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CANONICAL ANALYSIS OF SOCIAL SUPPORT, CRITICAL THINKING SKILLS, AND DIGITAL LITERACY ON INDUSTRIAL WORK READINESS, ENTREPRENEURIAL MINDSET, AND INTEREST IN FURTHER STUDIES OF STATE VOCATIONAL SCHOOL STUDENTS IN TULUNGAGUNG REGENCY

ANÁLISE CANÔNICA DO APOIO SOCIAL, DAS HABILIDADES DE PENSAMENTO CRÍTICO E DA ALFABETIZAÇÃO DIGITAL SOBRE A PREPARAÇÃO PARA O TRABALHO INDUSTRIAL, A MENTALIDADE EMPREENDEDORA E O INTERESSE EM ESTUDOS SUPERIORES ENTRE ALUNOS DE ESCOLAS PROFISSIONAIS PÚBLICAS NA REGÊNCIA DE TULUNGAGUNG

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Abstract
This study aims to analyze the simultaneous relationship between social support, critical thinking skills, and digital literacy on industrial work readiness, entrepreneurial mindset, and further study interest of vocational high school students in Tulungagung Regency. The study uses a quantitative approach with an ex post facto design and canonical correlation analysis as the main analysis technique. The research sample consisted of 387 students in grades XI and XII who were selected through proportional random sampling. The research instrument was a Likert scale questionnaire that had been tested for validity and reliability. The results of the analysis showed that there was a significant simultaneous relationship between the predictor variables and the criterion variables ($p < 0.05$). The first canonical function had a correlation of 0.841 and explained most of the variation in the relationship between the variable sets. Partially, social support was significantly related to industrial work readiness and entrepreneurial mindset, but not significantly related to interest in further

Resumo
Este estudo tem como objetivo analisar a relação simultânea entre apoio social, habilidades de pensamento crítico e alfabetização digital com a preparação para o trabalho industrial, a mentalidade empreendedora e o interesse em prosseguir os estudos entre alunos de escolas de ensino médio profissionalizante na Regência de Tulungagung. O estudo utiliza uma abordagem quantitativa com um desenho ex post facto e a análise de correlação canônica como principal técnica de análise. A amostra da pesquisa consistiu em 387 alunos das séries XI e XII, selecionados por meio de amostragem aleatória proporcional. O instrumento de pesquisa foi um questionário em escala de Likert, cuja validade e confiabilidade foram testadas. Os resultados da análise mostraram que havia uma relação simultânea significativa entre as variáveis preditoras e as variáveis critério ($p < 0,05$). A primeira função canônica apresentou uma correlação de 0,841 e explicou a maior parte da variação na relação entre os conjuntos de variáveis. Parcialmente, o

study. Critical thinking skills were significantly related to all criterion variables, while digital literacy was significantly related to industrial work readiness and entrepreneurial mindset, but not significantly related to interest in further study. The dominant variables in forming the canonical function are critical thinking skills and industrial work readiness. These findings reinforce the modified Social Cognitive Theory (SCT) model, which states that the career readiness of vocational high school students is influenced by the simultaneous interaction of personal, environmental, and behavioral factors. The implications of this study emphasize the importance of strengthening critical thinking skills, digital literacy, and social support in the development of industry-based vocational education.

Keywords: Social Support. Critical Thinking Skills. Digital Literacy. Industrial Work Readiness. Entrepreneurial Mindset. Interest in Further Study. Canonical Analysis.

apoio social estava significativamente relacionado à preparação para o trabalho industrial e à mentalidade empreendedora, mas não estava significativamente relacionado ao interesse em continuar os estudos. As habilidades de pensamento crítico estavam significativamente relacionadas a todas as variáveis-critério, enquanto a alfabetização digital estava significativamente relacionada à preparação para o trabalho industrial e à mentalidade empreendedora, mas não estava significativamente relacionada ao interesse em continuar os estudos. As variáveis dominantes na formação da função canônica são as habilidades de pensamento crítico e a preparação para o trabalho industrial. Esses resultados reforçam o modelo modificado da Teoria Cognitiva Social (SCT), que afirma que a preparação para a carreira de alunos do ensino médio profissionalizante é influenciada pela interação simultânea de fatores pessoais, ambientais e comportamentais. As implicações deste estudo enfatizam a importância de fortalecer as habilidades de pensamento crítico, a alfabetização digital e o apoio social no desenvolvimento da educação profissionalizante voltada para a indústria.

