

The Influence of Teamwork Skills and Challenges on Team-Based Learning of Nursing Students in a Selected University in Vietnam

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ABSTRACT

Objectives: To explore the influence of teamwork skills and challenges on the team-based learning, in order to optimize the experiences and outcomes of team-based learning for nursing students.

Methodology: A descriptive correlational study was conducted with the participation of 280 second, third, and fourth-year students studying in the Bachelor of Nursing program at a selected university in Da Nang city.

Results: The findings of the study provide valuable insights into the factors influencing teamwork skills and the challenges faced by nursing students when team-based learning. The overall assessment of teamwork skills was answered by students with an average score of 4.03, indicating that students generally had “Agree” teamwork skills, with “communication skills” rated as “Strong Agree”. The average score for the challenges encountered was 3.92, which is interpreted as “Usually”. This suggests that students generally encountered these challenges frequently, but not always. Specific challenges identified included engagement, time management, motivation, personality conflicts, and social context, all rated as “Often” occurring. Student ratings of team-based learning were rated as “agree” with a mean of 3.91. The relationship between teamwork skills agree team-based learning was found to be highly correlated, with Pearson’s $r = 0.51$. The challenges and team-based learning were also highly correlated, with Pearson’s $r = 0.61$. All the correlations were statistically significant, with a p-value of less than 0.001.

Conclusions: These correlations were supported by high Pearson r coefficients and low p-values, indicating a very strong and significant positive relationship. Nursing students demonstrated strong teamwork skills, particularly in adaptability, coordination, decision-making, and communication. The results of this study also suggest that although team-based learning is generally effective, nursing students still face significant challenges, particularly in areas such as time management, motivation, and resolving personality conflicts. **Keywords:** Team-Based Learning (TBL); Teamwork Skills; Challenges; nursing students

INTRODUCTION

In recent years, the significance of teamwork in nursing education has become increasingly evident, particularly as healthcare systems worldwide

strive for improved patient outcomes through collaborative practice. Team-Based Learning (TBL) has emerged as a pedagogical strategy that fosters teamwork skills among nursing students, equipping them with the necessary competencies to function effectively in interdisciplinary teams. Research indicates that TBL enhances critical thinking, engagement, and satisfaction among nursing students, ultimately leading to better educational outcomes (Zeb et al., 2022).

Team-based learning (TBL) was initiated by Larry Michaelson, a management professor, in the 1970s, and later applied to medical education to facilitate theme-oriented discussions (Huang & Wang, 2020). TBL was effectively introduced into medical education in the late 1990s. The Boonshoft School of Medicine at Wright State University is the first medical school in the United States to fully adopt Team-Based Learning as an educational strategy. Boonshoft School has successfully implemented Team-Based Learning in all pre-clinical courses and most courses. Up to now, many medical universities in general and nursing universities in particular have successfully applied the TBL method to nursing education, popular in countries such as Singapore, Australia, the United States, Canada, Spain, etc... (Michaelsen et al., 2023).

In Vietnam, the nursing profession is evolving rapidly, with increasing demands for healthcare services. As the healthcare system adapts to these changes, it is crucial for nursing education to incorporate effective teaching strategies that enhance teamwork skills among students (Nguyen et al., 2020). TBL offers an opportunity to develop these skills, but its effectiveness can be influenced by various challenges that students face, including communication barriers, differing levels of participation, and conflict resolution difficulties. Understanding how these challenges affect the learning experience is vital for educators aiming to optimize team-based learning methods in nursing programs. Therefore, this study aims to explore the influence of teamwork skills and challenges on the team-based learning experiences of nursing students at selected universities in Vietnam,

in order to optimize the experiences and outcomes of team-based learning for nursing students.

METHODS

Population

The 2nd, 3rd and 4th year nursing students, both male and female, studying the bachelor of nursing program.

Inclusion Criteria: Learned about teamwork skills; Currently learning the Team-Based Learning (TBL) teaching method; Between 20-30 years old.

