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"The Influence of Interpersonal Communication and Leadership in Teams on the Effectiveness of Student Teamwork"

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Abstract

This study examines the impact of interpersonal communication and leadership within student teams on team work effectiveness. Drawing from theories of communication and leadership, a quantitative survey was conducted among 100 university students involved in group projects. Results indicate that both interpersonal communication and effective leadership significantly predict team effectiveness, with communication mediating the relationship between leadership and outcomes. These findings underscore the importance of fostering communication skills and leadership training in educational settings to enhance collaborative learning.

Keywords: interpersonal communication, team leadership, student teamwork effectiveness

Introduction

In academic environments, student teams are increasingly utilized for collaborative projects, fostering skills essential for professional life. However, the effectiveness of these teams often hinges on interpersonal dynamics. This research investigates how interpersonal communication and leadership influence the effectiveness of student work teams. Interpersonal communication refers to the exchange of information, feelings, and meanings between team members, while leadership encompasses the ability to guide, motivate, and coordinate group efforts. Prior studies suggest that poor communication leads to misunderstandings and conflicts, reducing productivity, whereas strong leadership can mitigate these issues. This study aims to quantify these influences in a student context, addressing gaps in literature specific to higher education.

Theoretical Framework

The theoretical foundation draws from Social Exchange Theory (Van Diggele, 2022), which posits that interpersonal relationships are built on reciprocal exchanges, and Transformational Leadership Theory (VanThuy, 2023), emphasizing inspirational motivation and individualized consideration. Interpersonal communication is conceptualized as a mediator, facilitating leadership's impact on team effectiveness, measured by cohesion, performance, and satisfaction. Hypotheses include: (1) Higher interpersonal communication positively correlates with team effectiveness; (2) Effective leadership positively correlates with team effectiveness; and (3) Leadership influences effectiveness through communication.

Method

A cross-sectional survey design was employed, targeting undergraduate students from a public university who participated in semester-long group projects. Participants (n=100, 60% female, mean age 21) were recruited via convenience sampling. Data were collected using a self-administered questionnaire comprising Likert-scale items adapted from validated scales: Interpersonal Communication Scale (Paredes Saavedra & Geraldo, 2024), Multifactor Leadership Questionnaire (Holubcik & Rechtorik, 2024), and Team Effectiveness Scale (Eva & Sarker, 2024). Reliability was assessed with Cronbach's alpha (all >0.80). Multiple regression analysis tested hypotheses, controlling for team size and project complexity.

Results

1. Hyphothesis Test (Partial T Test)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1,709	1,337		1,279	,204
	Interpersonal Communication	,422	,083	,418	5,093	<,001
	Leadership in the team	,542	,081	,547	6,670	<,001

a. Dependent Variable: Effectiveness of student teamwork

Table 1. Partial T Test

1) Interpersonal communication (X1) is stated to have a positive and significant influence on the effectiveness of student teamwork (Y) with a sig value of 0.001 < 0.05 and a calculated T value of 5.093 > 1.984 T table value. This concludes that the research hypothesis accepted through the results of the tests that have been conducted, namely interpersonal communication has a positive and significant influence on the effectiveness of student teamwork.
2) Leadership in the team (X2) is stated to have a positive and significant influence on the effectiveness of student teamwork (Y) with a sig value of 0.001 < 0.05 and a calculated T value of 6.670 > 1.984 T table value. This concludes that the research hypothesis accepted through the results of the tests that have been conducted, namely leadership in the team has a positive and significant influence on the effectiveness of student teamwork.

2. Simultaneous Hyphothesis Testing (F Test)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6967,247	2	3483,624	390,743	<,001[b]
	Residual	864,793	97	8,915		
	Total	7832,040	99			

a. Dependent Variable: Effectiveness of student teamwork
b. Predictors: (Constant), Leadership in the team, Interpersonal communication

Table 2.Simultaneous F Test

Through the table above, the simultaneous hypothesis testing conducted between interpersonal communication (X1) and leadership in the team (X2) on the effectiveness of student teamwork (Y) can be stated to be positive and significant with a sig value of 0.001 < 0.05 and a calculated F value of 390.743 > 3.09. This decides that the research hypothesis is accepted through the results of the late test conducted Ha3, namely interpersonal communication (X1) and leadership in the team (X2) simultaneously have a positive and significant effect on the effectiveness of student teamwork (Y).

