (2) the obstacles and solutions encountered in managing SRIKANDI, and (3) employees' perceptions of the system. The research employed a descriptive qualitative method with a case study approach. Purposive sampling was used, with data collected through interviews, observations, and document analysis. Data validity was established through

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triangulation of methods and sources, while data analysis employed an interactive model consisting of data reduction, data display, and conclusion drawing. The findings reveal that: (1) SRIKANDI implementation facilitates electronic correspondence, accelerates disposition processes, and reduces paper usage, thereby improving work efficiency; (2) primary challenges include limited human resource competencies, network and server disruptions, and ineffective three-month account renewal procedures; (3) employees perceive the system as beneficial for archiving, expediting document retrieval, and improving productivity, supported by training and technical assistance. Overall, SRIKANDI represents an administrative digitalization innovation with the potential to enhance employee performance and responsiveness, although its success depends largely on human resource readiness and adequate technical infrastructure.

Keywords: administrative efficiency; archive digitization; information systems

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Introduction

The Fourth Industrial Revolution has transformed public administration by encouraging the integration of digital technologies into organizational operations. Government institutions, particularly in developing countries such as Indonesia, increasingly require transitions from manual, paper-based processes to more dynamic and efficient computer-based systems. This transformation aims to improve organizational performance and enhance public service quality. Aligned with this objective, the Indonesian government issued Presidential Regulation No. 95 of 2018 concerning the Sistem Pemerintahan Berbasis Elektronik (Electronic-Based Government Systems; SPBE), mandating the adoption of electronic government systems to promote accountability, efficiency, and transparency in public services.

As part of this mandate, regional governments have been encouraged to implement digital platforms supporting administrative modernization. One significant innovation in this context is the Sistem Informasi Kearsipan Dinamis Terintegrasi (Dynamic Integrated Archival Information System; SRIKANDI), developed by the National Archives of the Republic of Indonesia (ANRI). This application digitizes the management of dynamic government archives by facilitating the recording of incoming and outgoing correspondence, digital dispositions, and structured storage of official documents. According to ANRI (2022), "SRIKANDI is part of the national digital transformation initiative in archival management that aims to improve governance transparency and efficiency" (p. 15). The Department of Tourism, Youth, and Sports (DISPARPORA) of Karanganyar Regency adopted SRIKANDI in 2023 as a strategic effort to enhance administrative processes.

Despite the clear benefits expected from SRIKANDI, its implementation at DISPARPORA Karanganyar has revealed several challenges. Employees, particularly administrative staff responsible for managing the system, often experience difficulties adapting to the new digital platform. These challenges stem from factors such as inadequate training, limited technical knowledge, and unstable internet connectivity. Consequently, some administrative tasks that should be expedited through the system are delayed or continue to be performed manually. This reluctance to fully embrace digital tools aligns with findings from Permana (2023), who identified limited socialization and insufficient user support as key barriers to effective SRIKANDI utilization in various government offices.

Moreover, Fadly et al. (2024) point out that although digital applications are available, "not all administrative employees fully understand the regulations that govern the use of those

applications, resulting in ineffective and inefficient performance in the field" (p. 127). This reveals a significant gap between the technological infrastructure provided and human resource preparedness to use it optimally. Previous research has primarily concentrated on technical and procedural aspects of system implementation, leaving the psychological and motivational factors influencing employee responses underexplored. While much is known about which digital systems have been introduced, less is understood about how and why employees engage or fail to engage with these technologies.

Addressing this gap, the present research adopts Herzberg's Two-Factor Theory as a theoretical framework to analyze SRIKANDI's impact on employee motivation. Herzberg (1966) explains that "motivators encourage job satisfaction and hygiene factors prevent job dissatisfaction" (p. 74). This distinction helps understand how internal factors such as achievement and recognition, as well as external factors including working conditions and interpersonal relations, influence employees' willingness and enthusiasm to adopt new digital tools. By applying this theory, the research highlights the critical interplay between technological change and human motivation in public administration.

Understanding employee motivation is essential for the success of digital transformation initiatives. Motivation strongly influences whether employees are willing to embrace technological changes in the workplace. When employees feel competent through adequate training, they are more likely to adopt and effectively use new systems (Putra & Riana, 2023). Conversely, inadequate infrastructure, training, or managerial support can foster resistance and dissatisfaction, undermining the benefits of technology investments. Therefore, exploring how SRIKANDI's implementation relates to both motivator and hygiene factors can provide valuable insights to improve adoption strategies and enhance organizational performance.

Based on this context, this research aims to explore SRIKANDI's implementation at DISPARPORA Karanganyar by identifying obstacles faced by users and analyzing the system's influence on employee work motivation. The research seeks to answer how employees adapt to SRIKANDI, what challenges arise during its operation, and how motivational factors affect employees' engagement with the system. By integrating both technical and human dimensions, this research contributes comprehensive knowledge on digital administrative modernization in local government institutions.

Research Methods

This research was conducted at the Department of Tourism, Youth, and Sports (DISPARPORA) of Karanganyar Regency, involving seven employees as informants selected based on their direct involvement in operating and managing the SRIKANDI system for more than six months. Selection criteria included active usage frequency, responsibility for correspondence, and experience with document archiving via the application.

The study employed a qualitative descriptive method with a case study approach. This approach was selected to explore and describe the SRIKANDI system implementation and its impact on employee motivation in a real institutional setting, specifically at DISPARPORA Karanganyar Regency.

Informants were selected using purposive sampling, consisting of employees who frequently used the SRIKANDI application or were responsible for managing it within their respective divisions. Regarding position, informants comprised the main office administrator, division administrators, and staff members who actively used the application. Their selection was also based on direct involvement in administrative activities, including creating official documents, disposition, distribution, and archiving through SRIKANDI. The total number of informants was six employees from DISPARPORA Karanganyar Regency, who were considered capable of providing relevant and representative information aligned with the research focus.

Data were collected using three techniques: semi-structured interviews, direct observation, and document analysis. These techniques were chosen to enable data triangulation and comprehensive understanding of the studied phenomenon.

To ensure findings credibility, method triangulation and source triangulation were employed. Method triangulation compared results from different techniques, while source triangulation involved collecting information from various informants with different roles. Data collection continued until saturation was reached, indicated by information repetition and the absence of new themes during subsequent interviews. To ensure data validity, member checking was conducted by sharing summarized findings with informants for confirmation and clarification, thus reinforcing results credibility and accuracy.

Data were analyzed using an interactive analysis model, consisting of data reduction, data display, and conclusion drawing. This technique enabled systematic identification of patterns and themes related to SRIKANDI implementation and its influence on employee work motivation. Ethical considerations were upheld throughout the research process. Informed consent was obtained from all participants before interviews. Participants were assured of response confidentiality and their right to withdraw from the study at any point without consequences. No identifying information was disclosed in the publication.

Results and Discussion

Based on the data analysis that has been carried out, the following research results and discussions were obtained:

Research Results

The implementation of SRIKANDI at DISPARPORA Karanganyar

The Department of Tourism, Youth, and Sports of Karanganyar Regency (DISPARPORA) officially adopted the Dynamic Integrated Archival Information System (SRIKANDI) in 2023. This adoption represents a significant step in aligning with the national e-governance strategy as mandated by Presidential Regulation No. 95 of 2018 on Electronic-Based Government Systems (SPBE). By digitizing dynamic archive management, SRIKANDI facilitates faster, more accountable, and environmentally friendly administrative operations across government offices. It supports the government's commitment to achieving transparent, effective, and responsive public services.

SRIKANDI offers a centralized platform for digital correspondence, featuring letter registration, official document creation, template usage, metadata entry, classification based on archival standards, and real-time electronic disposition. Once validated, documents are either archived or disseminated electronically to relevant agencies. This integrated approach eliminates reliance on physical documents and contributes to broader green bureaucracy objectives.

In practice, each division within DISPARPORA assigns a dedicated staff member as a SRIKANDI operator. These individuals handle the technical process of uploading, verifying, and archiving documents. Observations indicated that while many staff adapted well, some still required extensive support, particularly when facing system errors or misclassification issues. Operators are required to have strong attention to detail, as even minor inaccuracies such as mismatched metadata can obstruct workflow continuity.

Challenges in implementation

Despite its transformative potential, the implementation process revealed various limitations. One major issue is the uneven distribution of digital literacy. Senior employees, in particular, often exhibited reluctance or anxiety toward using the system, preferring familiar manual processes. This led to over-reliance on younger employees, creating workload imbalances and affecting collaboration dynamics.

Another significant challenge involves technical infrastructure. Frequent interruptions due to unstable internet connections and temporary server outages were commonly reported. Some employees highlighted that the system occasionally failed to save nearly completed documents, requiring full data re-entry. This not only delayed processes but also demotivated users.

Additionally, the user account renewal policy mandating credential updates every three months proved cumbersome. Many found the process confusing and time-consuming, especially those managing multiple administrative roles. Training sessions provided were often too brief and not tailored to varying levels of digital competency, leading to inconsistent system adoption.

Impact on employee work motivation

Despite these challenges, SRIKANDI implementation has generally enhanced work motivation. Employees reported that the transparency provided by digital tracking fostered a sense of responsibility and encouraged timely task completion. Since each action is logged and traceable, staff became more conscious of meeting deadlines and maintaining professionalism.

One respondent shared, "Knowing that my document processing time is visible makes me more accountable. I can't afford delays." This statement reflects the shift in work culture toward more disciplined and performance-based outcomes. Employees also expressed pride in being part of a forward-looking institution that embraces digital transformation. Those who successfully adapted to the system reported feeling more productive and professionally fulfilled.

Discussion

The research findings highlight that technological change, when appropriately managed, can positively influence both organizational systems and individual behavior. In DISPARPORA's case, SRIKANDI implementation not only modernized administrative workflows but also acted as a catalyst for cultural change. Employees demonstrated stronger work ethics, higher engagement levels, and increased willingness to adopt new responsibilities. Digital system integration has redefined traditional roles and fostered a more proactive mindset. These findings are consistent with Putra and Permana (2023), who found that SRIKANDI adoption in regional government agencies enhanced efficiency and encouraged employees to adapt to technological innovation. Similarly, Lestari (2023) emphasized that digital transformation within bureaucratic settings fosters collaborative and accountable work cultures. International studies also support this perspective, indicating that digital transformation positively impacts employee engagement through improved communication, collaboration, and learning opportunities (IJSREM, 2025). Furthermore, research published by IntechOpen (2025) highlights how embedding digital technologies within organizational structures cultivates a more innovative, flexible, and adaptive culture, thereby strengthening commitment and overall employee performance.