Palavras-chave: *Apoio Social. Habilidades de Pensamento Crítico. Alfabetização Digital. Preparação Para o Trabalho Industrial. Mentalidade Empreendedora. Interesse em Continuar os Estudos. Análise Canônica.*

1 INTRODUCTION

Vocational High Schools (SMK) are educational institutions that specifically aim to prepare students to be ready to work independently in their fields of expertise or to fill job vacancies in the industrial world. The goal of education in SMKs is to produce graduates who are ready to enter the workforce, be employed, or become entrepreneurs. In line with the opinion of the Ministry of Education and Culture () "Vocational education is education that provides students with various knowledge, skills, and experiences so that they can perform certain jobs that are needed, both for themselves, the world of work, and the development of their nation." However, the objectives of SMK have not been properly implemented. After completing the learning process, vocational

school graduates should be able to support the workforce. This is thought to be because not all vocational school graduates are well-prepared to face competition in the workforce, resulting in a significant number of vocational school graduates becoming unemployed.

Vocational education is one type of education that plays a role in preparing students to advance the nation and improve their quality through education that provides special training in accordance with their field. The function of vocational education in preparing students to become productive workers includes: (a) meeting the labor needs of the business and industrial world, (b) creating job opportunities for themselves and others , (c) changing the status of students from dependence to a productive nation (Indana & Soenarto, 2019) . The phenomenon that occurs is that the business world and the industrial world only need human resources who are able to perform work with all their abilities and face problems and can solve and provide solutions(Manyi et al., 2018) . The resilient workforce needed by industry, workers who are only good at theory will find it increasingly difficult to find job opportunities. This is consistent with information from the Directorate of Vocational Schools, Directorate General of Vocational Education, Ministry of Education, Culture, Research, and Technology, which states that the results of the 2024 SNBP selection over the past two years show that the interest of vocational school graduates in continuing their higher education has increased year by year. In 2023, the number of vocational school students who registered for SNBP was 153,446, while in 2024, the number of vocational school students in the SNBP pathway increased to 162,156 students.

Vocational education graduates will also be prepared to become skilled graduates who are ready to work or become independent individuals. Vocational high schools are an educational model aimed at preparing graduates to work, choose a career, compete and develop themselves, meet the needs of the business world and industry, and be productive, adaptive and creative. Therefore, SMK graduates are not only focused on employment, but there is also an emphasis on the willingness to be entrepreneurial(& Rambulangi, 2020) . An entrepreneurial mindset is instilled in SMK through the mandatory subject of Entrepreneurship in the 11th grade for all majors. The meaning of an entrepreneurial mindset is someone who is brave enough to take risks to start a business in various opportunities. Being brave enough to take risks means having an independent

mindset and being brave enough to start a business, without being overwhelmed by fear or anxiety, even in uncertain conditions(Halberstadt et al., 2023) .

The development of vocational education in Tulungagung shows a positive trend, both in terms of the number of institutions, teaching staff, and students. Based on data from the Central Statistics Agency (BPS) for the 2022/2023–2023/2024 academic year, vocational schools in this region are spread across almost all sub-districts and continue to increase their capacity in line with the needs of the local industry. Each educational unit strives to develop expertise programs that are relevant to the demands of the job market and to establish strategic partnerships with the industrial world. These efforts are in line with local government policies that focus on strengthening access to and the quality of vocational education as a pillar of human resource development (Prasetyo, 2020) .

However, vocational education graduates in this region still face challenges, particularly regarding the gap between the skills acquired during their studies and the demands of the workplace. Several companies believe that the technical competencies of graduates do not fully meet the needs of the industry. This shows that the quality of vocational education and training still needs to be improved on an ongoing basis. The results of the research Zahrok (2023) emphasize the importance of increasing the capacity of vocational educators and optimizing *business centers* as strategically managed entrepreneurship laboratories to strengthen students' work skills.

The factors that shape entrepreneurial mindsets among students cannot be separated from the context of education, family environment, and social support at school. Entrepreneurship education integrated into the curriculum through *Creative Products and Entrepreneurship* subjects plays an important role in fostering creativity and the courage to innovate. Additionally, hands-on learning experiences such as field work and small business projects provide opportunities for students to build confidence and the ability to take calculated risks. Research by(& Rambulangi, 2020) emphasizes that an entrepreneurial spirit must be shaped through real-world experiences, not just classroom theory.

