The Role of Emotional Intelligence and Perceived Self-Efficacy in Delivering Teamwork Performance: An Approach from the IPO Model

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ABSTRACT

This study aims to evaluate the role of emotional intelligence (EI) and perceived self-efficacy (PSE) in enhancing university students' teamwork performance (TP). Using the IPO model and data collected from 301 students across universities in Hanoi, the analysis was conducted with AMOS 20. Findings indicate that both EI and PSE positively influence TP through group interaction processes (GIP), highlighting the importance of emotional and self-efficacy factors in fostering effective teamwork.

INTRODUCTION

In the context of the knowledge economy and global integration, teamwork has become an essential requirement for students, not only in their academic journey but also in their future careers. The ability to collaborate effectively in a team helps students enhance critical thinking, problem-solving, and communication skills while also fostering a sense of responsibility and adaptability in diverse working environments (Thuan, 2020). Furthermore, the rapid development of globalization and economic integration has increased the demand for a high-quality workforce that is not only technically proficient but also capable of effective teamwork (Minh et al., 2025). This places a requirement on higher education institutions to innovate teaching methods and encourage students to develop collaboration and teamwork skills from their academic years. For students, teamwork is not only an effective learning method but also an important preparation step to meet the increasingly stringent demands of the modern labor market.

In terms of definition, Emotional Intelligence (EI or EQ) is the ability to recognize, understand, manage, and regulate one's own emotions as well as those of others in different situations. This concept was widely popularized through the work of Goleman and Intelligence (1995), who emphasized that emotional intelligence plays a role as important as logical intelligence (IQ) in determining an individual's success (Kotsou et al., 2019). Many studies have shown that emotional intelligence plays a crucial role in various areas of life, particularly in work, education, and social relationships. Individuals with high emotional intelligence tend to work more effectively in teams, know how to handle conflicts, and have strong adaptability in high-pressure environments, thereby increasing their chances of success in both career and life (Quyen & Tuyet, 2024; Siem, 2023). In the group work process, perceived self-efficacy is also considered an important factor in promoting work effectiveness. Perceived self-efficacy (SE) is an individual's belief in their ability to perform the necessary actions to achieve desired goals. This concept was proposed by Bandura (1977) in social cognitive theory, emphasizing that confidence in one's abilities significantly affects motivation, behavior, and the ability to cope with challenges. In the context of learning and teamwork, perceived self-efficacy plays an important role in motivating, improving performance, and fostering cohesion among team members (Bumann & Younkin, 2012; Pérez et al., 2015). This is formed through personal experience, observations of mistakes, as well as an individual's psychological and emotional states.

Through a review of research, the author finds that studies related to emotional intelligence and perceived self-efficacy have been widely explored by scholars. These studies have been conducted in various contexts, including both developed countries (Garivani et al., 2016; Konak & Kulturel-Konak, 2019) and developing

countries (Siem, 2023; Thuan, 2020). The sample structures tested are also quite diverse, including students (Lee et al., 2018), workers, and even some studies conducted in the public sector (Kang et al., 2014). However, previous studies still have some gaps that need to be addressed. First, most studies approach data analysis through descriptive statistical methods. While this method provides an overview of the data, it mainly reflects general characteristics of the research sample and does not determine causal relationships between variables. This limitation reduces the ability to draw highly generalizable conclusions and apply findings to practice. Second, most previous studies were conducted in developed economies or corporate environments, while the higher education context, particularly in developing countries, has not been adequately considered. Differences in economic conditions, culture, and educational systems may influence how students work in teams and the role of emotional intelligence and perceived self-efficacy in the collaboration process. Therefore, expanding research to developing countries is necessary to gain a more comprehensive understanding. Third, most current studies mainly focus on direct relationships between variables without fully considering mediating and moderating factors. However, teamwork is a complex process influenced by multiple factors such as the learning environment, personal motivation, and interactions between members. Ignoring indirect impact mechanisms may reduce the accuracy and applicability of proposed models. Therefore, studies using advanced analytical methods are needed to explore the deeper ways in which emotional intelligence and perceived self-efficacy influence teamwork effectiveness.