Exclusion Criteria: The first year student; Students with unusual absences during the data collection period; Students in bridging programs

Research location

Conducted in a selected university in Da Nang city in Vietnam.

Design

A descriptive correlational study was used.

Sample size

The sample size was determined using G*Power software, version 3.1.9.4. With an effect size (ρ) of 0.20, a power of 95%, and a margin of error of 5%, the estimated sample size was 262. The final sample size of the study was 280.

Data collection

The questionnaire was developed based on relevant studies and validated by five experts in nursing education, psychology, and team-based learning. The questionnaires were pilot tested with 30 respondents who met the inclusion criteria but did not participate in the final study. The questionnaire showed good internal consistency, with a high Cronbach's alpha.

Data were collected directly using a self-administered questionnaire with a 5-point Likert scale, including:

- + Part B of the questionnaire related to teamwork skills (Marshall et al., 2005), with a Cronbach's alpha of 0.949.
- + Part C of the questionnaire related to challenges in team-based learning, with a Cronbach's alpha of 0.904.
- + Part D of the questionnaire related to team-

based learning (Ibrahim, 2020), with a Cronbach's alpha of 0.829.

+ Part A of the questionnaire related to characteristics of the study subjects.

Data Analysis

The data were processed and analyzed using SPSS 26.0, with techniques including frequency, percentage, mean, and Pearson's correlation coefficient analysis.

Research Ethics

The study was conducted after being approved by the Institutional Review Board (IRB) of Trinity University Asia with approval code 015-R02. It was also approved by the University Leadership where the data was collected. Participants' personal information and data obtained from the research were kept confidential and used only for research purposes.

RESULTS

Characteristics of the study subjects

Table 1. Characteristics of the Study Population (n=280)

Profile Characteristics		n	Percent (%)
Age	20	95	33.93
	21	19	6.79
	22	53	18.93
	23	33	11.79
	24	15	5.36
	25	10	3.57
	26	19	6.79
	27	22	7.86
	28	14	5.00
Sex	Male	24	8.6
	Female	256	91.4
Year level	Level 2	112	40.0
	Level 3	89	31.8
	Level 4	79	28.2

The study involved 280 participants with the following main characteristics:

The age of the study subjects ranged from 20 to 28 years old. The highest distribution was in the

20s, with 40%, and the lowest was 5% in the 28s. The proportion of female students participating in the study was 91.4%, while male students accounted for 8.6%. The distribution was quite even across all levels of education.

Nursing Student's Assessment of Teamwork Skills Influence in Team-Based Learning

Table 2. Descriptive Interpretation Teamwork Skills on Team-Based Learning (n=280)

Statements	Mean	SD	Descriptive Interpretation
Adaptability	3.94	0.65	Agree
Coordination	4.01	0.56	Agree
Decision making	4.11	0.58	Agree
Leadership	3.80	0.73	Agree
Interpersonal skills	4.22	0.67	Strongly Agree
Communication	4.12	0.65	Agree
Overall mean	4.03	0.58	Agree

Legend: 4.21 – 5.00: Strongly Agree; 3.41 – 4.20: Agree; 2.61 – 3.40: Neutral; 1.81 – 2.60: Disagree; 1.00 – 1.80: Strongly Disagree.

The majority of the statements related to teamwork skills received an "Agree" rating, with mean scores ranging from 3.80 to 4.12. Among them, Interpersonal skills received the highest rating of "Strongly Agree" with a mean score of 4.22. The overall score for teamwork skills is 4.03, with an "Agree" rating.

Nursing Student's Assessment of Challenges Influence in Team-Based Learning

Table 3. Descriptive Interpretation Challenges on Team-Based Learning (n=280)

Statements	Mean	SD	Descriptive Interpretation
Participation	4.05	0.72	Usually,
Time Management	4.12	0.65	Usually
Motivation	4.05	0.65	Usually
Personality Conflicts	3.49	0.91	Usually
Social Context	3.76	1.00	Usually
Overall mean	3.92	0.59	Usually

Legend: 4.21 – 5.00: Always; 3.41 – 4.20: Usually; 2.61 – 3.40: Often; 1.81 – 2.60: Sometime; 1.00 – 1.80: Rarely.