In (Pamungkas & Hanifa, 2020) , it is described that vocational high school students in Tulungagung Regency are active in seeking job vacancy information at the Special Job Market (BKK). Students' activities in preparing themselves for the world of work are also evident from their involvement in the Special Job Market (BKK) in several

vocational schools. Based on the results of the researcher's interviews with guidance counselors and active students in Tulungagung in March 2024, the BKK teachers at SMKN 1 Bandung and SMKN 1 Tulungagung, namely Mrs. Riska and Mrs. Ony, revealed that many 11th and 12th grade students regularly search for job vacancy information, consult about selection strategies, and prepare themselves for job interviews. These field findings show that students have high motivation but still need social support, self-confidence, and critical thinking skills to make the right career decisions. This information is in line with the research (R. A. Putra et al., 2021) that the 21st-century skills needed for work readiness and entrepreneurship are communication, collaboration, and critical thinking skills. Additionally, the studies (Dzikri Maulidy et al., 2022) and (Ben Youssef, Boubaker, et al., 2021a) emphasize that family and social environment support significantly influence students' work readiness and entrepreneurial orientation.

The lack of problem-solving skills is a common problem faced by vocational school students. With critical thinking skills, students can solve problems they have encountered (Hafni, 2017) . Students with low critical thinking skills will not be ready for work. In fact, only 28% of workers are capable of critical thinking, and 48% still have below-average critical thinking skills(Demir, 2022) . Critical thinking skills also have a significant influence on prospective entrepreneurs, as these skills will have a positive impact when identifying problems in their business and in the process of finding good employees who meet the criteria. This statement is supported by research findings from(Hatthakijphong & Ting, 2019) that critical thinking skills are an important part of an entrepreneur's entrepreneurial mindset.

The issue of social support from various parties, especially families, in supporting their children's careers is reinforced in the research (Dzikri Maulidy et al., 2022) , which found that the family environment influences the work readiness of 12th grade vocational school students majoring in Financial Accounting and Institutions in the Pasar Minggu District. Thus, the greater the family's encouragement to enter the workforce, the greater the work readiness of the students. Social support is the most important factor in determining the direction of graduates, especially in entrepreneurship (Ben Youssef, Boubaker, et al., 2021b) .

Another issue that needs to be examined is the weak reading culture among vocational high school students. The reading culture that utilizes technology, known as

digital literacy, is also a global problem for Generation Z. The low level of digital literacy in Indonesia can also be seen from the results of the IMD World Digital Competitiveness Ranking 2020, where Indonesia ranks 56th out of 63 countries (IMD World Digital, 2020). Indonesia is among the bottom 10 countries in terms of digital literacy. In the study " , it was concluded that digital literacy has a positive and significant correlation with work readiness. Digital literacy affects work readiness by 36.9%, while the rest is influenced by other variables that were not studied.

Previous studies have produced findings on certain issues, such as the study(Fain & Vukašinović, 2020a) , which describes that the entrepreneurial mindset is not only developed at the university level but has also been introduced as a compulsory subject in vocational schools. Then, in the study(Nurussyifa & Listiadi, 2021) , it was found that the focus on vocational high school students' work readiness is not only influenced by the family environment but also by social support from family, friends, and teachers at school. Factors influencing further study interest include parental social status and self-efficacy (Afia et al., 2021) . From this study, researchers will examine the influence of further study interest on social support, critical thinking skills, and digital literacy.

Based on the problem description and previous research results, a *research gap* that needs to be explored further can be identified. Research(Fain & Vukašinović, 2020a) describes the development of entrepreneurial mindset only in business schools with students as subjects. This condition shows that studies on entrepreneurial mindset at the vocational secondary education level are still relatively limited, even though this phase is an important period in shaping career orientation and entrepreneurial readiness. Therefore, this study attempts to broaden the context of the study by reviewing the entrepreneurial mindset of vocational high school students, who functionally have different educational goals than university students, namely to prepare graduates to be ready to work and have an entrepreneurial spirit.