To fill these research gaps, the author examines the role of emotional intelligence (EI) and perceived self-efficacy (SE) in teamwork effectiveness based on the Input-Process-Output (IPO) model by Hackman (1983). This approach not only provides a solid theoretical foundation for the study but also addresses the limitations of previous research, which primarily focused on direct relationships between factors without clarifying the teamwork process. Applying the IPO model allows for a detailed analysis of how EI and SE influence each stage of the teamwork process, from input and group interaction processes to the final outcomes. Additionally, conducting this study on university students in Vietnam, a country with a developing education system, will contribute additional empirical evidence in a new context, helping to broaden the generalizability of the research findings.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Group Dynamics Theory

Group Dynamics Theory by Lewin (1947) emphasizes that an individual's behavior in a group is not only dependent on personal characteristics but is also influenced by relationships and interactions within the group. In the context of this study, this theory helps explain how emotional intelligence (EI) and perceived self-efficacy (PSE) impact teamwork performance (TP) through group interaction processes (GIP). Specifically, individuals with high EI can better regulate their emotions, create a positive working environment, minimize conflicts, and enhance group cohesion. At the same time, high PSE enables members to be more confident in presenting ideas and participating in collective activities, thereby fostering more effective collaboration. A group with strong interaction tends to function more efficiently, leveraging the strengths of each member and maintaining long-term motivation (Bion, 2018). The study results have demonstrated that EI and PSE not only have direct effects but also indirectly influence team performance through group interaction processes. This reinforces Lewin's perspective that a group's success depends not only on individual capabilities but also on how members interact and support one another.

Emotinal intelligence and group interaction process

According to the study by Rezvani et al. (2018) and Siem (2023), emotional intelligence (EI) has a positive relationship with trust levels and teamwork performance in infrastructure projects. When an individual possesses high EI, they tend to use more effective communication strategies, regulate negative emotions, and maintain harmony within the team, thereby improving interactions among members (Kotsou et al., 2019). Similarly, the research by Kundi and Badar (2021) also confirmed that teams with high EI tend to have better problem-solving abilities, as members are more likely to listen, empathize, and support each other during work processes. Moreover, EI positively influences conflict management within teams. According to Quílez-Robres et al. (2023), teams with high EI levels tend to experience fewer intense conflicts and are more effective in regulating tension

compared to teams with lower EI. When conflicts arise, individuals with strong emotional intelligence can control their reactions, avoid negative behaviors, and promote constructive dialogue, thus maintaining a stable teamwork environment. Additionally, the study by Zhu et al. (2022) demonstrated that EI not only enhances relationships among team members but also positively impacts creativity and overall team performance. Specifically, in teams with high EI, members feel more comfortable expressing ideas, are more willing to collaborate, and are less affected by psychological pressures, creating a conducive environment for effective team interactions. Based on these arguments, we propose the following hypothesis:

H1: EI has a positive impact on GIP

Perceived self-efficacy and group interaction process

According to the study by Garivani et al. (2016), individuals with high self-efficacy (SE) tend to participate more actively in group activities, willingly share ideas, and contribute to decision-making processes. This not only enhances the team's operational efficiency but also strengthens cohesion among members. Furthermore, the research by Pérez et al. (2015) emphasizes that high SE helps individuals maintain motivation even when facing challenges in teamwork. Those with high SE are generally not afraid to confront difficulties, can regulate their emotions effectively, and find efficient solutions to complete tasks, thereby fostering a positive team environment. Additionally, the study by Machida and Schaubroeck (2011) found that SE influences leadership ability within a team by increasing an individual's confidence and persuasive skills. When team members possess high SE, they tend to take on stronger leadership roles, actively contribute ideas, and inspire others. This not only improves team interaction but also enhances overall performance. Moreover, the study by Stajkovic et al. (2018) indicates that SE can help reduce social loafing within a group, as individuals with strong confidence in their abilities are more likely to complete tasks independently without requiring close supervision from teammates. This promotes individual autonomy and responsibility, ultimately improving team coordination and effectiveness. Based on these arguments, we propose the following hypothesis:

H2: PCE has a positive impact on GIP

Group interaction process and teamwork performance

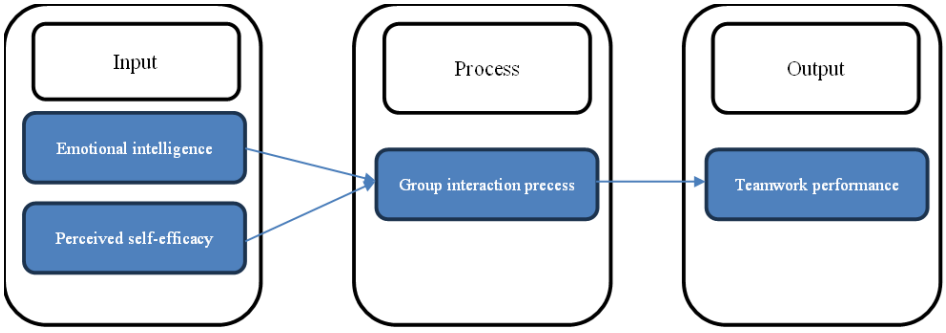
The team interaction process is a crucial factor in determining team performance, as it reflects how members communicate, collaborate, and resolve conflicts throughout their collective work (Marks et al., 2001; Siem, 2023). A well-coordinated team is more capable of completing tasks efficiently, leveraging individual strengths, and making accurate decisions (Mathieu et al., 2014). The study by Fan et al. (2017) found that teams with high levels of interaction tend to achieve better performance because members develop mutual trust, minimizing misunderstandings and conflicts. When the interaction process is optimized, the team operates more effectively, ensuring that tasks are completed on time and at a higher quality. Based on these arguments, we propose the following hypothesis:

H3: GIP has a posivtive impact on TP

H3a: GIP mediates the link between EI and TP

H3b: GIP mediates the link between PSE and TP

Conceptual model are presented below (See Fig.1*)*



METHODOLOGY

Data collection

The study was conducted from November 6, 2024, to January 12, 2025, using a convenience sampling method. Online survey questionnaires were distributed to university students in Hanoi. A total of 412 questionnaires were initially collected, and after the screening process, 301 valid responses were selected for analysis using AMOS 20 software.

Scales development

With a quantitative approach, measuring the scales is crucial. Therefore, all scales used in this study were adopted from previous research. The scales for “Emotional Intelligence,” “Group Interaction Process,” and “Teamwork Performance” were derived from Siem (2023), while the scale for “Perceived Self-Efficacy” was adapted from Pérez et al. (2015). These scales were structured using a 5-point Likert scale, ranging from "strongly disagree" to "strongly agree."

Data annalyst

The research process began with the development of a questionnaire for data collection. To assess the reliability of the scale and eliminate unsuitable variables, Cronbach’s alpha was examined. Next, Exploratory Factor Analysis (EFA) was carried out to verify convergent validity. Subsequently, Confirmatory Factor Analysis (CFA) was performed using AMOS software to further validate the constructs. Lastly, hypothesis testing was conducted through the Structural Equation Modeling (SEM) approach.

RESULTS

Evaluate reliability and convergence

The table 1presents the reliability analysis of the measurement scales using Cronbach’s Alpha and Exploratory Factor Analysis (EFA). The results indicate that the emotional intelligence (EI) scale has good reliability, with Cronbach’s Alpha = 0.805. The factor loadings range from 0.784 to 0.872, demonstrating a high correlation between the observed variables and the factor. Similarly, the perceived self-efficacy (PSE) scale has an acceptable Cronbach’s Alpha of 0.702, with factor loadings ranging from 0.736 to 0.828, indicating a reliable scale.

The group interaction process (GIP) scale shows strong reliability, with Cronbach’s Alpha = 0.812, and factor loadings ranging from 0.756 to 0.871. This suggests that the scale effectively measures group interaction processes. The teamwork performance (TP) scale also demonstrates good internal consistency, with Cronbach’s Alpha = 0.801, and factor loadings between 0.748 and 0.843. These results confirm the reliability of the measurement model.

Regarding the exploratory factor analysis (EFA), the Kaiser-Meyer-Olkin (KMO) values are 0.851 for the dependent variable and 0.755 for the independent variable, both exceeding the threshold of 0.6, indicating that the data is suitable for factor analysis. The significance level (Sig) is 0.000 for both variables, confirming that the factor analysis results are statistically significant. The variance explained (VE) is 77.352% for the dependent variable and 79.968% for the independent variable, suggesting that the extracted factors explain a high proportion of the variance in the data. Lastly, the eigenvalues for the dependent and independent variables are 1.202 and 3.295, respectively, further supporting the validity of the factor structure.