Herzberg's Two-Factor Theory provides a valuable framework to interpret these dynamics. The system addresses motivators such as achievement, recognition, and growth, particularly for employees who succeeded in mastering its usage. Simultaneously, hygiene factors such as training quality, system usability, and infrastructure stability influenced satisfaction and comfort levels. Poor hygiene conditions such as difficult login procedures or server downtime led to frustration and decreased effectiveness, even when motivational elements were present. Evidence from recent workplace studies shows that when technology fails to operate seamlessly due to unreliability or sluggish support, digital friction arises, leading to reduced productivity, lower morale, and lost time (Banfield, 2025).

The findings are consistent with Agustini's indicators of work spirit, which include discipline, collaboration, and job satisfaction. Employees who felt competent in using the SRIKANDI application demonstrated higher enthusiasm and a clearer sense of purpose in carrying out their tasks. However, these positive impacts may not be sustained without adequate technical support. The absence of continuous training and inclusive mentoring mechanisms risks widening the digital skills gap among employees. This is reinforced by studies showing that digital transformation success largely depends on the availability of ongoing training programs and consistent technical assistance that enable employees to adapt effectively to technological changes (Rahman, 2023; Sari & Hidayat, 2022).

For effective implementation on a broader scale, managerial strategies must prioritize inclusivity and continuous capacity building. This involves providing structured and scenario-based training, peer mentoring, and real-time technical assistance to ensure that employees are capable of

adapting to technological change. Simplifying account management and strengthening internet and server infrastructure are also necessary to maintain system stability. Enhancing digital infrastructure is crucial to prevent technical errors from becoming persistent adoption obstacles. These findings align with Putra and Permana (2023), who explained that successful SRIKANDI implementation requires not only technical readiness but also ongoing training and employee support. Similarly, Lestari (2023) emphasized that digital transformation in bureaucratic environments will be effective if supported by adequate facilities and continuous capacity-building efforts, ensuring that employees are not left behind in adapting to organizational change.

Furthermore, to avoid dependency on certain individuals, leadership should encourage shared responsibility. Promoting digital literacy across all levels will foster collective system ownership and prevent knowledge silos. These efforts are vital for ensuring long-term digital transformation success and maintaining high employee morale.

SRIKANDI has transcended its role as an information system to become a driver of institutional modernization, employee empowerment, and organizational accountability. By reinforcing both technical and human dimensions of administrative reform, it exemplifies how public sector digitization can yield substantial improvements in performance and motivation when supported by thoughtful implementation strategies. Successful digital transformation in the public sector depends not only on robust infrastructure and reliable systems but also on employee engagement, training, and managerial support (Banfield, 2025).

Conclusion

The implementation of the Dynamic Integrated Archival Information System (SRIKANDI) at the Department of Tourism, Youth, and Sports of Karanganyar Regency represents a significant advancement in public administration digital transformation. Through its features, including electronic correspondence, real-time disposition tracking, and digital archiving, SRIKANDI has enabled a more efficient, transparent, and environmentally friendly approach to document management. Despite challenges such as limited digital literacy among certain staff, unstable internet infrastructure, and complex account renewal procedures, the system has positively influenced organizational work culture. Employees reported improved discipline, accountability, and motivation, along with greater satisfaction and pride in adapting to new workflows, reflecting the system's ability to reduce reliance on manual processes.

From a theoretical standpoint, SRIKANDI aligns with Herzberg's motivation-hygiene theory and supports Agustini's indicators of work spirit. The presence of motivators, such as achievement and recognition, coupled with improved hygiene factors, including system usability and technical support, has been instrumental in sustaining employee engagement. Furthermore, the integration of technical solutions with human-centered approaches demonstrates that both infrastructural and behavioral factors are critical for successful digital adoption in the public sector.

However, this study has several limitations. It was conducted in a single governmental department, limiting findings generalizability to other organizations. The sample was relatively small and purposively selected, which may not capture the full range of employee experiences. Additionally, reliance on qualitative methods interviews, observations, and document analysis means that results may be influenced by subjective perceptions, while external factors, such as policy changes or system updates, could also have affected outcomes. Future research should consider incorporating quantitative measures, longitudinal approaches, and multiple organizational contexts to strengthen the evidence base.

Overall, SRIKANDI serves not only as a technological tool but also as a catalyst for bureaucratic reform and cultural change. Continuous investment in digital literacy programs, improved infrastructure, and inclusive participation in digital governance is essential to sustain these benefits and ensure the long-term success of the system in enhancing organizational performance and employee motivation.

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Income expectations and subjective norms influence on students' entrepreneurial intention

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Abstrak

Penelitian ini bertujuan untuk menguji pengaruh: (1) ekspektasi pendapatan terhadap intensi berwirausaha; (2) norma subjektif terhadap intensi berwirausaha; (3) pengaruh simultan ekspektasi pendapatan dan norma subjektif terhadap intensi berwirausaha mahasiswa Program Studi Pendidikan Administrasi Perkantoran FKIP UNS Angkatan 2021-2022. Penelitian ini menggunakan pendekatan kuantitatif metode kausalitas. Populasi 180 mahasiswa, sampel dihitung menggunakan rumus slovin margin error 5% yakni 124 mahasiswa. Teknik pengambilan sampel menggunakan proportionate stratified random sampling. Teknik pengumpulan data menggunakan kuesioner. Teknik analisis data menggunakan analisis regresi linear berganda dengan bantuan IBM SPSS Statistics 26. Hasil penelitian menunjukkan bahwa (1) terdapat pengaruh positif signifikan secara parsial ekspektasi pendapatan terhadap intensi berwirausaha mahasiswa PAP, dibuktikan dengan $t_{hitung} > t_{tabel}$ ($3,965 > 1,197$) dengan taraf signifikansi $0,000 < 0,05$; (2) terdapat pengaruh positif signifikan secara parsial ekspektasi pendapatan terhadap intensi berwirausaha mahasiswa PAP, dibuktikan dengan $t_{hitung} > t_{tabel}$ ($7,222 > 1,979$) dengan taraf signifikansi $0,000 < 0,05$; (3) terdapat pengaruh positif signifikan secara simultan ekspektasi pendapatan dan norma subjektif terhadap intensi berwirausaha mahasiswa PAP, dibuktikan dengan $F_{hitung} > F_{tabel}$ ($74,137 > 3,07$) dengan taraf signifikansi $0,000 < 0,05$. Persamaan regresinya yakni $\hat{Y} = 3,653 + 0,625X_1 + 0,755X_2$ dengan R^2 55,1%. Sumbangan efektif X_1 terhadap Y sebesar 17,5%; Sumbangan efektif X_2 terhadap Y sebesar 37,6%; Sumbangan relatif X_1 terhadap Y sebesar 32%; Sumbangan relatif X_2 terhadap Y sebesar 68%.

Kata kunci: harapan akan pendapatan; niat berwirausaha; persepsi sosial; teori perilaku terencana

Abstract

This research examines the influence of: (1) income expectations on entrepreneurial intentions, (2) subjective norms on entrepreneurial intentions, and (3) the simultaneous influence of income expectations and subjective norms on

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entrepreneurial intentions among students of the Office Administration Education Study Program FKIP UNS Class of 2021-2022. The research employed a quantitative approach using a causality method. The population comprised 180 students, with the sample calculated using the Slovin formula with a 5% margin of error, resulting in 124 students. The sampling technique used proportionate stratified random sampling. Data collection employed questionnaires, and data analysis utilized multiple linear regression analysis with IBM SPSS Statistics 26. Results showed that: (1) income expectations had a partially significant positive influence on PAP students' entrepreneurial intention, evidenced by $t_{\text{calculated}} > t_{\text{table}}$ ($3.965 > 1.979$) with a significance value of $p < .001$; (2) subjective norms had a partially significant positive influence on PAP students' entrepreneurial intentions, evidenced by $t_{\text{calculated}} > t_{\text{table}}$ ($7.222 > 1.979$) with a significance value of $p < .001$; (3) income expectations and subjective norms had a simultaneously significant positive influence on PAP students' entrepreneurial intentions, evidenced by $F_{\text{calculated}} > F_{\text{table}}$ ($74.137 > 3.07$) with a significance level of $p < .001$. The regression equation was $\hat{Y} = 3.653 + 0.625X_1 + 0.755X_2$ with $R^2 = 55.1\%$. The effective contribution of X_1 to Y was 17.5%, and the effective contribution of X_2 to Y was 37.6%. The relative contribution of X_1 to Y was 32%, and the relative contribution of X_2 to Y was 68%.

Keywords: entrepreneurial intentions; income expectations; social perception; theory of planned behavior

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Introduction

Entrepreneurship serves as a key mechanism for supporting a country's economic development. A nation can be considered developed if the number of entrepreneurs reaches at least 7% of the total population (Rosmiati et al., 2022). According to data from the Central Statistics Agency (2023), the number of entrepreneurs in Indonesia has reached only 3.47%, falling short of the 7% target and indicating a relatively low percentage. This situation provides impetus for all elements in Indonesia to improve immediately, particularly in higher education. The Ministry of Education, Culture, Research and Technology launched the Independent Learning Independent Campus Entrepreneurship (MBKM) program in early 2020 to boost student enthusiasm for entrepreneurship. Sebelas Maret University followed by implementing an entrepreneurship grant program and Independent Entrepreneurs (WMK) starting in 2023, with the Office Administration Education Study Program serving as a pioneer in efforts to increase entrepreneurial intention by providing entrepreneurship courses as mandatory subjects. Students, as agents of change, are expected to possess entrepreneurial intentions as opportunities to create employment and improve the country's economy (Fauzan et al., 2024). Despite various efforts made, students are expected to develop entrepreneurial intentions, but reality shows they still face challenges, and these efforts have not yielded maximum results for students' entrepreneurial intentions.