Empirical analysis results show a multivariate relationship that forms a pattern of interconnection, adapting and modifying Bandura's Social Cognitive Theory (SCT) model(, 1986) to better suit the context of vocational education in the Industry 5.0 era. This modified model integrates personal variables (critical thinking skills and digital literacy), environmental variables (social support), and career behavior variables (industrial work readiness, entrepreneurial mindset, and interest in further study) to

describe a more comprehensive multivariate relationship. Therefore, this study not only tests the validity of the relationships between components within the SCT framework but also produces a modified SCT model that is more adaptive to the empirical context of vocational high school students in Tulungagung Regency. Based on a review of previous studies, most studies examining the relationship between social support, critical thinking skills, digital literacy, and work readiness still use a correlational or multiple regression approach that is partial in nature. These approaches are indeed capable of explaining the influence of one variable on another, but they cannot capture the complex simultaneous relationships between the variables of social support, critical thinking skills, and digital literacy on the variables of industrial work readiness, entrepreneurial mindset, and desire for further study as a whole. This is in line with the BMW (Work, Continue, Entrepreneurship) program for vocational high school students initiated by the Ministry of Education and Culture (Kemdikbud) through the Directorate General of Vocational Education and the Directorate of Vocational High Schools. This program aims to prepare vocational school graduates to face the world of work with clear career choices, whether working, continuing their education to a higher level, or becoming entrepreneurs. Therefore, this study applies Canonical Analysis as a comprehensive methodological approach to identify the best linear relationship patterns between two sets of variables simultaneously. With this approach, the study is able to explain how the combination of social support, critical thinking skills, and digital literacy collectively contribute to a combination of industrial work readiness, entrepreneurial mindset, and interest in further study. Thus, this study not only reinforces previous empirical findings but also provides new conceptual and methodological contributions to the development of theory and practice in SCT-based vocational education.

2 RESEARCH METHOD

2.1 Type and design of research

This study uses a quantitative approach with an ex post facto design and is multivariate correlational in nature. The ex post facto design was chosen because the research variables were not manipulated by the researcher, but rather studied based on

conditions that occurred naturally in the research subjects. The correlational approach was used to identify relationships between variables, while multivariate analysis was applied to test the simultaneous relationship between two sets of variables.

Methodologically, this study applied Canonical Correlation Analysis (CCA) to test the best linear relationship between the set of independent variables and the set of dependent variables simultaneously. This approach was chosen because it is able to explain complex multivariate relationship patterns compared to partial multiple regression.

2.2 Research location and object

The research was conducted on vocational high school students in Tulungagung Regency, East Java Province. Data collection was carried out in the even semester of the 2023/2024 academic year.

The research population consisted of all 11th and 12th grade students at public vocational schools in Tulungagung Regency. The sample size in this study was 387 students, which was determined using proportional random sampling, so that each school and department received a proportionate sample size based on their respective population sizes.

Sample inclusion criteria: Active students in grades XI and XII, willing to be respondents, and completed the questionnaire in full.

2.3 Research variables

This study consists of two sets of variables:

a. Independent Variables (Set X)

Social Support (X1)

Support received by students from family, peers, and teachers in the form of emotional, informational, and instrumental support.

Critical Thinking Skills (X2)

Students' ability to analyze, evaluate, and solve problems logically and systematically.

Digital Literacy (X3)

Students' ability to access, understand, evaluate, and effectively utilize digital technology.

b. Dependent Variables (Set Y)

Industrial Work Readiness (Y1)

Students' readiness to enter the workforce, encompassing knowledge, skills, attitudes, and industrial adaptation.

Entrepreneurial Mindset (Y2)

Students' mental orientation reflecting the courage to take risks, creativity, innovation, and entrepreneurial independence.

Interest in Further Study (Y3)

Students' desire and motivation to continue their education to the university level.

2.4 Research instrument

The instrument used is a closed-ended questionnaire with a 5-point Likert scale (1 = strongly dis ly agree to 5 = strongly agree).

Number of items in the instrument:

a. Social Support: 22 items
b. Critical Thinking Skills: 24 items
c. Digital Literacy: 11 items
d. Industrial Work Readiness: 30 items
e. Entrepreneurial Mindset: 36 items
f. Interest in Further Study: 12 items

The instrument was developed based on theoretical indicators relevant to Social Cognitive Theory (Bandura, 1986), which was modified in the context of vocational education.

2.5 Data Collection Techniques

Data was collected through:

a. Direct distribution of questionnaires to students.

b. Documentation of school data.

c. Limited interviews to strengthen the empirical context.

2.6 Data analysis techniques

Data analysis was conducted in stages:

a. Descriptive Analysis

Used to describe the distribution of data for each variable through:

1) Mean
2) Median
3) Mode
4) Standard deviation
5) Range
6) Frequency distribution

b. Prerequisite Tests for Analysis

Before canonical analysis is performed, the following are tested first:

1) Multivariate normality test
2) Linearity test
3) Multicollinearity test
4) Homogeneity test

c. Canonical Correlation Analysis

1) Canonical correlation analysis is used to:
2) Identify significant canonical functions.
3) Measure the strength of canonical correlations (Rc).
4) Interpreting canonical loadings and cross loadings.
5) Determine the dominant variables in each function.