All statements about challenges in team-based learning received a rating of “Usually” with mean scores ranging from 3.49 to 4.12. The overall mean score for challenges was 3.92, which ranked them as “Usually”.

Nursing Students’ Assessment of Team-Based Learning

Table 4. Descriptive Interpretation on Team-Based Learning

Statements	Mean	SD	Descriptive Interpretation
Team’ learning accountability	4.12	0.65	Agree
Preference	3.75	0.59	Agree
Preference of TBL than lecture	3.96	0.68	Agree
Preference of lecture than TBL	3.32	0.95	Neutral
TBL preference in information recall	4.07	0.63	Agree
Teamwork contribution	4.03	0.64	Agree
TBL satisfaction	4.02	0.65	Agree
Overall mean	3.91	0.56	Agree

Legend: 4.21 – 5.00: Strongly Agree; 3.41 – 4.20: Agree; 2.61 – 3.40: Neutral; 1.81 – 2.60: Disagree; 1.00 – 1.80: Strongly Disagree.

Most of the statements related to the nursing students’ team-based learning experience were rated as “Agree”. However, the aspect of “Preference of lecture than TBL” was rated as “Neutral”. The overall mean score of team-based learning was 3.91, with a level of “Agree”.

Correlations Between Teamwork Skills and Team-Based Learning

Table 5. Correlation Analysis Results on The Relationship Between Teamwork Skills and Team-Based Learning

Variable	Computed r	Degree of Relationship	p value	Decision	Conclusion
Correlation Between Teamwork Skills and Team-Based Learning According to Teamwork Skills Variables					
Adaptability	0.538 ***	Strong relationship	0.0001	Reject H ₀	Significant
Coordination	0.343 ***	Moderate relationship	0.0001	Reject H ₀	Significant
Decision making	0.496 ***	Strong relationship	0.0001	Reject H ₀	Significant
Leadership	0.420 ***	Strong relationship	0.0001	Reject H ₀	Significant
Interpersonal	0.501 ***	Strong relationship	0.0001	Reject H ₀	Significant
Communication	0.451 ***	Strong relationship	0.0001	Reject H ₀	Significant
Correlation Between Teamwork Skills and Team Based Learning According to Team Based Learning Variables					
Team’ learning accountability	0.520 ***	Strong relationship	0.0001	Reject H ₀	Significant
Preference:	0.454 ***	Strong relationship	0.0001	Reject H ₀	Significant
Preference of TBL than lecture	0.557 ***	Strong relationship	0.0001	Reject H ₀	Significant
Preference of lecture than TBL	0.365 ***	Moderate relationship	0.0001	Reject H ₀	Significant
TBL preference in information recall	0.583 ***	Strong relationship	0.0001	Reject H ₀	Significant
Teamwork contribution	0.482 ***	Strong relationship	0.0001	Reject H ₀	Significant
TBL satisfaction	0.428 ***	Strong relationship	0.0001	Reject H ₀	Significant
Correlation Between Teamwork Skills and Team Based Learning					
Teamwork Skills and Team Based Learning	0.51 ***	Strong relationship	0.0001	Reject H ₀	Significant

Pearson's r coefficient: 0.01 -0.19: No or Negligible relationship; 0.20-0.29: Weak relationship; 0.30-0.39: Moderate relationship; 0.40 -0.69: Strong relationship; ≥ 0.70 Very strong relationship. *** Correlation is significant at the 0.001 level (3-tailed).

Most of the statements related to teamwork skills have a strong relationship with team-based learning, with Pearson's r coefficients ranging from 0.420 to 0.538. Only the statement of "Coordination" has a Moderate relationship. All are statistically significant

with p-value<0.001.