A preliminary study conducted on 30 students of the Office Administration Education Study Program batch 2021-2022 found that students' entrepreneurial intentions were relatively low. The findings revealed that only 9.4% of students currently operated personal businesses, only 37.5% of students intended to continue their business after the program provided by the Independent Entrepreneurship Fund stimulant, and only 15.6% of students had ever submitted entrepreneurial grant proposals. These findings confirmed that students' entrepreneurial intentions remained very low. In the preliminary study, questions used tended to measure entrepreneurial behavior or actual entrepreneurial conduct, as a gap between intentions and behaviors remains relevant. Measuring

intention alone without linking it to actual behavior can result in perception bias, as intentions can change over time (Kautonen et al., 2015). The difference between expectations and reality regarding entrepreneurial intention among UNS Office Administration Education students Class of 2021-2022 became the foundation for research on entrepreneurial intentions entitled "The Influence of Income Expectations and Subjective Norms on the Entrepreneurial Intention of PAP FKIP UNS Students Class of 2021-2022."

Intention represents a person's will when performing actions that can be realized, present opportunities, and are accompanied by efforts during implementation (Firmansyah, 2019). Intention serves as the driving force behind actions taken by individuals; the stronger a person's intention, the greater the possibility of performing an action. Meanwhile, Hasanah and Setiaji (2019) defined entrepreneurship as activities aimed at achieving goals by obtaining profits, recognizing opportunities, and utilizing opportunities through discovery and innovation. Entrepreneurial intention refers to the desire and power that drives individuals to take action to establish their own business or enterprise. Entrepreneurial intention represents a crucial first step before an individual establishes a business (Yusvan et al., 2024). According to Vernia (2018), factors that encourage individuals to have entrepreneurial intentions include internal and external factors. Internal factors originate from within individuals and affect intention and belief to perform actions, such as attitudes toward behavior, subjective norms, and behavioral control. External factors originate from outside individuals and affect intention in carrying out actions, such as individual background, social background, and information background.

Without diminishing the role of each factor, this study focuses on internal factors, specifically income expectations and subjective norms that have been identified as variables affecting entrepreneurial intentions. Income expectations are part of behavioral beliefs, where individuals believe that certain actions will produce specific consequences that can affect expectations (Ajzen & Fishbein, 2005). Behavioral beliefs serve as the background for attitude toward behavior, which are determinants of intention (Ajzen, 1991), while subjective norms function as an individual's view of other people's perceptions that can affect an action or behavior. This aligns with previous research conducted by Jonatan and Handoyo (2023), which found that income expectations have a significant positive influence on entrepreneurial intention. Another factor that can increase entrepreneurial intention is subjective norms; according to Nurdwiratno et al. (2023), subjective norms have positive and significant effects on entrepreneurial intention.

According to Utama et al. (2024), income expectations can be defined as an individual's expectations of income obtained through various businesses. Gultom (2024) stated in his research that the driving factor for the younger generation to pursue entrepreneurship is expectations for earned income. An entrepreneur will obtain significant profits and unlimited income, enabling achievement of all desires; therefore, these expectations are believed to foster individual entrepreneurial intention (Situmorang et al., 2021). Income expectation represents an individual's expectation to earn income to achieve desired goals. Entrepreneurial intentions arise because individual expectations of entrepreneurship will result in higher income than being an employee. Therefore, income expectations play important roles in increasing entrepreneurial intention. Alfian and Andriansyah (2020) identified two indicators of expected income: (1) high income, referring to the potential income of an entrepreneur that is higher than that of an employee in a company; (2) unlimited income, referring to income that cannot be estimated and does not have specific limits.

In addition to income expectations, subjective norms also play roles in increasing entrepreneurial intention. Subjective norms are defined as something that refers to an individual's perception of social pressures and expectations from close people such as family and friends that influence the individual's specific behavior (Amelia & Sulistyowatie, 2022). If people around the individual support entrepreneurship as something positive, the individual will feel urged to meet the expectations or opinions of others. This support will motivate individuals, thus influencing stronger intention to pursue entrepreneurship (Yusvan et al., 2024). Tentama et al. (2019) stated that there are two indicators of subjective norms: (1) normative beliefs, referring to individual beliefs about the opinions, expectations, and support of specific people that can influence their actions; (2) motivation to comply, referring to an individual's desire to follow and obey the beliefs of a particular person that can influence behavior.

Based on the problem background, this study aims to answer several key questions: (1) Is there an effect of income expectations on entrepreneurial intentions in students of the UNS Office Administration Education Study Program Class of 2021-2022? (2) Is there an influence of subjective norms on entrepreneurial intentions in UNS Office Administration Education Study Program students Class of 2021-2022? (3) Is there an effect of income expectations and subjective norms together on entrepreneurial intentions in UNS Office Administration Education Study Program students Class of 2021-2022?

Research Methods

The study employed a quantitative approach using a causality method, chosen to prove the cause-and-effect relationship between variables. The independent variables in this study were income expectations (X_1) and subjective norms (X_2), while the dependent variable was entrepreneurial intentions (Y). The population of this study comprised the entire 2021-2022 batch of the Office Administration Education Study Program, Faculty of Teacher Training and Education, Sebelas Maret University who participated in the Entrepreneurship MBKM, totaling 180 students. The sample was calculated using the Slovin formula with a 5% margin of error because this formula offers efficiency in use and is considered more comprehensive when applied to social humanities research. Using the formula $n = N / (1 + (N \times e^2))$, specifically $n = 180 / (1 + (180 \times 0.05^2)) = 124.137$ rounded to 124 students. The sampling technique used was probability sampling with the proportionate stratified random sampling technique. This technique was employed because the population had homogeneous levels or elements and proportional strata. The population comprised two different batches in the Office Administration Education Study Program, namely the 2021 and 2022 batches, with every student having equal opportunity to become a sample. The total sample number was 124 students and calculated using the formula $n_i = (N_i/N) \times n$ with details $n = (81/180) \times 124$, namely 56 students of the class of 2021 and $n = (99/180) \times 124$, namely 68 students of the class of 2022. The research was conducted following research principles and ethics, including informed consent from respondents, assurance of anonymity, transparency in data management, and awareness of potential institutional bias.

The analysis used IBM SPSS Statistics 26. Data collection employed closed questionnaires via Google Forms using Likert scale alternatives from 1-5. The research instrument for the entrepreneurial intention variable (Y) adopted the instrument from Vamvaka et al. (2020). The income expectation variable (X_1) and subjective norm variable (X_2) used independently created instruments based on indicators submitted by experts, validated by experts, tested on 30 respondents, and subjected to validity and reliability tests. The income expectation variable (X_1) used indicators from Alfian and Andriansyah (2020), namely high income and unlimited income with eight statements that passed validity and reliability tests. Furthermore, the subjective norms variable (X_2) used indicators from Tentama et al. (2019), namely normative beliefs and motivation to comply with 10 statement items that passed validity and reliability tests.

Data analysis began with data tabulation and continued with analysis prerequisite tests including normality, linearity, multicollinearity, and heteroscedasticity tests. Furthermore, hypothesis testing consisted of t-tests, F-tests, multiple linear regression analysis tests, R^2 determination coefficient tests, and calculation of effective contribution and relative contribution.

Results and Discussion

Research results

Descriptive Statistical Analysis

Based on descriptive analysis of entrepreneurial intention data, the number of respondents was 124 with 14 statement items. The maximum value was 70 and the minimum value was 18, resulting in a data range of 52. The mean entrepreneurial intention value of 46.60 was classified as medium-high in the data distribution, the median value of 47.00 indicated that entrepreneurial intention was in the middle position, and the mode value of 49 indicated that many respondents had

above-average values. Categorization of the median, mean, and mode values derived from the range between minimum and maximum values. The standard deviation value of 9.339 was relatively high, reinforcing the diversity of variation or heterogeneous data distribution.

Furthermore, income expectation with eight statement items obtained a range value of 22, minimum value of 18, and maximum value of 40. The mean income expectations value of 30.35 was classified as moderate-high in the data distribution, the median value of 30.50 indicated that income expectations were in the middle position, and the mode of 32 showed that many respondents had above-average values, with a standard deviation value of 4.386 that was relatively high, strengthening the diversity of variation or heterogeneous data distribution. Meanwhile, subjective norms with 10 statement items obtained a maximum value of 47, minimum value of 16, and range of 31. The mean subjective norm value of 31.75 was classified as moderate-high in the data distribution, the median value of 31.00 indicated that subjective norms were in the middle position, and the mode value of 26 indicated that quite a few respondents had values below average, with a high standard deviation value of 6.613 reinforcing heterogeneous variation in data distribution.

Analysis Prerequisites Test

The normality test results showed that the Asymp. Sig (2-tailed) value of $0.200 > 0.05$ indicated that data were normally distributed. Furthermore, the two independent variables showed linear relationships with the entrepreneurial intention variable (Y), as evidenced by the linearity test results of income expectation (X_1) on entrepreneurial intention (Y) obtaining a linearity value of $0.000 < 0.05$ and a deviation from linearity value of $0.061 > 0.05$, and the subjective norm linearity test results (X_2) on entrepreneurial intention (Y) obtaining a linearity value of $0.000 < 0.05$ and deviation from linearity value of $0.146 > 0.05$. The multicollinearity test results showed that the tolerance value for independent variables was $0.677 > 0.10$, and the VIF value was $1.477 < 10$, indicating no multicollinearity problem between independent variables. The final prerequisite test, the heteroscedasticity test conducted with the Glejser test, obtained results of $0.330 > 0.05$ for the income expectation variable (X_1) and results of $0.133 > 0.05$ for the subjective norm variable (X_2), concluding that heteroscedasticity did not occur.

Hypothesis Test

Hypothesis testing is a process of testing the correctness of a proposed hypotheses.

Table 1
T-Test Results

Type	T test	Sig.
(Constant)	.908	.366
Revenue Expectations	3.965	.000
Subjective Norms	7.222	.000

(Source: Primary data processed by researchers, 2025)

Table 1 shows the research t-test results data, with the known ttable value for 124 samples being 1.979. The t-test results between income expectations (X_1) and entrepreneurial intention (Y) obtained a calculated t value of $3.965 > t_{table} 1.979$ with significance level $p < .001$, thus H_1 was accepted and H_0 was rejected, meaning there was a partially significant positive influence of income expectations (X_1) on entrepreneurial intention (Y). Meanwhile, the t-test results between subjective norms (X_2) and entrepreneurial intention (Y) obtained a calculated t-value of $7.222 > t_{table} 1.979$ with significance level $p < .001$, thus H_2 was accepted and H_0 was rejected, meaning there was a partially significant positive influence of subjective norms (X_2) on entrepreneurial intention (Y).