Significance is tested using:

1) Wilks' Lambda
2) Pillai's Trace
3) Hotelling's Trace
4) Roy's Largest Root

The significance level was set at $\alpha = 0.05$.

2.7 Theoretical model

This study adapts and modifies Social Cognitive Theory (SCT) by integrating:

Personal factors → critical thinking skills and digital literacy

Environmental factors → social support

Behavioral factors → industrial work readiness, entrepreneurial mindset, and interest in further study

This model was tested multivariately through canonical analysis to examine the simultaneous relationships between sets of variables.

3 RESULTS AND DISCUSSION

3.1 Research Results

3.1.1 Data Description

Table 1

Data Description of Social Support Variables

N	Mean	Median	Mode	Standard Deviation	Variance	Range	Lowest Value	Highest Value
387	81.08	81.00	66	12,193	148,677	60	50	110

Table 1 shows the results of the description of the social support variable data, which has an average value of 81.08, a median value of 81, a frequently occurring value of 66, a standard deviation of 12.193, a variance of 148.677, a range of 60, a lowest value of 50, and a highest value of 110.

The instrument for the social support variable given to vocational high school students in Tulungagung Regency used a questionnaire with 22 statements. The lowest and highest scores for the social support variable were 50 and 110. The number of interval classes was determined to be 5 criteria. The class interval length was calculated using the formula (highest value – lowest value)/number of class intervals. Class interval length = (110-50)/5=12. The frequency distribution of the social support variable data can be seen in Table 2 below.

Table 2

Frequency Distribution of the Social Support Variable

No	Category	Value Range	Frequency	Percentage
1	Very Low	50-61	9	2.33
2	Low	62-73	117	30.23
3	Moderate	74-85	122	31.52
4	High	86-97	96	24.81
5	Very High	98-110	43	11.11
	Total		387	100

Table 2 shows the frequency distribution of social support variable data, with 9 students or 2.33% in the low category, 117 students or 30.23% in the moderate category, 96 students or 24.81% in the high category, and 43 students or 11.11% in the very high category. Based on this frequency distribution, it shows that the social support variable among vocational high school students in Tulungagung Regency is categorized as moderate.

Table 3

Description of Critical Thinking Ability Variable Data

N	Mean	Median	Mode	Standard Deviation	Variance	Range	Lowest Value	Highest Value
387	88.74	87.00	83	12,301	151,324	62	58	120

Table 3 shows the results of the description of the critical thinking ability variable data, which has an average value of 88.74, a mean value of 87.00, a mode value of 83, a standard deviation of 12.301, a variance of 151.324, a range of 62, a minimum value of 58, and a maximum value of 120.

The instrument for the critical thinking ability variable given to vocational high school students in Tulungagung Regency used a questionnaire with 24 statements. The lowest and highest scores for this variable were 58 and 120. The number of interval classes was determined to be 5 criteria. The class interval length was calculated using the formula (highest value – lowest value)/number of class intervals. Class interval length = (120-58)/5=12. The frequency distribution of the critical thinking ability variable data can be seen in Table 2 below.

Table 4

Frequency Distribution of Critical Thinking Ability Variable

No	Category	Value Range	Frequency	Percentage
1	Very Low	58-69	7	1.81
2	Low	70-81	106	27.39
3	Moderate	82-94	166	42.89
4	High	95-107	69	17.83
5	Very High	108-120	39	10.08
	Total		387	100

Table 4 shows the frequency distribution of critical thinking ability data, with 7 students or 1.81% in the low category, low category with 106 students or 27.39%, sufficient category with 166 students or 42.89%, high category with 69 students or 17.83%, and very high category with 39 students or 10.08%. Based on the frequency distribution of the data, it shows that the critical thinking ability variable among vocational high school students in Tulungagung Regency is in the high category.

The results of the data description for the digital literacy variable are outlined in Table 5 below.

Table 5

Data Description of the Digital Literacy Variable

N	Mean	Median	Mode	Standard Deviation	Variance	Range	Lowest Value	Highest Value
387	44.70	44.00	44	6,159	37,931	37	18	55

Table 5 shows the results of the description of the digital literacy variable data, which has an average value of 44.70, a median value of 44.00, a frequently occurring value of 44, a standard deviation of 6.159, a variance of 37.931, a range of 37, a lowest value of 18, and a highest value of 55.