Table 1. Reliability and convergence value

Items	Total reliability	Cronbach’s Alpha	Mean	Factor loading	
				Dependent variable	Independent variable
EI	0.805				

EI1		0.604	3.34	0.792	
EI2		0.762	3.58	0.872	
EI3		0.756	3.68	0.784	
EI4		0.870	3.54	0.842	
EI5		0.803	3.75	0.872	
PSE					
PSE1		0.814	3.85	0.812	
PSE2	0.702	0.797	4.00	0.756	
PSE3		0.753	3.79	0.736	
PSE4		0.757	3.78	0.828	
GIP					
GIP1		0.698	3.93	0.848	
GIP2	0.812	0.617	3.39	0.756	
GIP4		0.630	3.87	0.773	
GIP5		0.817	3.68	0.871	
TP					
TP1		0.574	3.57		0.761
TP2	0.801	0.609	2.78		0.750
TP3		0.554	2.75		0.748
TP4		0.713	3.32		0.843
Dependent variable	KMO = 0.851 Sig = 0.000 VE = 77.352 Eigenvalues = 1.202		**Independent variable**	KMO = 0.755 Sig = 0.000 VE = 79.968 Eigenvalues = 3.295	

Source: Authors

Hypotheses testing

All hypotheses are accepted (see table 2), with p-values below 0.05. Emotional intelligence (EI) positively affects the group interaction process (GIP) (p = 0.000, estimate = 0.271), as does perceived self-efficacy (PSE) (p = 0.000, estimate = 0.329). GIP significantly enhances teamwork performance (TP) (p = 0.000, estimate = 0.184). Additionally, GIP mediates the effects of EI (p = 0.006, estimate = 0.163) and PSE (p = 0.002, estimate = 0.179) on TP.

The model fit indices show a good fit with chi-square/df = 1.756 and RMSEA = 0.051. However, TLI (0.840), CFI (0.837), and GFI (0.737) suggest a moderate fit, indicating room for model refinement. Overall, the findings confirm the impact of EI and PSE on teamwork performance through group interaction.

Table 2. Hypotheses testing

Hypotheses	P-values	Estimate	Decision
EI → GIP	0,000	0,271	Accepted

PSE → GIP	0,000	0,329	Accepted
GIP → TP	0,000	0,184	Accepted
EI → GIP → TP	0,006	0,163	Accepted
PSE → GIP → TP	0,002	0,179	Accepted
Model fit		Chi-square/df = 1,756 TLI = 0,840 CFI = 0,837 GFI = 0,737 RMSEA = 0,051	

Source: Authors

DISCUSSION AND CONCLUSION

The research findings highlight the critical role of emotional intelligence (EI) and perceived self-efficacy (PSE) in enhancing group interaction processes (GIP) and, ultimately, teamwork performance (TP). The results confirm that both EI and PSE significantly influence GIP, suggesting that individuals with higher emotional intelligence and self-efficacy engage more effectively in team interactions. This aligns with previous studies indicating that emotionally intelligent individuals foster better communication, conflict resolution, and collaboration, while those with high self-efficacy are more proactive and confident in team settings.

Furthermore, the positive impact of GIP on TP reinforces the idea that effective team interaction leads to improved overall performance. When members communicate clearly, coordinate efficiently, and support one another, tasks are completed more effectively, and team outcomes improve. The mediating role of GIP between both EI and TP, as well as PSE and TP, further underscores the importance of fostering strong group dynamics to maximize team productivity.

However, the model fit indices indicate a moderate fit, suggesting potential areas for refinement. While the chi-square/df ratio and RMSEA are within acceptable ranges, the TLI, CFI, and GFI values suggest that additional factors might influence teamwork performance. Future studies could explore other mediating variables, such as leadership styles, organizational culture, or task complexity, to enhance the model's explanatory power.

Overall, the study reinforces the importance of emotional intelligence and self-efficacy in shaping effective team interactions and performance. Organizations and educational institutions should focus on developing these traits in individuals through training and professional development programs to foster more collaborative and high-performing teams.

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