The known Ftable value for 124 samples was 3.07. In Table 2, the F-test results obtained $F_{calculated} > F_{table} 3.07$ with significance level $p < .001$, indicating simultaneous influence between income expectations (X_1) and subjective norms (X_2) on entrepreneurial intention (Y).

Table 2*F-Test Results*

Type	Sum of Squares	Df	Red Squares	F	Sig.
Regression	5907.107	2	2953.554	74.137	.000b
Residual	4820.530	121	38.839		
Total	10727.637	123			

(Source: Primary data processed by researchers, 2025)

Table 3*Multiple Linear Regression Analysis Results*

Type	Unstandardized Coefficients		Standardized Coefficients Beta	
	B	Std. Error	t	Sig.
(Constant)	3.653	4.024	.908	.366
Revenue Expectations	.625	.158	.294	.3965
Subjective Norms	.755	.105	.535	7.222

(Source: Primary data processed by researchers, 2025)

Table 3 presents multiple linear regression analysis results, yielding the equation $\hat{Y} = 3.653 + 0.625X_1 + 0.755X_2$ interpreted as follows: (1) The constant value of 3.653 can be interpreted such that if income expectation (X_1) and subjective norm (X_2) are valued at 0 (constant), then the entrepreneurial intention variable equals 3.653; (2) In column B, the regression coefficient value of the income expectation variable (X_1) is 0.625, meaning that every addition of 1 value to income expectation will also increase the entrepreneurial intention (Y) value by 0.625; (3) In column B, the regression coefficient value of the subjective norm variable (X_2) is 0.755, meaning that every addition of 1 value to subjective norms will also increase the entrepreneurial intention (Y) value by 0.755.

Table 4*Coefficient of Determination Result (R^2)*

Type	R	R Square	Adjusted R Square	Std. Error the Estimate
1	.742a	.551	.543	6.312

(Source: Primary data processed by researchers, 2025)

Referring to Table 4, the determination coefficient (R^2) test result was 0.551 or 55.1%. This indicates that income expectation variables and subjective norms can explain the entrepreneurial intention variable by 55.1%, while 44.9% is influenced by other variables not explained in this study.

Table 5*Effective Contribution Results*

Effective Contribution	Value
Revenue Expectations (X_1)	$0.294 \times 0.597 \times 100 = 17.5\%$
Subjective Norms (X_2)	$0.535 \times 0.702 \times 100 = 37.6\%$
Total	55,1%

(Source: Primary data processed by researchers, 2025)

Based on Table 5, the effective contribution calculation results showed that the income expectation variable (X_1) was 17.5% and the subjective norm variable (X_2) was 37.6%. The subjective norm variable (X_2) had greater effective contribution than the income expectation variable (X_1).

Table 6*Relative Contribution Results*

Relative Contribution	Value
Revenue Expectations (X ₁)	$17.5 : 55.1 \times 100 = 32\%$
Subjective Norms (X ₂)	$37.6 : 55.1 \times 100 = 68\%$
Total	100%

(Source: Primary data processed by researchers, 2025)

The results in Table 6 show the relative contribution calculation of all independent variables, totaling 100% or equal to 1. The relative contribution value of income expectations (X₁) was 32%, while subjective norms (X₂) was 68%. The subjective norm variable (X₂) had greater relative contribution than the income expectation variable (X₁). It can be concluded that the subjective norm variable (X₂) had greater influence on entrepreneurial intention than the income expectation variable (X₁).

Discussion**The Effect of Income Expectations on the Entrepreneurial Intention of Students of the FKIP UNS Office Administration Education Study Program Batch 2021-2022**

Results showed that income expectations had a partially significant positive influence on the entrepreneurial intention variable (Y). This was evidenced by t-test analysis results, showing that the calculated t-value was $3.965 > t_{table} 1.979$ with significance level $p < .001$, thus H₁ was accepted and H₀ was rejected.

Based on the description of the statement item with the highest value, "I am optimistic that the bigger the business I have, the more infinite the income I get," high and unlimited expectations for entrepreneurial results will support achieving desired income results and will increase students' intentions in entrepreneurship. Conversely, the statement item with the lowest score, "I am confident that I can determine my own income target by entrepreneurship," indicated that some students were not sure about determining their income target through entrepreneurship, potentially affecting the lack of students' entrepreneurial intention. In connection with this description, Fajriyah et al. (2023) stated that the higher a person's income expectations for entrepreneurship, the more their entrepreneurial intentions will increase.

The findings in this study reinforce previous research by Hutama et al. (2024), Fajriyah et al. (2023), Situmorang et al. (2021), and Jonathan and Handoyo (2023), who stated that income expectations have significant influence on entrepreneurial intentions.

The Influence of Subjective Norms on the Entrepreneurial Intention of Students of the Office Administration Education Study Program FKIP UNS Class of 2021-2022

Results showed that subjective norms had a partially significant positive influence on entrepreneurial intentions. This was evidenced by t-test analysis results showing that the calculated t-value was $7.222 > t_{table} 1.979$ with significance level $p < .001$, thus H₂ was accepted and H₀ was rejected.

The questionnaire data description of the statement item with the highest score, "I want to prove to the environment around me that I can be successful in entrepreneurship," showed that motivation to demonstrate to surroundings that entrepreneurship will bring success will also increase entrepreneurial intention. Conversely, the statement item with the lowest score, "in my environment, entrepreneurs are considered the noblest job," showed that some students were still influenced by the perspective of the surrounding environment who think that entrepreneurship is not the noblest job, affecting the lack of entrepreneurial intention. In line with this description, Nurdwiratno et al. (2023) stated that the higher the subjective norm of support in entrepreneurial activities, the greater the entrepreneurial intention.

The findings of this study reinforce previous research by Yusvan et al. (2024), Nurdwiratno et al. (2023), and Choirunnisya and Susanti (2021), who stated that subjective norms have significant influence on entrepreneurial intentions.

The Effect of Income Expectations and Subjective Norms Together on the Entrepreneurial Intention of Students of the FKIP UNS Office Administration Education Study Program Batch 2021-2022

Based on F-test analysis results, $F_{\text{calculated}}$ was $74.137 > F_{\text{table}} 3.07$ with significance level $p < .001$, thus H_3 was accepted and H_0 was rejected. From these results, it can be interpreted that the income expectation variable (X_1) and the subjective norm variable (X_2) have significant positive influence simultaneously on the entrepreneurial intention variable (Y).

The data description results of the highest-scoring statement item, "I plan to start my own business someday," showed that most college students have plans to start their own business in the future. Meanwhile, the statement item with the lowest score, "I read a book on how to set up a company," showed that many students still do not read books/references on how to establish a company, potentially narrowing students' insights related to company establishment.

The findings of this study align with research by Utama et al. (2024), who stated that income expectations are forms of expectations that aim to obtain greater income, and income expectations that tend to be high will increase intention in entrepreneurship. Additionally, if individuals receive support from people considered important, it will convince and foster the person's intention in entrepreneurship (Pratama & Margunani, 2019).

Conclusion

Based on data analysis results, the following conclusions can be drawn: (1) There was a partially significant positive influence between income expectation variables (X_1) and entrepreneurial intention (Y) of PAP FKIP UNS students batch 2021-2022, as evidenced by t-test results showing a calculated t-value of $3.965 > t_{\text{table}} 1.979$ with significance level $p < .001$, thus H_1 was accepted and H_0 was rejected. (2) There was a partially significant positive influence between subjective norm variables (X_2) and entrepreneurial intention (Y) of PAP FKIP UNS students batch 2021-2022, as evidenced by t-test results showing a calculated t-value of $7.222 > t_{\text{table}} 1.979$ with significance level $p < .001$, thus H_2 was accepted and H_0 was rejected. (3) There was a simultaneous significant positive influence between income expectation variables (X_1) and subjective norms (X_2) on entrepreneurial intention (Y) of PAP FKIP UNS students of the 2021-2022 batch, as evidenced by F-test results of $74.137 > F_{\text{table}} 3.07$ with significance level $p < .001$, thus H_3 was accepted and H_0 was rejected. The regression equation model in this study was $\hat{Y} = 3.653 + 0.625X_1 + 0.755X_2$. The effective contribution of variable (X_1) to Y was 17.5%, while variable (X_2) to Y was 37.6%. The relative contribution of variable (X_1) to Y was 32%, while variable (X_2) was 68%, concluding that the subjective norm variable (X_2) had greater contribution than the income expectation variable (X_1) toward Y . The determination coefficient (R^2) value was 55.1%, meaning that together the variables of income expectations and subjective norms affected entrepreneurial intention by 55.1%. Meanwhile, 44.9% was influenced by other factors not studied in this research. Therefore, due to research limitations, future research is expected to investigate other factors not explained in this study to provide more comprehensive understanding of entrepreneurial intentions among students. The research results can be used as consideration for lecturers in providing assistance and encouragement of entrepreneurial motivation through integrated programs in sustainable academic sections.

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The influence of work environment and verbal communication on administrative staff productivity at Universitas Sebelas Maret

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Abstrak

Produktivitas kerja pegawai administrasi di perguruan tinggi dipengaruhi oleh berbagai faktor, di antaranya lingkungan kerja dan komunikasi verbal yang berperan penting dalam mendukung kinerja organisasi. Penelitian ini bertujuan untuk mengetahui pengaruh lingkungan kerja dan komunikasi verbal terhadap produktivitas kerja pegawai administrasi bagian akademik di Universitas Sebelas Maret, baik secara simultan maupun parsial. Penelitian ini menggunakan pendekatan kuantitatif kausalitas. Populasi terdiri dari 196 pegawai, dengan sampel diambil menggunakan teknik convenience sampling. Teknik pengumpulan data menggunakan angket, dan analisis data dilakukan dengan regresi linear berganda menggunakan bantuan IBM SPSS Statistic 26. Hasil penelitian menunjukkan bahwa: (1) lingkungan kerja berpengaruh positif dan signifikan terhadap produktivitas kerja pegawai administrasi dengan nilai $t_{hitung} > t_{tabel}$ ($2,882 > 1,679$) dan signifikansi $0,006 < 0,05$; (2) komunikasi verbal berpengaruh positif dan signifikan terhadap produktivitas kerja pegawai dengan nilai $t_{hitung} > t_{tabel}$ ($4,332 > 1,679$) dan signifikansi $0,00 < 0,05$; (3) secara simultan, lingkungan kerja dan komunikasi verbal berpengaruh positif dan signifikan terhadap produktivitas kerja pegawai administrasi dengan nilai $F_{hitung} > F_{tabel}$ ($26,272 > 3,204$) dan signifikansi $0,00 < 0,05$. Persamaan regresi yang diperoleh adalah $\hat{Y} = 1,338 + 0,531X_1 + 0,493X_2$ dengan nilai R^2 sebesar 0,539, yang berarti kontribusi kedua variabel sebesar 53,9%. Hasil ini mendukung hipotesis yang diajukan.