The instrument for the digital literacy variable given to vocational high school students in Tulungagung Regency used a questionnaire with 11 statements. The lowest and highest scores for this variable were 18 and 55. The number of interval classes was determined to be 5 criteria. The class interval length was calculated using the formula (highest value – lowest value)/number of class intervals. Class interval length = (55-

18)/5=7.4. The frequency distribution of the digital literacy variable data can be seen in Table 6 below.

Table 6

Frequency Distribution of the Digital Literacy Variable

No	Category	Value Range	Frequency	Percentage
1	Very Low	18-24	1	0.26
2	Low	25-31	4	1.03
3	Moderate	32-39	68	17.57
4	High	40-47	194	50.13
5	Very High	48-55	120	31.01
	Total		378	100

Table 6 shows the frequency distribution of digital literacy variable data categorized as very low with 1 student or 0.26%, low with 4 students or 1.03%, sufficient category with 68 students or 17.57%, high category with 194 students or 50.13%, and very high category with 120 students or 31.01%. Based on the frequency distribution of the data, it shows that the digital literacy variable among vocational high school students in Tulungagung Regency is in the high category.

Table 7

Data Description of Industrial Work Readiness Variables

N	Mean	Median	Mode	Standard Deviation	Variance	Range	Lowest Value	Highest Value
387	118.16	116.00	150	16,679	278,206	80	70	150

Table 7 shows the results of the description of the industrial work readiness variable data, which has an average value of 118.16, a median value of 116.00, a frequently occurring value of 150, a standard deviation of 16.679, a variance of 278.206, a range of 80, a lowest value of 70, and a highest value of 150.

The instrument for the industrial work readiness variable given to vocational high school students in Tulungagung Regency used a questionnaire with 30 statements. The lowest and highest scores for this variable were 70 and 150. The number of interval classes was determined to be 5 criteria. The class interval length was calculated using the formula (highest value – lowest value)/number of class intervals. Class interval length =

(150-70)/5=16. The frequency distribution of the industrial work readiness variable data can be seen in Table 8 below.

Table 8

Frequency Distribution of the Industrial Work Readiness Variable

No	Category	Value Range	Frequency	Percentage
1	Very Low	70-85	6	1.55
2	Low	86-101	54	13.95
3	Moderate	102-117	150	38.76
4	High	118-133	101	26.10
5	Very High	134-150	76	19.64
	Total		445	100

Table 8 shows the frequency distribution of the industrial work readiness variable data, with 6 students or 1.55% in the very low category, 54 students or 13.95% in the low category, 150 students or 38.76% in the sufficient category, 101 students or 26.10% in the high category, and very high at 76 students or 19.64%. Based on this frequency distribution data, it shows that the industrial work readiness variable among vocational high school students in Tulungagung Regency is categorized as high.

Table 9

Description of Entrepreneurial Mindset Variable Data

N	Mean	Median	Mode	Standard Deviation	Variance	Range	Lowest Value	Highest Value
387	142.14	139.00	180	20,405	416,376	87	93	180

Table 9 shows the results of the description of the entrepreneurial mindset variable data, which has an average value of 142.14, a median value of 139.00, a frequently occurring value of 180, a standard deviation of 20.405, a variance of 416.376, a range of 87, a lowest value of 93, and a highest value of 180.

The instrument for the entrepreneurial mindset variable given to vocational high school students in Tulungagung Regency used a questionnaire with 36 statements. The lowest and highest scores for the variable were 93 and 180. The number of interval classes was determined to be 5 criteria. The class interval length was calculated using the formula (highest value – lowest value)/number of class intervals. Class interval length = (180-

93)/5=17. The frequency distribution of the entrepreneurial mindset variable data can be seen in Table 10 below.

Table 10

Frequency Distribution of Entrepreneurial Mindset Variables

No	Category	Value Range	Frequency	Percentage
1	Very Low	93-109	14	3.62
2	Low	110-126	77	19.90
3	Moderate	127-144	151	39.02
4	High	145-162	72	18.60
5	Very tall	163-180	73	18.86
	Total		445	100

Table 10 shows the frequency distribution of entrepreneurial mindset data categorized as very low with 14 students or 3.62%, low category with 77 students or 19.90%, moderate category with 151 students or 39.02%, high category with 72 students or 18.60%, and very high category with 73 students or 18.86%. Based on the frequency distribution of the data, it shows that the entrepreneurial mindset variable among vocational high school students in Tulungagung Regency is in the moderate category.