All statements of team-based learning have a strong correlation with teamwork skills, with Pearson's r coefficients ranging from 0.428 to 0.520, and they are statistically significant with p-value<0.001.

The overall correlation between teamwork skills and team-based learning is strong relationship, with Pearson's r coefficient = 0.510, p-value < 0.001.

The Correlations Between Challenges and Team-Based Learning

Table 6. The Correlation Analysis Results on The Relationship Between Challenges and Team-Based Learning

Variable	Computed r	Degree of Relationship	p value	Decision	Conducion
Correlation Between Challenges and Team-Based Learning According to Challenges Variables					
Participation	0.363***	Moderate relationship	0.0001	Reject H_0	Significant
Time Management	0.458***	Strong relationship	0.0001	Reject H_0	Significant
Motivation	0.588***	Strong relationship	0.0001	Reject H_0	Significant
Personality Conflicts	0.470***	Strong relationship	0.0001	Reject H_0	Significant
Social Context	0.396***	Moderate relationship	0.0001	Reject H_0	Significant
Correlation Between Challenges and Team Based Learning According to Team Based Learning According Variables					
Team'learning accountability	0.583***	Strong relationship	0.0001	Reject H_0	Significant
Preference:	0.553***	Strong relationship	0.0001	Reject H_0	Significant
Preference of TBL than lecture	0.557***	Strong relationship	0.0001	Reject H_0	Significant
Preference of lecture than TBL	0.365***	Moderate relationship	0.0001	Reject H_0	Significant
TBL preference in information recall	0.583***	Strong relationship	0.0001	Reject H_0	Significant
Teamwork contribution	0.573***	Strong relationship	0.0001	Reject H_0	Significant
TBL satisfaction	0.515***	Strong relationship	0.0001	Reject H_0	Significant
Correlation Between Teamwork Skills and Team Based Learning					
Challenges and Team Based Learning	0.61***	Strong relationship	0.0001	Reject H_0	Significant

Pearson's r coefficient: 0.01 -0.19: No or Negligible relationship; 0.20-0.29: Weak relationship; 0.30-0.39: Moderate relationship; 0.40 -0.69: Strong relationship; ≥ 0.70 Very strong relationship. *** Correlation is significant at the 0.001 level (3-tailed).

There are 3 statements related to challenges section that have a strong correlation with team-based learning, with Pearson's r coefficients ranging from 0.458 to 0.588. Out of these, 2 statements: "Participation" and "Social Context" have a Moderate

relationship, with Pearson's r coefficients of 0.363 and 0.396, respectively. All relationships are statistically significant with p-values < 0.001.

All statements of team-based learning have a strong correlation with the Challenges, with Pearson's r coefficients ranging from 0.515 to 0.583, and they are statistically significant with p-value<0.001.

The overall correlation between challenges and team-based learning is strong relationship, with Pearson's r coefficient = 0.610, p-value < 0.001.

The Correlation Between Teamwork Skills, Challenge and Team-Based Learning

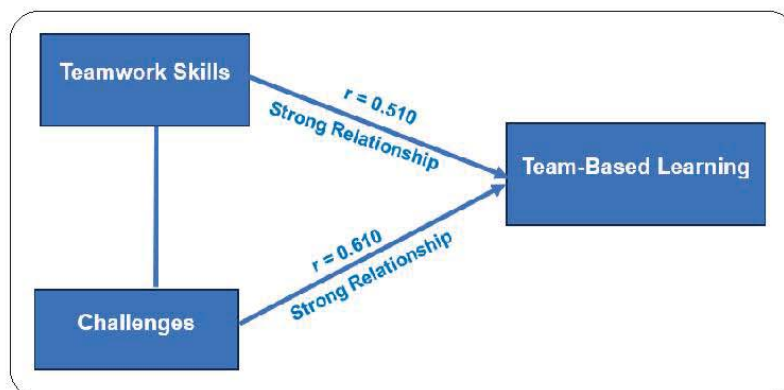


Figure 1. The Correlation Between Teamwork Skills, Challenge and Team-Based Learning

The study found a strong, and statistically significant correlation between teamwork skills, challenges, and team-based learning. The study showed that higher teamwork skills lead to higher adaptability and greater team-based learning outcomes, and that the challenges all have an impact on the team-based learning outcomes.

