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EXPLORING THE IMPACT OF AUTONOMY SUPPORT AND TEAMWORK ON SOCIAL-EMOTIONAL COMPETENCE AMONG BUSINESS EDUCATION STUDENTS IN HIGHER EDUCATION

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ABSTRACT

This research explores how autonomy support and interdependence relate to social-emotional competence (SEC) among university students. Data were gathered from 100 participants using validated measures to assess autonomy support, interdependence, and SEC. The findings revealed that autonomy support significantly enhances students' SEC, highlighting the value of allowing students to have control over their learning to improve emotional regulation, empathy, and interpersonal skills. Conversely, interdependence, which involves teamwork and collaboration, did not have a significant direct impact on SEC. However, when both autonomy support and interdependence were examined together, they contributed a modest but meaningful effect, accounting for 9.3% of the variance in SEC. These results indicate that while both factors are important, autonomy support has a more pronounced influence on SEC. This study suggests that educators and policymakers should focus on fostering autonomy-supportive environments to promote social-emotional growth in students, while also calling for further exploration of other factors affecting SEC.

KEYWORDS: emotional regulation, higher education, social-emotional development, student autonomy, teamwork.

1. INTRODUCTION

The development of industry from the 18th century to the 21st century, from the mechanical era to the Industry 4.0 era, shows a progression that will not cease at any one point [1]. The education sector, as the core in human resource development, plays a critical role in responding to every industrial advancement and preparing individuals to adapt to the ever-changing situations [2], [3]. One key competency to achieve this is Social-Emotional Competence (SEC) [4]. This competency encompasses the capacity to comprehend and regulate emotions, demonstrate and communicate empathy, form and sustain relationships, make sound decisions, and successfully confront challenges [5]–[7]. Attention to SEC has become a major focus of research in recent years, spanning the application of problem on based learning [8], [9], project based from learning [10], [11], flipped

classroom [12]–[14], and social learning [15] which have proven effective in improving SEC. Furthermore, SEC is believed to impact adaptation to new environments [6], [7], academic achievement [7] and workplace intelligence [16]. However, previous studies have left a gap as they primarily employed experimental methods, such as quasi-experiments or randomized controlled trials (RCT) [8]–[15] , particularly at lower educational levels. These techniques are exclusive treatments that avoid natural factors, thus limiting the generalizability of findings. Factors such as autonomy support, which enables students to make choices and control their learning processes [17], [18], and interdependence, which reflects teamwork and collaboration [18] , are crucial in the learning process [19]–[22], , but their relationship with SEC has yet to be investigated, especially in higher education. The gap left by previous researchers raises the question of how autonomy support and interdependence relate to SEC, which remains underexplored. Researchers and experts [23]– [27] emphasize that research and practice in SEC should be evidence-based and widely implemented to enhance individual and societal well-being. Social-Emotional Competence (SEC) plays a pivotal role in ensuring academic of achievement, career as on success, and personal well of being, starting from early childhood and continuing throughout an individual's life. This study aims to investigate how autonomy support and interdependence collectively influence the social-emotional competence of university students. By examining these aspects together, the research provides important insights into educational elements that are often studied separately. The outcomes are expected to provide valuable recommendations for policymakers in shaping educational practices that focus on SEC development.

H1: Autonomy support and interdependence together have a positive and more than significant correlation with Social-Emotional Competence (SEC).

H2: Autonomy support alone has a positive with a significant effect on Social-Emotional Competence (SEC).

H3: Interdependence alone also shows a positive with a joy significant relationship with Social-Emotional Competence (SEC).