Table 11

Data Description of the Variable Interest in Further Education

N	Mean	Median	Mode	Standard Deviation	Variance	Range	Lowest Value	Highest Value
445	37.29	37.00	38	3.752	14,078	22	25	47

Table 11 shows the results of the description of the variable of interest in further study, which has an average value of 69.06, a median value of 69.00, a mode of 38, a standard deviation of 11.611, a variance of 134.807, a range of 22, a minimum value of 34, and a maximum value of 90.

The instrument for the variable of interest in further study given to vocational high school students in Tulungagung Regency used a questionnaire with 12 statements. The lowest and highest scores for the variable were 25 and 46. The number of interval classes was determined to be 5 criteria. The class interval length was calculated using the formula (highest value – lowest value)/number of class intervals. Class interval length = (90-

34)/5=11. The frequency distribution of the variable of interest in further study can be seen in Table 12 below.

Table 12

Frequency Distribution of the Variable Interest in Further Study

No	Category	Value Range	Frequency	Percentage
1	Very Low	34-44	8	2.07
2	Low	45-55	43	11.11
3	Moderate	56-66	110	28.69
4	High	67-78	142	36.69
5	Very High	79-90	84	21.71
	Total		387	100

Table 12 shows the frequency distribution of data on interest in further study, categorized as very low for 8 students or 2.07%, low for 43 students or 11.11%, moderate at 110 students or 28.69%, high at 142 students or 36.69%, and very high at 84 students or 21.71%. Based on the frequency distribution of the data, it shows that the variable of interest in further study among vocational high school students in Tulungagung Regency is high.

4 DISCUSSION

The relationship between social support, critical thinking skills, and digital literacy with industrial work readiness, entrepreneurial mindset, and interest in further study shows a pattern of simultaneous and mutually reinforcing interrelationships. The readiness of vocational high school students to face the world of work or continue their education is not shaped by a single determinant, but by a combination of integrated social, cognitive, and digital factors. The results of the analysis show that social support has a significant relationship with industrial work readiness. A strong positive correlation at the zero-order stage, which then decreased but remained significant after controlling for other variables, indicates that support from family, peers, and teachers contributes significantly to the formation of work readiness, although some of the variance is also explained by critical thinking skills and digital literacy. These findings confirm that social support functions as both a protective factor and a driver of students' career orientation.

Critical thinking skills play a strategic role in shaping work readiness and entrepreneurial mindsets. These skills enable students to analyze problems, evaluate alternative solutions, and make rational decisions in the context of work and independent business ventures. In the context of vocational education, critical thinking is a key competency because it is directly related to the ability to adapt to industry dynamics. Thus, strengthening problem-based learning and reflection is relevant to ensure that critical thinking skills do not stop at the cognitive level but are internalized in students' professional behavior.

Digital literacy shows a more contextual dynamic. Technically, most students already have the operational skills to use digital devices and applications. However, their use is still predominantly consumptive and not yet fully directed towards academic productivity or work readiness. This condition reflects a gap between digital competence and digital productivity. Digital literacy that develops without integration into industry-based learning tends not to contribute optimally to work readiness. Therefore, digital literacy needs to be converted into competencies that are relevant to the needs of the industrial world through pedagogical assistance and strengthening career orientation.

The results of canonical correlation analysis confirm the existence of a significant simultaneous relationship between the set of independent and dependent variables. All multivariate tests show significance, so that together social support, critical thinking skills, and digital literacy are able to explain the variation in industrial work readiness, entrepreneurial mindset, and interest in further study. The first canonical function became the dominant dimension representing the main inter- t relationships, while the second and third functions had low substantive contributions. This pattern shows that the structure of inter-variable relationships is centered on one main dimension that integrates social, cognitive, and digital factors in shaping students' holistic readiness.

Consequently, vocational education development needs to be directed towards synergizing these three factors. Strengthening social support through collaboration between schools, families, and industry; developing critical thinking skills through reflective learning strategies; and improving productivity-oriented digital literacy are strategic steps to improve work readiness, foster an entrepreneurial mindset, and strengthen the interest of vocational high school students in further study. Thus, student

career readiness is understood as the result of multidimensional interactions that require an integrated approach in vocational education practices.