Kata kunci : lingkungan organisasi; efektivitas komunikasi; produktivitas pegawai administrasi

Abstract

Administrative staff productivity in higher education institutions is influenced by multiple factors, with work environment and verbal communication playing essential roles in supporting organizational performance. This study examined the influence of work environment and verbal communication on administrative staff productivity in the academic division at Universitas Sebelas Maret, both simultaneously and individually. The research employed a quantitative causal approach with a population of 196 employees and a sample of 48 participants selected through convenience sampling. Data

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were collected using questionnaires and analyzed through multiple linear regression using IBM SPSS Statistics 26. Results indicated that: (1) work environment significantly and positively influenced administrative staff productivity ($t = 2.882 > 1.679$, $p = .006$); (2) verbal communication significantly and positively influenced staff productivity ($t = 4.332 > 1.679$, $p < .001$); and (3) simultaneously, work environment and verbal communication significantly and positively influenced administrative staff productivity ($F = 26.272 > 3.204$, $p < .001$). The regression equation was $\hat{Y} = 1.338 + 0.531X_1 + 0.493X_2$ with $R^2 = .539$, indicating that both variables contributed 53.9% to productivity variance. These findings support the proposed hypotheses.

Keywords: organizational environment; communication effectiveness; administrative staff productivity

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Introduction

In the modern era supported by technological advancement, human resources (HR) remain a fundamental factor determining organizational success, including higher education institutions. Technology alone cannot guarantee organizational efficiency and productivity without quality workforce support. Human resources function not only as implementers but also as strategic planners in achieving organizational goals (Febrina & Rahmat, 2024). In higher education contexts such as Universitas Sebelas Maret (UNS), administrative staff play vital roles in supporting academic and non-academic service delivery. Their service quality directly impacts institutional reputation and satisfaction among students, faculty, and other stakeholders.

Employee productivity serves as a key indicator of successful HR management. According to Pamungkas et al. (2023), work productivity reflects employee effectiveness in managing tasks according to time, quality, and contribution to organizational goals. Hakim (2020) emphasized that productive individuals possess strong self-confidence, self-esteem, and self-concept. In administrative work contexts, productivity is determined not only by workload but also by work environment quality and inter-employee communication effectiveness.

Llave and Messenger (2018) added that work productivity can be assessed through various work flexibility indicators: time flexibility, task management autonomy, diverse work patterns, work-life balance, and technology utilization. These indicators become increasingly relevant in dynamic work environments where flexibility and adaptability are key to achieving optimal organizational performance.

Various factors can influence employee productivity levels, including compensation, work environment, organizational culture, leadership, work motivation, work discipline, job satisfaction, and both verbal and nonverbal communication (Dangnga & Amran, 2019). Among these factors, work environment and verbal communication constitute two important, interconnected elements that contribute significantly to employee performance. Without supportive work environment and effective communication, productivity tends to decline despite high HR qualifications.

Work environment represents a primary factor influencing work productivity. A quality work environment, encompassing both physical and non-physical aspects, provides comfort, increases motivation, and cultivates organizational loyalty (Sunarto & Anjani, 2022). Physical environments such as lighting, air circulation, room temperature, and work facilities support work enthusiasm. Meanwhile, non-physical environments include interpersonal relations, work culture, and harmonious communication climate (Maryani et al., 2023). Lindeberg et al. (2022) identified indicators for assessing work environment quality: physical work environment, digital work environment, social work environment, organizational well-being, and organizational productivity. Research by Siadari and Safrin (2024) demonstrated that work environment improvements can significantly enhance employee productivity.

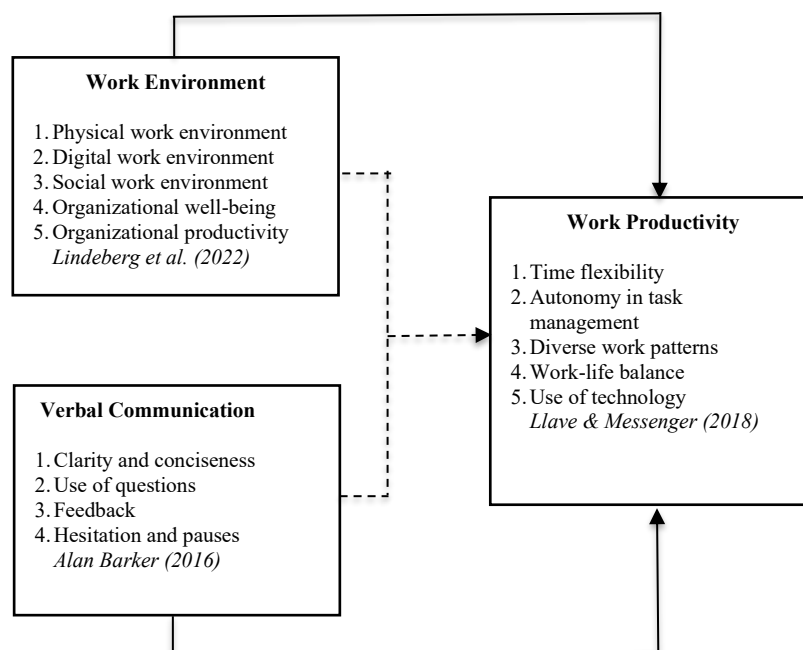
Beyond work environment, verbal communication constitutes a crucial element in forming teamwork and work efficiency. Verbal communication functions as a means for effective information exchange and work coordination, particularly in complex organizations such as universities (Kusumawati, 2016). Septiani et al. (2024) stated that effective verbal communication significantly impacts work productivity improvement. Conversely, miscommunication can cause work errors, internal conflicts, and performance decline (Qorib, 2024).

Effective verbal communication includes several indicators such as message clarity and conciseness, question usage, feedback, pacing, and timing (Barker, 2016). Clear, concise, and empathetic verbal communication forms the foundation for professional interactions (Wulandari et al., 2020). In university administrative environments, employees must communicate information quickly and accurately to various parties, from students to unit leaders.

Work environment and verbal communication play important roles in supporting administrative staff productivity. Observations at Universitas Sebelas Maret revealed various problems in academic administrative services, including information inaccuracy, low responsiveness, and process delays. An internal survey by UNS Academic Bureau in 2023 involving 500 students revealed that 62% of respondents were dissatisfied with administrative services, particularly regarding speed and information accuracy. Despite UNS Personnel System data (2023) recording nearly equal numbers of administrative staff and teaching staff (1,882 and 1,901 respectively), questions arise regarding performance efficiency and effectiveness. Suboptimal services risk decreasing student trust and hindering institutional vision achievement.

This study aimed to answer questions about how work environment and verbal communication contribute to administrative staff productivity. Research findings are expected to provide a foundation for HR management policy development, administrative service quality improvement, and theoretical and practical contributions to university management in creating conducive work environments and effective communication. Therefore, this research focused on the influence of work environment and verbal communication on academic division administrative staff productivity at Universitas Sebelas Maret to formulate appropriate performance improvement strategies.

Figure 1
Conceptual Framework



Based on the conceptual framework in Figure 1, research hypotheses can be formulated as follows: (1) Work environment influences administrative staff productivity in the academic division at Universitas Sebelas Maret; (2) Verbal communication influences administrative staff productivity in the academic division at Universitas Sebelas Maret; (3) Work environment and verbal communication simultaneously influence administrative staff productivity in the academic division at Universitas Sebelas Maret.

Method

This research was conducted at Universitas Sebelas Maret involving academic division administrative staff. The study lasted nine months, from October 2024 to July 2025. Research stages included instrument development, field data collection, data processing and analysis, and final report preparation. This research was part of an umbrella study that had previously developed instruments.

The study employed a quantitative approach with causal design, aiming to test the influence of work environment and verbal communication (independent variables) on work productivity (dependent variable). This approach was selected because it can objectively test causal relationships between variables through inferential statistical analysis.

Data collection used closed questionnaires based on five-point Likert scales. Questionnaires consisted of three main sections: work environment (8 items), verbal communication (11 items), and work productivity (12 items, with 1 item eliminated due to invalidity). Instruments were developed based on theory and previous research and had been tested in umbrella research. Validity test results showed all items in work environment and verbal communication variables were valid, while one work productivity item was invalid and excluded. Reliability test results showed Cronbach's alpha values of .605 (work environment), .765 (verbal communication), and .675 (work productivity), all meeting minimum reliability thresholds ($> .60$).

The population comprised all 196 academic division administrative staff at Universitas Sebelas Maret. Sample determination used G-Power software, yielding 48 respondents. The sampling technique was convenience sampling, where sample selection was based on respondent availability and accessibility without considering specific population distribution or characteristics randomly.

Data analysis used SPSS Statistics 26 software. Initial analysis included data tabulation and conversion. Subsequently, prerequisite tests were conducted, comprising normality, linearity, multicollinearity, and heteroscedasticity tests. After data met requirements, hypothesis testing used multiple linear regression analysis, supplemented with t-tests, F-tests, coefficient of determination (R^2) calculations, and independent variable contribution analysis through relative and effective contributions.

Results and Discussion

Results

Descriptive analysis revealed that work productivity variables showed minimum value 30, maximum value 48, mean 42.85, and standard deviation 3.814. Total work productivity variable score was 2,057. This variable comprised 10 statement items measured using 1-5 Likert scales. Work environment variables had minimum value 31, maximum value 40, mean 35.06, and standard deviation 2.418. Total work environment variable score was 1,683, comprising 8 statement items. Verbal communication variables had minimum value 39, maximum value 55, mean 46.39, and standard deviation 3.907. Total verbal communication variable score was 2,227, comprising 11 statement items.