DISCUSSION

The majority of students are aged 20, accounting for 33.93% of the sample. Other age groups are more evenly distributed, with a noticeable decline in representation as the age increases. This is consistent with the typical learning age in Vietnamese education. The participants were mainly female nursing students, with 91.4%, and only 8.6% being male. This also reflects the general situation in the nursing industry in Vietnam. The demographic results in this study are consistent with those from the study by (Pham Thi Thuy Vu & Vo Thanh Ton, 2022), where the average age of students was 21.60 ± 0.64 years, and females accounted for 92.5%.

The results of the summary of values regarding teamwork skills in team-based learning (TBL) indicate a generally positive perception of teamwork skills, with an overall mean score of 4.03, categorized as "Agree." This suggests that nursing students feel confident in their teamwork abilities, which helps them adapt to team-based learning more easily and will bring them

better experiences and results in team-based learning. This result is consistent with the research of (Anderson & Hewner, 2021; Marshall et al., 2005).

The overall mean for challenges was 3.92 was rated as usually, indicating that challenges in team-based learning are common among nursing students. This finding is consistent with the conclusion of (Gallagher & Savage, 2023), who emphasized the importance of recognizing and addressing these challenges to enhance student engagement and satisfaction in the team-based learning experience.

Most of the statements related to nursing students' team-based learning experiences were rated as "Agree", with mean scores ranging from 3.75 to 4.12. However, the aspect "Preferring lectures over TBL" was rated as "Neutral" with a mean score of 3.32. The overall mean score for team-based learning was 3.91, with a level of "Agree", indicating a generally positive perception of team-based learning among nursing students. These findings are consistent with studies by (Ibrahim, 2020; Prada et al., 2022), suggesting that team-based learning effectively fosters accountability, teamwork, and satisfaction in nursing education.

The Strong correlations were observed across various aspects of teamwork skills, such as Adaptability, Decision Making, Interpersonal, or Communication, with Pearson's r correlation coefficients ranging from 0.451 to 0.538. Only the Coordination aspect had a Moderate relationship, with a Pearson's r correlation

coefficient of 0.343. All of these correlations were statistically significant with p -value < 0.0001 . The overall, the correlation between teamwork skills and team-based learning was strong, with a Pearson's r correlation coefficient = 0.510 and $p < 0.0001$. This emphasizes the important role of teamwork skills in enhancing the group learning experience in nursing students. The results in this study are similar to those in the studies of (Kakemam et al., 2021; Nguyen et al., 2020).

The result in this study showed that although nursing students adapted and were satisfied with the team-based learning experience, the challenges they faced were unavoidable, such as time management, motivation, personality conflicts, and social factors. The overall correlation coefficient between challenges and team-based learning was 0.610, indicating a strong correlation with $p < 0.001$. This result is also consistent with the assessment in the studies of (Nguyen et al., 2020).

CONCLUSION AND RECOMMENDATIONS

The results of this study demonstrate a strong and statistically significant correlation between teamwork skills, challenges, and team-based learning (TBL) (p -value < 0.001).

Therefore, university administrators, nursing faculty, and students should continue to maintain and further promote teamwork skills for students, considering this a strength for them to improve their communication skills, behavior, and adaptation to learning activities. At the same time, team-based learning methods should be expanded in various activities of the nursing industry, such as applying TBL in teaching laboratory skills, simulation, and clinical practice.

Increasing resources on team-based learning methods in the library, organizing group activities, seminars, exchanges, and retraining for both lecturers and students about TBL, etc., are things that should be done to further enhance students' positive experiences with TBL and to bring the best learning outcomes for students.

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