5 CONCLUSION

Based on the results of the study entitled "Canonical Analysis of Social Support, Critical Thinking Skills, and Digital Literacy on Industrial Work Readiness, Entrepreneurial Mindset, and Interest in Further Study among Public Vocational School Students in Tulungagung Regency," the following conclusions were obtained:

1. Social support has a significant relationship with the industrial work readiness of public vocational high school students in Tulungagung Regency, indicating that support from family, peers, and the school environment strengthens students' readiness to enter the workforce.
2. Social support has been proven to have a significant influence on students' entrepreneurial mindset, so that the greater the social support received by students, the better the development of the entrepreneurial mindset of vocational high school students in Tulungagung Regency.
3. Social support is not significantly related to the interest of vocational high school students in Tulungagung Regency in continuing their studies, so that social support is not a major factor in motivating students to continue their education to a higher level.
4. The Relationship Between Critical Thinking Skills and Industrial Work Readiness Critical thinking skills are significantly related to the industrial work readiness of vocational high school students in Tulungagung Regency, confirming that analytical, evaluative, and problem-solving skills are important assets in facing the demands of work in the industrial era.
5. Critical thinking skills are proven to be significantly related to the entrepreneurial mindset of vocational high school students in Tulungagung Regency, which means that the better the students' critical thinking skills, the more developed their entrepreneurial mindset will be.
6. Critical thinking skills have a significant relationship with the interest of public vocational school students in Tulungagung Regency in continuing their studies,

indicating that students with high critical thinking skills tend to have greater motivation to continue their education to college.

7. Digital literacy is significantly related to the industrial work readiness of vocational high school students in Tulungagung Regency, meaning that the ability to utilize digital technology contributes greatly to students' readiness to enter the modern world of work.
8. Digital literacy has been proven to be significantly related to the entrepreneurial mindset of vocational high school students in Tulungagung Regency, because mastery of technology encourages innovation and creativity, which are the basis of an entrepreneurial mindset.
9. Digital literacy has no significant relationship with the interest in further study among vocational high school students in Tulungagung Regency, so that mastery of digital technology is not yet a dominant factor that encourages students to continue their education to a higher level.
10. The simultaneous relationship between social support, critical thinking skills, and digital literacy on industrial work readiness, entrepreneurial mindset, and interest in further study proved to be significant. The results of the multivariate tests (*Pillai's, Hotelling's, Wilks, and Roy's*) all showed a significance value of 0.000, which means that the canonical analysis model successfully revealed a comprehensive relationship.
11. The dominant predictor variable in forming the canonical function is critical thinking skills (X2), with a very strong canonical loading (-0.94486), which indicates its role as the main factor influencing the criterion variable. The digital literacy variable (X3) also contributes quite strongly in a positive direction, while social support (X1) plays a role but is weaker than the other two variables.
12. The dominant criterion variable that formed the canonical function was industrial work readiness (Y1), with a very strong canonical loading (-0.99430), making it the main outcome most influenced by the combination of predictor variables. Entrepreneurial mindset (Y2) and interest in further study (Y3) also played an important role, albeit with relatively lower strength.
13. The largest contribution of the canonical function is shown in the first function with a canonical correlation of 0.841, which explains 98.30% of the relationship

variation, while the second and third functions only contribute slightly and are less significant. This confirms that most of the relationship between variables X and Y is concentrated in the first canonical function.

14. Based on the results of the modified *Social Cognitive Theory* (SCT) model, the career readiness of vocational high school students is strongly influenced by the interaction of three main components, namely personal factors (critical thinking skills and digital literacy), environmental factors (social support), and behavioral factors (industrial work readiness, entrepreneurial mindset, and interest in further study). This modified model shows that improving the career readiness of vocational high school students can be achieved by strengthening critical thinking skills and digital literacy, supported by a positive social environment that is contextual to the needs of the Industry 4.0 and 5.0 workforce.

Overall, this study proves that critical thinking skills, social support, and digital literacy play a significant role in shaping the industrial work readiness, entrepreneurial mindset, and interest in further study of public vocational high school students in Tulungagung Regency. The findings of the modified SCT model reinforce that students' career readiness is not only determined by individual factors but also by the dynamic interaction between personal, social, and behavioral factors that align with the context of modern vocational education.

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Authors' Contribution

All authors contributed equally to the development of this article.

Data availability

All datasets relevant to this study's findings are fully available within the article.

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