Prerequisite tests included normality, linearity, multicollinearity, and heteroscedasticity tests. Normality test results showed Asymp. Sig. (2-tailed) value of .200 $> .05$, indicating normally distributed data. Linearity tests between work environment (X_1) and work productivity (Y) showed Deviation from Linearity value of .178 $> .05$, indicating linear relationships. Similarly, linearity tests between verbal communication (X_2) and work productivity (Y) showed Deviation from Linearity value of .062 $> .05$, indicating linear relationships.

Multicollinearity test results showed tolerance values for independent variables of .750 $> .10$ and VIF values of 1.333 < 10 . These results indicated no multicollinearity symptoms in independent variables. Heteroscedasticity tests using Spearman's rho showed significance values of .943 $> .05$ for work

environment variables and $.757 > .05$ for verbal communication variables, indicating no evidence of heteroscedasticity.

Table 1
Hasil Uji t

Model	t	p
(Constant)	0.224	.824
Work Environment	2.882	.006
Verbal Communication	4.332	< .001

Note. Data processed by researcher, 2025.

Table 1 presents t-test results examining individual or partial influences of independent variables on dependent variables. Work environment (X_1) and work productivity (Y) t-test results showed $t = 2.882 > 1.679$ and $p = .006 < .05$. These results indicated H_0 rejection and H_1 acceptance, meaning significant work environment influence on work productivity.

Verbal communication (X_2) and work productivity (Y) t-test results showed $t = 4.332 > 1.679$ and $p < .001$. These results indicated H_0 rejection and H_2 acceptance, meaning significant verbal communication influence on work productivity.

Table 2
F-Test Results

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	368,438	2	184,219	26,272	,000 ^b
Residual	315,541	45	7,012		
Total	683,979	47			

Note. Data processed by researcher, 2025.

Table 2 presents F-test results examining simultaneous influences of independent variables on dependent variables. Results showed $p < .001$ and $F = 26.272 > 3.204$. These results indicated H_0 rejection, meaning significant simultaneous influence of work environment (X_1) and verbal communication (X_2) on work productivity (Y).

Table 3
Multiple Linear Regression Analysis Results

Model	B	Std. Error	Beta
(Constant)	1,338	5,982	
Lingkungan Kerja	,531	,184	,337
Komunikasi Verbal	,493	,114	,505

Note. Data processed by researcher, 2025.

Based on Table 3, the regression equation obtained was: $\hat{Y} = 1.338 + 0.531X_1 + 0.493X_2$

Table 3 results can be explained as follows: (1) Positive constant value of 1.338 indicates that when work environment (X_1) and verbal communication (X_2) equal zero, $\hat{Y}$ equals 1.338; (2) Positive X_1 coefficient of 0.531 indicates positive work environment influence on academic division administrative staff productivity at Universitas Sebelas Maret. One-point work environment increases result in 0.531 productivity increases, assuming other variables remain constant; (3) Positive X_2 coefficient of 0.493 indicates positive verbal communication influence on academic division administrative staff productivity at Universitas Sebelas Maret. One-point verbal communication increases result in 0.493 productivity increases, assuming other variables remain constant.

Table 4
Coefficient of Determination Analysis Results

R	R Square	Adjusted R Square	Std. Error of the Estimate
,734 ^a	,539	,518	2,648

Note. Data processed by researcher, 2025.

Coefficient of determination analysis in Table 4 aimed to determine the extent to which work environment and verbal communication variables influence work productivity variables. Results showed $R^2 = .539$, indicating that work environment and verbal communication variables influence work productivity by 53.9%. The remaining 46.1% is influenced by other factors or variables not examined in this study.

Discussion

Work environment demonstrated positive and significant influence on academic division administrative staff productivity at Universitas Sebelas Maret. Data analysis results showed work environment variable t-test results of $p = .006 < .05$ and $t = 2.882 > 1.679$. These results led to H_0 rejection and H_a acceptance for the first hypothesis: positive work environment influence on academic division administrative staff productivity at Universitas Sebelas Maret exists. Work environment encompasses everything surrounding employees that can influence employee job satisfaction to achieve maximum work results, providing spaces that support employees in improving assigned task performance (Siadari & Safrin, 2024). These findings align with previous research by Siadari and Safrin (2024) showing that good and comfortable work environments influence employee work productivity. Research by Baiti et al. (2020) found that work environment provides positive and significant influence on work productivity.

Verbal communication demonstrated positive and significant influence on academic division administrative staff productivity at Universitas Sebelas Maret. Data analysis results showed verbal communication variable t-test results of $p < .001$ and $t = 4.332 > 1.679$. These results led to H_0 rejection and H_a acceptance for the second hypothesis: positive verbal communication influence on academic division administrative staff productivity at Universitas Sebelas Maret exists. Verbal communication is communication using words either orally (speaking) or in writing to convey messages, information, or feelings to others (Hamama & Nurseha, 2023). In employee work productivity contexts, verbal communication plays important roles. Through oral and written communication, employees can convey information, receive instructions, and coordinate effectively with various parties. These findings align with previous research showing positive and significant verbal communication influence on employee work productivity. Research by Hidayat and Hasanah (2016) stated that verbal communication significantly influences employee work productivity improvement, helping office employees build mutual trust.

The third hypothesis results indicated positive significant influence of work environment and verbal communication together on academic division administrative staff productivity at Universitas Sebelas Maret. F-test calculations showed $p < .001$ and $F = 26.272 > 3.204$. These results led to H_0 rejection and H_a acceptance for the third hypothesis: positive and significant influence of work environment and verbal communication together on academic division administrative staff productivity at Universitas Sebelas Maret exists. Work environment plays important roles in supporting academic division administrative staff productivity achievement at Universitas Sebelas Maret. Administrative staff in good or conducive work environments tend to demonstrate more optimal performance, while those working in less supportive environments tend to experience decreased motivation and productivity. These findings align with previous research showing significant work environment influence on employee work productivity. Therefore, work environment quality improvement efforts, both physical and psychological aspects, are essential to support administrative staff performance improvement. Additionally, verbal communication plays important roles in supporting academic division administrative staff productivity at Universitas Sebelas Maret. This communication form includes information delivery, colleague coordination, and service to students and faculty. Effective verbal communication helps streamline workflows, minimize errors, and create harmonious and professional work relationships. Thus, verbal communication becomes an important aspect supporting administrative staff work success. These research findings align with previous research by Siadari and Safrin (2024) showing positive and significant work environment

influence on work productivity. According to Hidayat and Hasanah (2016), verbal communication positively and significantly influences work productivity. However, no previous research examined work environment and verbal communication variables together on work productivity, making these findings complementary to previous research.

Conclusion

Based on collected data and conducted analyses, the following conclusions can be drawn: (1) Positive and significant influence exists between work environment variables and academic division administrative staff productivity variables at Universitas Sebelas Maret. This was proven through t-tests with work environment variable significance values $< .05$ ($p = .006$) indicating positive and significant influence between both variables. Additionally, $t = 2.882 > 1.679$. Based on these results, H_0 was rejected and H_1 was accepted; (2) Positive and significant influence exists between verbal communication variables and academic division administrative staff productivity variables at Universitas Sebelas Maret. This was proven through t-tests with verbal communication variable significance values $< .05$ ($p < .001$) indicating positive and significant influence between both variables. Additionally, $t = 4.332 > 1.679$. Based on these results, H_0 was rejected and H_2 was accepted; (3) Positive and significant influence exists between work environment and verbal communication variables on academic division administrative staff productivity variables at Universitas Sebelas Maret. This was proven through F-tests where $F = 26.272 > 3.204$ with significance values $p < .001$. Thus, H_0 was rejected and H_3 was accepted. The regression equation model was $\hat{Y} = 1.338 + 0.531X_1 + 0.493X_2$. The coefficient of determination (R^2) was .539, meaning work environment (X_1) and verbal communication (X_2) together influenced work productivity (Y) by 53.9%. Research results showed work environment (X_1) provided 19.8% effective contribution to work productivity (Y), while verbal communication (X_2) provided 34% effective contribution. Regarding relative contributions, work environment (X_1) contributed 36.9% and verbal communication (X_2) contributed 63.1%, with total contributions of both variables reaching 100%. This indicates that verbal communication has greater influence compared to work environment in improving academic division administrative staff productivity at Universitas Sebelas Maret.

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The influence of business/industry internship experience and information technology mastery on work readiness among office administration education students at UNS

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Abstrak

Kesiapan kerja penting bagi mahasiswa sebelum memasuki dunia kerja, mengingat persaingan di era globalisasi. Penelitian ini bertujuan untuk mengetahui (1) pengaruh pengalaman magang dunia usaha/dunia industri terhadap kesiapan kerja mahasiswa; (2) pengaruh penguasaan teknologi informasi terhadap kesiapan kerja mahasiswa; (3) pengaruh pengalaman magang dunia usaha/dunia industri dan penguasaan teknologi informasi terhadap kesiapan kerja mahasiswa PAP FKIP UNS angkatan 2021 – 2022. Penelitian ini menggunakan pendekatan kuantitatif dengan metode deskriptif. Populasi berjumlah 180 mahasiswa dengan sampel penelitian berjumlah 124 responden. Sampel penelitian menggunakan teknik *cluster random sampling* dan pengumpulan data menggunakan angket. Teknik analisis data menggunakan teknik analisis regresi linear berganda dengan bantuan *software SPSS 26*. Hasil penelitian menunjukkan (1) terdapat pengaruh positif dan signifikan pengalaman magang dunia usaha/dunia industri terhadap kesiapan kerja Mahasiswa PAP FKIP UNS yang dibuktikan melalui nilai $t_{hitung} 4,509 > t_{tabel} 1,980$; (2) terdapat pengaruh positif dan signifikan penguasaan teknologi informasi terhadap kesiapan kerja Mahasiswa PAP FKIP UNS, dibuktikan melalui nilai $t_{hitung} 2,589 > t_{tabel} 1,980$; (3) terdapat pengaruh positif dan signifikan pengalaman magang dunia usaha/dunia industri dan penguasaan teknologi informasi terhadap kesiapan kerja Mahasiswa PAP UNS, dibuktikan melalui nilai $F_{hitung} 36,164 > F_{tabel} 3,07$.