2. METHOD

The participants included this study were on Business Education students from Universitas Negeri Malang. A probability sampling of method was used to ensure that each student had an equal average chance of being as included. The sample size was determined based on the multivariate analysis rule, which recommends selecting a sample size 5 to 10 times larger than the number of variables. This resulted in a sample of 100 participants. Proportional random sampling was applied to guarantee fair representation from all classes. The study followed a quantitative approach, focusing on analyzing relationships between the variables using inferential techniques. To ensure accuracy, the population and sample were clearly defined and carefully selected. Multiple linear regression analysis was conducted to examine how the independent variables influenced the dependent variable. The analysis began with tests for validity and reliability. Validity was assessed through product-moment correlation,

while reliability was measured using Cronbach's alpha, with 0.7 set as the minimum acceptable threshold. Additionally, classical assumption tests—such as normality, autocorrelation, heteroscedasticity, and multicollinearity—were performed. Only after passing these tests did the analysis move on to hypothesis testing. The purpose was to evaluate the strength and direction of the relationships between the two independent variables (autonomy support and interdependence) and the dependent variable (social-emotional competence).

3. RESULT

3.1 Validity and Reliability Test

The validity test was carried out using product-moment correlation, where each item was evaluated based on the overall response for its respective variable. For the autonomy support variable, all 24 items were confirmed to be valid, as shown by a significance level below 0.05. Similarly, for the interdependence variable, all six items were found to be valid. Regarding the social-emotional competence (SEC) variable, all 10 items were deemed valid, also with a significance level under 0.05. The reliability test, using Cronbach's alpha, demonstrated that the reliability was satisfactory, with an alpha coefficient greater than 0.70. The detailed results are outlined in the following table:

Tabel 1. Reliability Test

Reliability Statistics	
Cronbach's Alpha	N of Items
0.987	30

The reliability test results show a Cronbach's alpha value of 0.893, which exceeds the threshold of 0.70. This indicates that all items are reliable and suitable for data collection in this research.

3.2 Normality Test

The first classical assumption test conducted was the normality test, which assesses whether the data distribution is normal. This was done using the Kolmogorov-Smirnov test, with the condition that the significance value (sig.) must be greater than 0.05. The results of the normality test for this study are presented below:

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Tabel 2. Normality Test Results

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		100
Normal Parameters[a,b]	Mean	0.0000000
	Std. Deviation	3.44332593
Most Extreme Differences	Absolute	0.099
	Positive	0.058
	Negative	-0.099
Test Statistic		0.099
Asymp. Sig. (2-tailed)		0.16

The results in Table 2 show that the Asymp. Sig. value is 0.16, which is greater than 0.05. This indicates that the data distribution is normal, thus passing the normality test and meeting the requirements for further analysis.

3.3 Linearity Test

The linearity test in this study was performed using the Compare Means method. This test aims to assess whether a significant linear relationship exists between two or more variables. Ideally, the data should exhibit linearity. The decision rule is based on the significance value (sig.), with linearity indicated when the value exceeds 0.05. The results of the linearity test are shown below:

Tabel 3. Linearity Test Results

ANOVA Table							
			Sum of Squares	df	Mean Square	F	Sig.
Social_Emotional_Y * Autonomy_X1	Between Groups	(Combined)	580.690	44	13.198	1.017	0.472
		Linearity	97.569	1	97.569	7.521	0.008
		Deviation from Linearity	483.121	43	11.235	0.866	0.686
	Within Groups		713.500	55	12.973		
	Total		1294.190	99			

Based on Table 3, the significance value for linearity is 0.686, which is greater than 0.05. This result indicates that the data meet the criteria for linearity, allowing for further analysis with linear regression.

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3.4 Heteroscedasticity Test

The third classical assumption test is the heteroscedasticity test, which is used to identify if there is unequal variance in the residuals across observations. In this study, the heteroscedasticity test was performed using the Glejser method. The significance criterion for this test is a value greater than 0.05, which indicates the absence of heteroscedasticity. The results of the heteroscedasticity test are presented below:

Tabel 4. Heteroscedasticity Test Result

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.914	2.906		1.003	0.319
	Autonomy_X1	-0.017	0.017	-0.102	-0.983	0.328
	Interdependence_X2	0.055	0.086	0.067	0.645	0.520
a. Dependent Variable: Abs_RES						

Based on Table 4, the significance values for X1 (autonomy) and X2 (interdependence) are 0.328 and 0.520, respectively, which are both greater than 0.05. This result indicates that there is no heteroscedasticity in the data, meaning that the variance of the residuals is consistent across observations.