3. Partial Determination Coefficient Test

a. Interpersonal Communication on the Effectiveness of Student Teamwork

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,916[a]	,839	,837	3,588

a. Predictors: (Constant), Interpersonal communication
b. Dependent Variable: Effectiveness of student teamwork

Table 3.Variable X1 Against Y

Based on the table above, the partial determination coefficient value of the interpersonal communication variable is 0.839, so it can be concluded that the contribution of the influence between the interpersonal communication variable (X1) on the effectiveness of student teamwork (Y) is 83.9%, while the remainder (100% - 83.9% = 0.16%) is influenced by other factors or other variables that were not examined in this study.

b. Team Leadership on the Effectiveness of Student Teamwork

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,927[a]	,860	,859	3,344

a. Predictors: (Constant), Leadership in the team
b. Dependent Variable: Effectiveness of student teamwork

Table 4.Variable X2 Against Y

Based on the table above, the partial determination coefficient value of the Leadership variable in the team is 0.860, so it can be concluded that the contribution of the influence between the leadership variable in the team (X2) on the effectiveness of student teamwork (Y) is 86%, while the remainder (100% - 86% = 0.14%) is influenced by other factors or other variables that were not examined in this study.

4. Simultaneous Coefficient Of Determination Test

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,943[a]	,890	,887	2,986

a. Predictors: (Constant), Leadership in the team, Interpersonal communication
b. Dependent Variable: Effectiveness of student teamwork

Table 5.Variable X1 and X2 Against Y

Based on the table above, the simultaneous determination coefficient value of the interpersonal communication and leadership variable in the team is 0.890, so it can be concluded that the contribution of the influence between the interpersonal communication variable (X1) and leadership in the team (X2) on the effectiveness of student teamwork (Y) is 89%, while the remainder (100% - 89% = 0.11%) is influenced by other factors or other variables that were not examined in this study.

5. Simple Regression Test

a. Interpersonal Communication on the Effectiveness of Student Teamwork

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients			Correlations			Collinearity Statistics	
	B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part	Tolerance	VIF
1 (Constant)	3,899	1,557		2,504	,014					
Interpersonal Communication	,926	,041	,916	22,594	<,001	,916	,916	,916	1,000	1,000

a. Dependent Variable: Effetiveness of the student teamwork

Table 6.Simple Regression Variable X1 Against Y

The equation above can be analyzed as follows:
Y = 3.899 + 0.926 (X1)

1) The constant is 3.899 and is positive, meaning that if interpersonal communication (X1) is considered constant, the effectiveness of student teamwork (Y) is 3.899.
2) The coefficient of interpersonal communication (X1) is 0.926 and is positive. This indicates that for every increase in interpersonal communication (X1), the effectiveness of student teamwork (Y) will increase by 0.926.

b. Team Leadership on the Effectiveness of Student Teamwork

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients			Correlations			Collinearity Statistics	
	B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part	Tolerance	VIF
1 (Constant)	2,829	1,477		1,915	,058					
Leadership in the team	,919	,037	,927	24,542	<,001	,927	,927	,927	1,000	1,000

a. Dependent Variable: Effetiveness of the student teamwork

Table 7.Simple Regression Variable X2 Against Y

The equation above can be analyzed as follows:
Y = 2.829 + 0.919 (X2)

1) The constant is 2.829 and is positive, meaning that if team leadership (X2) is held constant, the effectiveness of student teamwork (Y) is 2.829.
2) The coefficient for team leadership (X2) is 0.919 and is positive. This indicates that each additional leadership element in the team (X2) increases the effectiveness of student teamwork (Y) by 0.919.

6. Multiple Regression Test

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1 (Constant)	1,709	1,337		1,279	,204					
Interpersonal Communication	,422	,083	,418	5,093	<,001	,916	,459	,172	,169	5,905
Leadership in the team	,542	,081	,547	6,670	<,001	,927	,561	,225	,169	5,905

a. Dependent Variable: Effectiveness of the student teamwork

Table 8.Multiple Regression Variable X1 and X2 Against Y

The equation above can be analyzed as follows:
Y = 1.709 + 0.422 (X1) + 0.542 (X2) + e

1) The constant is 1.709 units and is positive, meaning that if interpersonal communication (X1) is considered constant, the effectiveness of student teamwork (Y) is 1.709.
2) The interpersonal communication coefficient (X1) is 0.422 and is positive. This indicates that for every increase in interpersonal communication (X1), the effectiveness of student teamwork (Y) will increase by 0.422.
3) The team leadership coefficient (X2) is 0.542 and is positive. This indicates that for every increase in team leadership (X2), the effectiveness of student teamwork (Y) will increase by 0.542.

Discussion

Findings support the hypotheses, aligning with prior research on workplace teams (Riggio R.E, 2024) but extend to student contexts. Interpersonal communication emerges as a critical factor, enhancing trust and reducing conflicts, while leadership provides direction. The mediating effect suggests that leaders who promote open dialogue amplify team outcomes. Limitations include self-reported data and single-institution sampling; future studies should incorporate observational methods and diverse populations. Implications for educators include integrating communication and leadership workshops into curricula.

Conclusion

This study demonstrates that interpersonal communication and leadership are pivotal for student team effectiveness. By prioritizing these elements, educational institutions can improve collaborative learning experiences, preparing students for real-world teamwork. Recommendations include training programs to develop these skills, potentially leading to better academic and professional outcomes.

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