Kata kunci: sektor bisnis dan industri; keterampilan teknologi informasi; kesiapan profesional; analisis kuantitatif

Abstract

Work readiness constitutes a vital competency for students entering the workforce, particularly given contemporary global competition. This study examined: (1) the effect of business/industry internship experience on student work readiness; (2) the effect of information technology mastery on student work readiness; and (3) the combined effect of internship experience and information technology mastery on work readiness among Office Administration Education students at the Faculty of Teacher Training and Education, Universitas Sebelas Maret, cohorts 2021–2022. The research employed a quantitative descriptive approach with a population of 180

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students and a sample of 124 respondents selected through cluster random sampling. Data were collected using structured questionnaires and analyzed through multiple linear regression using SPSS Statistics 26. Results demonstrated that: (1) internship experience significantly and positively influenced work readiness ($t = 4.509 > 1.980$, $p < .001$); (2) information technology mastery significantly and positively influenced work readiness ($t = 2.589 > 1.980$, $p = .011$); and (3) internship experience and information technology mastery jointly exhibited significant positive effects on work readiness ($F = 36.164 > 3.07$, $p < .001$). The coefficient of determination (R^2) was .374, indicating that both variables explained 37.4% of work readiness variance.

Keywords: business and industry sector; information technology skills; professional readiness; quantitative analysis

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Introduction

Optimal work readiness enables individuals to adapt to work environments, execute responsibilities effectively, and contribute meaningfully to professional contexts. Work readiness represents a state of student maturity when facing and entering the workforce after graduation without requiring extensive additional training (Maulidiyah & Ubaidillah, 2024). This maturity condition demonstrates students' capacity to adapt effectively to job demands. Work readiness is defined as the level of mental preparedness and work experience enabling individuals to perform tasks competently (Chairunissa & Rahmayanti, 2023). Mental, emotional, and practical experience levels, including prior work experience, enable individuals to execute job responsibilities effectively.

Work competency encompasses individual abilities including knowledge, skills, and work attitudes aligned with standards established in Law No. 13 of 2003 concerning Manpower. Knowledge includes theoretical and technical understanding relevant to work fields, while skills refer to practical abilities for applying knowledge in real work situations. Work attitudes encompass professional ethics, discipline, cooperation, and commitment to achieving optimal results. Internal factors include physical and mental maturity, creativity, interests, talents, intelligence, independence, academic achievement, motivation, personality, and aspirations. External factors comprise economic conditions, infrastructure, and global information access. Experience represents a crucial factor in developing expertise for student work readiness.

Observational and interview results conducted with Office Administration Education students at Universitas Sebelas Maret revealed work readiness challenges. Approximately 92% of students lacked work readiness. Contributing factors included insufficient skills, limited experience, career goal confusion, and low self-confidence. While 92% of students possessed internship experience—a relatively high percentage—67% felt unproductive, and 83% had not engaged directly in tasks, hampering soft skill development and teamwork abilities. Additionally, 39% of students felt technology-deficient, though 46% possessed basic technological knowledge. Only 15% of students demonstrated confidence in their knowledge and skills, creating challenges regarding student preparedness for workplace demands.

Student work readiness problems stem from limited practical implementation opportunities and insufficient workplace understanding. Students report knowledge deficiencies due to barriers accessing current workplace information. Students struggle to follow technological developments and master increasingly essential digital skills. Students require more opportunities for direct contribution and guidance regarding workplace changes.

Individuals are considered work-ready when demonstrating logical and objective considerations, collaborative attitudes, critical thinking with emotional control, workplace

adaptation abilities, and future-oriented ambitions (Prasetya et al., 2022). Work readiness requires challenge and pressure management with positive attitudes, demonstrating high integrity and work ethics to execute tasks effectively and contribute significantly to organizational success. According to Muspawi and Lestari (2020), work-ready individuals possess job-relevant knowledge and understanding, knowledge across factual, conceptual, and procedural dimensions, positive perspectives regarding workplace regulations, positive attitudes accepting work risks, and problem-solving capabilities.

Information technology mastery, work skill development, and soft skills influence student work readiness (Apriliana et al., 2022). Work readiness factors according to Muchtar and Rahmidani (2018) comprise internal and external elements. Internship experience proves essential for students by providing opportunities to apply theoretical learning in real workplace contexts (Suyanto et al., 2019). Through internships, students develop workplace-required practical skills including technical, managerial, communication, and collaboration abilities. Internship programs provide insights into workplace culture and dynamics, helping students understand industry expectations and standards.

Internships constitute educational programs for practicing knowledge and skills to solve workplace problems while developing individual capabilities (Anastasya et al., 2024). Internship objectives include expanding perspectives and gaining work experience to develop skills and knowledge unavailable during academic learning (Faridah et al., 2024). Business/industry internship experience provides opportunities for building industry relationships, acquiring work culture understanding, developing self-confidence, problem-solving abilities, social interaction skills, and future career aspirations (Karunaratne & Perera, 2019). Internship programs benefit students, universities, and host organizations (Tanjung et al., 2023). Barriers to obtaining these benefits include limited opportunities for developing creativity, teamwork, and continuous learning enthusiasm.

Information technology mastery represents a hard skill component within technical competencies. Information technology mastery constitutes performance considered effective and efficient for organizations in optimizing technology use to achieve organizational objectives (Aini & Nikmah, 2020). Students must enhance technological capabilities as these drive work readiness for workplace challenges (Lestari & Santoso, 2019). Individuals with strong technological mastery are considered well-prepared for workplace entry (Sihotang & Santosa, 2019). Information technology mastery represents expertise applied in professional work contexts. Information technology use plays crucial roles in enhancing efficiency, service quality, and productivity (Anggraeni & Elan Maulani, 2023). Information technology generates, processes, and distributes information in various forms, supporting effective and efficient workplace operations (Atmojo, 2022). Human resource capabilities in utilizing information technology become important factors for enhancing productivity (Primawanti & Ali, 2022). Information technology facilitates and streamlines daily activities across various life domains, providing increasing convenience as technology advances.

Individual behavior is influenced by three main components based on the Theory of Planned Behavior developed by Ajzen (1991): attitude toward behavior, subjective norms, and perceived behavioral control. Business/industry internship experience shapes positive workplace attitudes while enhancing self-capability for workplace environment adaptation. Similarly, information technology mastery contributes to strengthening self-confidence and improving adaptation abilities to digital era job demands. Business/industry internship experience and technology mastery form behaviors supporting optimal work readiness.

Based on previous work readiness research, inconsistencies and novelty exist in this study through research timing (September 2024–June 2025), absence of prior research examining business/industry internship experience and information technology mastery effects on student work readiness at this location, and research subjects comprising Office Administration Education students at FKIP UNS cohorts 2021–2022. Based on these research gaps, further investigation was needed addressing: (1) Does business/industry internship experience influence work readiness among Office Administration Education students at FKIP UNS cohorts 2021–2022? (2) Does information technology mastery influence work readiness among Office Administration Education students at FKIP UNS cohorts 2021–2022? (3) Do business/industry internship experience and

information technology mastery significantly influence work readiness among Office Administration Education students at FKIP UNS cohorts 2021–2022?

Method

This research was conducted at the Office Administration Education Program, Faculty of Teacher Training and Education, Universitas Sebelas Maret, located in Building B FKIP UNS, Jalan Ir. Sutami 36A, Surakarta. Research implementation spanned September 2024 through June 2025. Location selection was based on observational and interview results revealing student work readiness problems including insufficient workplace knowledge, limited skills and experience, career goal confusion, and low self-confidence.

The study employed a quantitative research approach with descriptive methods to describe and summarize data constructively based on statistical representations facilitating data understanding for hypothesis testing and variable relationships (Sugiyono, 2019).

The population comprised 180 Office Administration Education students from the Faculty of Teacher Training and Education, Universitas Sebelas Maret, cohorts 2021–2022. These cohorts were selected because mandatory internship programs occur in semester 5, making cohorts 2021–2022 the active students who completed internships. Sampling used probability sampling through cluster random sampling, dividing populations into groups called clusters for sampling with predetermined numbers. Cluster random sampling was chosen because student populations existed in naturally formed groups based on cohorts and study programs. This technique was selected for time and resource efficiency, particularly given wide but structured population distribution.

Cluster formation was based on cohorts and characteristic similarities—students who completed internship experiences and had information technology exposure—with Cluster 1 comprising 2021 cohort students and Cluster 2 comprising 2022 cohort students. For research generalizability, the Slovin formula was used with 5% margin of error, indicating 5% tolerance for population representation errors considered adequate for representative population estimates with 95% confidence levels. This margin of error reflects acceptable sampling error tolerance limits. Samples comprised students who completed internship programs: 56 students from cohort 2021 and 68 students from cohort 2022, totaling 124 students according to Slovin formula calculations, with no difference between target and actual sample sizes.

Data collection used questionnaires through Google Forms with research measurement using modified Likert scales by Sugiyono (2019) featuring four response alternatives: "Strongly Disagree," "Disagree," "Agree," and "Strongly Agree." Research instruments were developed based on indicators adapted from previous research and strengthened by relevant theory. Work readiness variables were adapted from indicators used by Slameto (2015) and Oktaviana and Setyorini (2022); business/industry internship experience variables from indicators used by Oktaviana and Setyorini (2022) and Suyanto et al. (2019); and information technology mastery variables based on indicators developed by Oktaviana and Setyorini (2022) and Setiawan and Listiadi (2021).

Instruments were constructed based on expert suitability and theoretical construct considerations with relevant indicators. Instruments were validated by experts and tested through validity and reliability analyses on pilot data before research data collection. Instrument pilot testing involved 30 Office Administration Education students from FKIP UNS cohorts 2021–2022 not included in research samples. Pilot data were processed for validity and reliability testing.

Validity test results showed calculated values $> r_{table}$ 0.361 with significance values $< .05$, indicating valid statement items suitable as research instruments. Reliability test results for each variable used Cronbach's alpha values $> .60$. Validity results for work readiness (Y) showed 14 valid items from 18 proposed statements; business/industry internship experience (X_1) showed 8 valid items from 12 proposed statements; and information technology mastery (X_2) showed 11 valid items from 17 proposed statements. Based on pilot testing, 33 instrument items were used. Research instruments were developed through consultations, theoretical considerations, and expert approval to ensure statement relevance, representativeness, and complete indicator coverage according to theoretical frameworks. Invalid instrument statements were excluded as valid instruments represented all indicators. Valid research instruments were distributed through closed questionnaires

to 124 Office Administration Education students from FKIP UNS cohorts 2021–2022 comprising research samples.