3.5 Multicollinearity Test

The multicollinearity test is conducted to determine if there is a high or perfect correlation between the independent variables in the model. Ideally, the data should not show multicollinearity. The criteria for identifying multicollinearity include a tolerance value greater than 0.10 and a Variance Inflation Factor (VIF) less than 10. The results of the multicollinearity test are presented below:

Tabel 5. Multicollinearity Test Results

Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	28.340	4.320		6.561	0.000		
	Autonomy_X1	0.064	0.026	0.245	2.467	0.015	0.951	1.051
	Interdependence_X2	0.175	0.128	0.136	1.373	0.173	0.951	1.051
a. Dependent Variable: Social_Emotional_Y								

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Based on Table 5, the tolerance value for both X1 (autonomy support) and X2 (interdependence) is 0.951, and the VIF for both variables is 1.051. These values meet the criteria, indicating that there is no multicollinearity between the independent variables in this study, and the data are suitable for regression analysis.

3.6 Multiple Regression Test

The coefficient of determination, obtained from the multiple regression test, explains the extent to which the independent variables influence the dependent variable. The results of this analysis are presented below:

Tabel 6. Coefficient of Determination Results

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.305[a]	0.093	0.074	3.479
a. Predictors: (Constant), Interdependence_X2, Autonomy_X1				
b. Dependent Variable: Social_Emotional_Y				

Based on Table 6, the coefficient of determination (R^2) is 0.093, or 9.3%. This indicates that the independent variables (X1: autonomy support and X2: interdependence) account for 9.3% of the variation in the dependent variable (Y: social-emotional competence). The remaining 90.7% is influenced by factors that were not included in this study or the regression model. This represents a relatively small impact for research based on survey data.

3.7 ANOVA Test

The ANOVA test was employed to determine whether the independent variables (X1: autonomy support and X2: interdependence) have a simultaneous effect on the dependent variable (Y: social-emotional competence). The significance criterion is a p-value less than 0.05, indicating a significant effect. The results of the ANOVA test are presented below:

Tabel 7. ANOVA Test Results

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	120.397	2	60.199	4.975	.009[b]
	Residual	1173.793	97	12.101		
	Total	1294.190	99			
a. Dependent Variable: Social_Emotional_Y						
b. Predictors: (Constant), Interdependence_X2, Autonomy_X1						

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Based on Table 7, the significance value (sig.) is 0.009, which is less than 0.05. This result indicates that there is a positive and significant simultaneous effect of autonomy support (X1) and interdependence (X2) on social-emotional competence (Y). Therefore, hypothesis 1 (H1) is accepted.

4.8 Partial Test

The partial test was carried out to examine the individual effect of each independent variable (X1: autonomy support and X2: interdependence) on the dependent variable (Y: social-emotional competence). This test helps determine whether each independent variable has a significant effect on the dependent variable when considered separately. The significance criterion is a p-value of less than 0.05, indicating a significant relationship. The results of the partial test are shown below:

Tabel 8. Partial Test Results

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	28.340	4.320		6.561	0.000
	Autonomy_X1	0.064	0.026	0.245	2.467	0.015
	Interdependence_X2	0.175	0.128	0.136	1.373	0.173
a. Dependent Variable: Social_Emotional_Y						

According to Table 8, the significance value for autonomy support (X1) is 0.015, which is below 0.05. This indicates that X1 has a significant and positive impact on social-emotional competence (Y). On the other hand, the significance value for interdependence (X2) is 0.173, which exceeds 0.05. This means that X2 does not have a significant effect on Y. As a result, hypothesis 2 (H2) is accepted, while hypothesis 3 (H3) is rejected. The regression equation obtained is as follows:

$Y = a+b1X1+b2X2$
$Y = 28,340 + 0,026X1 + 0,128X2$

This equation suggests that when X1 and X2 remain constant, the value of Y is 28.340. If X1 increases or decreases by 1 unit, Y will change by 0.026. Similarly, if X2 increases or decreases by 1 unit, Y will change by 0.128.

4. DISCUSSION

The current study's conclusion that autonomy support positively impacts SEC is supported by numerous studies in both education and psychology. As Collie [5] further notes, autonomy support increases students' perceived competence—a key element of SEC—and encourages motivation and

prosocial behaviors [28] emphasizes that autonomy support enhances students' perceived competence—an essential part of SEC—and fosters motivation as well as prosocial behaviors. Similarly, Mammadov and Schroeder [29] Research has shown a positive connection between teacher-facilitated autonomy and outcomes such as self-regulated learning, motivation, and academic engagement. These findings align with the present study, highlighting the importance of promoting student autonomy to enhance their emotional and social growth by cultivating a sense of ownership over their learning.

However, the non-significant relationship between interdependence and SEC contrasts with earlier research that underscores the importance of collaborative behaviors in enhancing social and emotional skills. For example, Datu et al. [30] showed that interdependent happiness significantly enhances academic engagement, particularly in collectivist cultures where group harmony is valued [30]. This discrepancy may be due to differences in cultural settings or the specific age groups being studied, as interdependence may have varying effects based on context, as suggested by Lan et al. [31]. Furthermore, when autonomy support and interdependence were considered together, they had a small but significant effect on SEC, though it is likely that other factors also play a significant role in shaping SEC. This mirrors the findings of Kingsford-Smith et al. [32], who found that autonomy support positively predicts academic self-efficacy and resilience, but also highlighted the influence of additional contextual factors. Therefore, while autonomy and interdependence are important, the current study contributes to a deeper understanding that SEC is influenced by multiple factors, which warrants further exploration [33]–[36].

The results of this research add to the existing knowledge on social-emotional competence (SEC), autonomy support, and interdependence, particularly by emphasizing the significant influence of autonomy support in enhancing SEC, as outlined in self-determination theory. This suggests that both educators and policymakers should prioritize autonomy-supportive environments to foster emotional and social growth, alongside academic success. However, the non-significant link between interdependence and SEC challenges previous beliefs about the general effectiveness of collaborative learning, implying that cultural and situational factors may play a role in determining its impact on SEC. The limitations of this study include a relatively small sample size, potential biases in self-reported data, and the omission of other contextual factors, such as classroom climate, which could also affect the results. Future research should build on these results by including larger and more diverse participant groups, utilizing objective measurement techniques, and examining additional factors such as teacher-student interactions. Longitudinal studies would also provide valuable insights into how autonomy support and interdependence influence SEC over time.

CONCLUSION

This study highlights just how crucial it is to support students' independence in helping them develop socially and emotionally (SEC). It emphasizes that creating learning spaces where autonomy is prioritized can really help students grow. The results suggest that while collaboration and teamwork

are often promoted in schools, their influence on social-emotional competence might not be as significant as we once thought, particularly in certain situations. These findings point to the need for more personalized approaches that address each student's unique needs in nurturing their social and emotional growth. In short, this research suggests that focusing more on autonomy in the classroom could greatly enhance students' overall well-being and development.

Other recommendations

Educators are encouraged to implement teaching strategies that support autonomy, such as giving students more choices, promoting independence, and designing activities that align with their interests. These methods can significantly boost social-emotional competence and engagement in the classroom. Policymakers should focus on fostering autonomy-supportive educational environments by allocating necessary resources and offering professional development for teachers to effectively integrate these practices. Additionally, future studies should explore how autonomy support interacts with other environmental factors and examine its impact across various cultural and educational contexts. Longitudinal studies would provide valuable insights into the long-term effects on student development.

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