Data were collected using Google Forms and processed through SPSS Statistics 26 for Windows. Reliability test results showed: (1) work readiness variable Cronbach's alpha = $.682 > .60$, indicating reliability; (2) business/industry internship experience variable Cronbach's alpha = $.659 > .60$, indicating reliability; (3) information technology mastery variable Cronbach's alpha = $.675 > .60$, indicating reliability.

Research respondent characteristics were relatively homogeneous regarding academic and demographic backgrounds as all respondents came from similar study programs, faculties, universities, and curricula. Academic achievement or individual performance information was unavailable, preventing certainty regarding uniformity in these aspects. This homogeneity strengthened sample suitability for research populations.

Data analysis techniques used classical assumption tests including normality, linearity, multicollinearity, and heteroscedasticity tests. Hypothesis testing used t-tests, F-tests, multiple linear regression analysis, and coefficient of determination. Data analysis processing used Statistical Package for the Social Sciences (SPSS) Statistics 26 for Windows, supporting diverse statistical analysis techniques and efficient, accurate data management and analysis.

This research had generalization limitations by involving only Office Administration Education students from FKIP UNS, preventing results from representing students from other study programs. Sample use comprising students who completed business/industry internships could create selection bias as findings describe work readiness based on business/industry internship experience backgrounds. This condition could affect external validity by representing students with work experience rather than general active student populations.

Results and Discussion

Results

Research instruments comprising 33 validated and reliable items were distributed through closed questionnaires to 124 research sample respondents. Data were collected, processed, and analyzed using SPSS Statistics 26 for Windows. Research results included descriptive data analysis for independent variables: business/industry internship experience (X_1) and information technology mastery (X_2), and dependent variable work readiness (Y).

Descriptive data results for work readiness (Y) as the dependent variable showed minimum value 27, maximum value 50, mean 41.22, median and mode both 41, total score 5,111, range 23, and standard deviation 3.911, comprising 14 items. Business/industry internship experience (X_1) descriptive data showed minimum respondent value 20, maximum value 32, mean 26.40, median 26, mode 24, total score 3,273, range 12, and standard deviation 2.859, comprising 8 items. Information technology mastery (X_2) descriptive data showed minimum value 25, maximum value 44, mean 35.85, median 36, mode 33, total score 4,446, range 19, and standard deviation 4.228, comprising 11 statement items.

Classical assumption test results from questionnaires distributed to 124 respondents included normality tests to determine normal data distribution using Kolmogorov-Smirnov tests showing significance values $> .050$, indicating normal data distribution. Normality test results yielded significance value $.052 > .050$, confirming normal data distribution.

Linearity test results showed Sig. deviation from linearity for business/industry internship experience (X_1) = $.666 > .05$ and information technology mastery (X_2) = $.739 > .05$, indicating linear relationships between both independent variables and dependent variables. Multicollinearity test results showed tolerance values for business/industry internship experience and information technology mastery variables = $.582 > .10$, indicating no multicollinearity, and VIF values = $1.717 < 10.00$, confirming no multicollinearity. Heteroscedasticity test results showed significance values for business/industry internship experience (X_1) = $.642 > .050$ and information technology mastery (X_2) = $.783 > .050$, indicating no heteroscedasticity symptoms.

Hypothesis testing used t-tests, F-tests, multiple linear regression analysis, coefficient of determination, and effective and relative contributions for independent variables (X) and dependent

variables (Y). t-tests examined relationships between independent variable business/industry internship experience (X_1) and dependent variable work readiness (Y), and independent variable information technology mastery (X_2) and dependent variable work readiness (Y).

Table 1
t-Test Results

Model	<i>t</i>	<i>p</i>
(Constant)	6.419	< .001
Business/Industry Internship Experience	4.509	< .001
Information Technology Mastery	2.589	0.011

Note. Data processed by researcher using IBM SPSS Statistics 26.0 (2025).

Table 1 presents t-test results for first hypothesis (H_1) testing showing $p < .001$ and $t = 4.509 > 1.980$, confirming H_1 acceptance, meaning business/industry internship experience (X_1) influences work readiness (Y). Second hypothesis (H_2) testing showed $p = .011 < .050$ and $t = 2.589 > 1.980$, confirming H_2 acceptance, meaning information technology mastery (X_2) influences work readiness (Y).

Table 2
F-Test Results

Model	Sum of Squares	<i>df</i>	Mean Square	<i>F</i>	<i>p</i>
Regression	703.77	2	351.885	36.164	< .001
Residual	1177.351	121	9.73		
Total	1881.121	123			

Note. Data processed by researcher using IBM SPSS Statistics 26.0 (2025).

Table 2 presents F-test results for third hypothesis (H_3) testing showing $p < .001$ and $F = 36.164 > 3.07$, confirming H_3 acceptance, meaning business/industry internship experience (X_1) and information technology mastery (X_2) influence work readiness (Y).

Table 3
Multiple Linear Regression Analysis Results

Model	<i>B</i>	Std. Error	Beta
(Constant)	17.786	2.771	
Business/Industry Internship Experience	0.581	0.129	0.425
Information Technology Mastery	0.226	0.087	0.244

Note. Data processed by researcher using IBM SPSS Statistics 26.0 (2025).

Multiple linear regression analysis examined simultaneous influences of independent variables business/industry internship experience (X_1) and information technology mastery (X_2) on dependent variable work readiness (Y). Regression coefficient calculations yielded equation: $Y = 17.786 + 0.581X_1 + 0.226X_2$.

Analysis results: (1) $\alpha = 17.786$, indicating that when business/industry internship experience (X_1) and information technology mastery (X_2) equal 0, work readiness (Y) equals 17.786, significant at alpha 5%; (2) $\beta_1 = 0.581$, indicating that with constant information technology mastery (X_2), every business/industry internship experience (X_1) increase of 1 unit increases work readiness by 0.581 units, with t-test significance $p < .001$, confirming significant business/industry internship

experience (X_1) influence on work readiness (Y); (3) $\beta_2 = 0.226$, indicating that with constant business/industry internship experience (X_1), every information technology mastery (X_2) increase of 1 unit increases work readiness by 0.226 units, with t-test significance $p = .011 < .050$, confirming significant information technology mastery (X_2) influence on work readiness (Y).

Table 4
Coefficient of Determination Analysis

R	R^2	Adjusted R^2	Std. Error of the Estimate
0.612	0.374	0.364	3.119

Note. Data processed by researcher using IBM SPSS Statistics 26.0 (2025).

Coefficient of determination analysis measured model capability in explaining work readiness (Y) variable variation. Results showed $R^2 = .374$ or 37.4%, indicating that business/industry internship experience (X_1) and information technology mastery (X_2) jointly influence work readiness (Y) by 37.4%. The remaining 62.6% is influenced by other variables outside this research, such as communication, social interaction, personality, achievement, and other factors affecting work readiness.

Discussion

First research findings indicated significant positive influence of business/industry internship experience (X_1) on work readiness (Y) among Office Administration Education students at Universitas Sebelas Maret cohorts 2021–2022. Students with business/industry internship experience possess enhanced work readiness opportunities. Activities positively influencing students include company SOP knowledge, workplace culture and ethics learning through company event participation, assigned task completion during internships, and social activities developing professional work attitudes. Students learn to adapt to team dynamics and communicate effectively, increasing confidence when entering workplaces. Business/industry internship experience provides Office Administration Education students at FKIP UNS cohorts 2021–2022 with work readiness preparation.

These findings align with research by Setiowati and Santoso (2025) demonstrating positive significant internship experience effects on student work readiness. Gohae (2020) stated that higher internship experience correlates with higher student work readiness. Faridah et al. (2024) indicated that internship objectives include expanding perspectives and gaining work experience to develop skills and knowledge unavailable during academic learning. When internship activities are guided by relevant field professionals, students learn new concepts and gain experience for facing business and industry workplace environments.

Second research findings indicated significant positive influence of information technology mastery (X_2) on work readiness (Y) among Office Administration Education students at Universitas Sebelas Maret cohorts 2021–2022. These findings are supported by previous research by Azizah et al. (2019) demonstrating positive significant information technology mastery effects on student work readiness. Sihotang and Santosa (2019) stated that individuals with strong technological mastery are considered well-prepared for workplace entry. Information technology mastery serves as primary capital for enhancing student work readiness, contributing to individual career maturity by supporting effectiveness, efficiency, and work productivity, thereby increasing added value and career opportunities within organizations. Students with information technology competencies tend to demonstrate higher work readiness through efficient, adaptive, and productive performance in digital environments.

Third research findings indicated significant positive influence of business/industry internship experience (X_1) and information technology mastery (X_2) on work readiness (Y) among Office Administration Education students at Universitas Sebelas Maret cohorts 2021–2022. These findings are supported by previous research by Rachmawati et al. (2024) showing that information

technology mastery and business/industry internship experience can significantly enhance student career readiness, better preparing students for workplace challenges.

Karunaratne and Perera (2019) stated that internship programs provide opportunities for applying theory-based learning to practice, particularly creativity-based learning, project and presentation skills, teamwork activities, and managerial skill development. According to Anastasya et al. (2024), internship experience and information technology mastery relate to work readiness by providing students opportunities to learn from relevant practitioners, expanding workplace knowledge, fostering career interests, and enhancing skills for future career success. Student-mastered experience and skills facilitate greater preparedness and confidence when facing workplace challenges.

Conclusion

Based on research results, findings highlight the importance of business and industry internship experience and information technology mastery as two primary factors significantly influencing student work readiness. Business and industry internships provide students opportunities to apply theory to practice through real experiences training soft skills such as communication, teamwork, work ethics, and problem-solving. Internship activities also help students build self-confidence and professional attitudes. Conversely, information technology mastery becomes important capital supporting efficiency, productivity, and adaptability in digital work environments. Technology-competent students tend to be more prepared and competitive for modern workplace challenges.

The relationship between these variables is closely connected: internship experience provides platforms for sharpening technology skills in real contexts, while technology mastery strengthens student performance during internships. Their combination produces comprehensive work readiness improvements. This research has limitations including time, personnel, and financial constraints preventing researchers from exploring all variables, expanding study areas, or conducting more comprehensive follow-up testing.

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