

Team Dynamics in Project Based Learning

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Abstract

Project-Based Learning (PBL) is recognized as one of the key transformative learning strategies that fosters deeper engagement and professional growth. Team dynamics—the patterns of interaction, communication, and behavior among team members—play a critical role in the effectiveness of PBL. This study aimed to assess and understand the team dynamics among nursing students engaged in PBL. A descriptive cross-sectional study was conducted among 113 nursing students from selected institution. Data were collected using a structured questionnaire (Google form) comprising 15 Likert-scale items focused on key team dynamics domains such as communication, role clarity, accountability, conflict resolution, and leadership. Demographic details including age, academic year, type of family, residence, and geographical area were collected. The mean team dynamic score was 59.16, indicating an overall positive experience. Among the participants, 79 students (69.9%) reported positive team dynamics, 33 (29.2%) reported moderate, and 1 student (0.9%) reported a negative experience. Chi-square analysis showed statistically significant associations between team dynamic scores and age ($p < 0.05$), type of family ($p < 0.05$), and batch ($p > 0.05$). The findings highlight that most nursing students experienced positive team dynamics during PBL activities. Factors such as supportive peer interaction, effective leadership, and clearly defined roles contributed to team effectiveness. The results underscore the importance of fostering collaborative skills and reflective practices in nursing education to enhance team-based learning.

Keywords: Team Dynamics, Project Based Learning, Academic outcome, Communication, Role clarity, Leadership, Accountability and Conflict resolution.

1. Introduction

Team dynamics refer to the interpersonal relationships, behaviors, and interactions that influence team performance. In nursing education, particularly in Project-Based Learning (PBL) settings, effective team dynamics are essential for fostering collaboration, building communication skills, and ensuring clinical preparedness. From a nursing perspective, strong team dynamics mirror the realities of healthcare practice, where interdisciplinary teamwork, clear communication, and shared accountability are critical to patient safety and quality care.

Team building is the foundational process that nurtures trust, cohesion, and shared understanding among group members. In the context of PBL, structured team-building activities help nursing students establish rapport, clarify roles, and align toward common goals early in the project cycle.

Teamwork, the coordinated effort among members to achieve shared outcomes, is central to the success of both educational and clinical tasks. It enables nursing students to actively listen, negotiate responsibilities, and support one another through challenges—skills directly transferable to patient care environments.

As a result of effective team building and teamwork, **team performance** improves significantly. High-performing student teams demonstrate better problem-solving, timely task completion, and stronger critical thinking abilities. These capabilities not only enhance academic success but also prepare students for the demands of real-world clinical teamwork, where performance has direct consequences for patient outcomes.

Therefore, cultivating strong team dynamics through purposeful team building and sustained teamwork within PBL serves as both an educational strategy and a professional foundation for nursing practice, equipping students with the competence and confidence to thrive in dynamic healthcare settings.

Background of the Study

In the revised nursing curriculum, Project-Based Learning (PBL) has emerged as a valuable pedagogical approach that encourages active participation, student engagement, and the practical application of theoretical knowledge. PBL shifts the focus from passive learning to an interactive process where students collaboratively explore real-world clinical scenarios, integrate evidence-based practice, and develop professional competencies essential for nursing practice.

Team-based activities form the core of PBL and are instrumental in enhancing critical thinking, clinical reasoning, decision-making, and cooperative learning among nursing students. These experiences simulate real healthcare environments, requiring students to function effectively within a group—mirroring the interdisciplinary teamwork demanded in clinical settings.

However, the success of PBL relies heavily on the quality of **team dynamics**, which encompass the interpersonal relationships, communication patterns, roles, and behaviors that influence how effectively a team functions. Poor team dynamics can lead to misunderstandings, unequal workload distribution, and decreased motivation, ultimately undermining learning outcomes. On the other hand, positive team dynamics foster a supportive learning environment, encourage mutual respect, promote accountability, and improve both academic and clinical performance.

Given the importance of collaborative practice in nursing, it is crucial to understand and strengthen team dynamics within educational settings. This study, therefore, seeks to assess the nature and effectiveness of team dynamics among nursing students engaged in PBL and explore how these dynamics contribute to transformative learning and professional development.

Need for the study

Effective team dynamics are foundational to the success of Project-Based Learning (PBL), particularly in nursing education, where collaboration and communication are critical professional skills. However, poor team dynamics—characterized by miscommunication, lack of trust, unequal task distribution, and unresolved conflict—can significantly hinder both group performance and individual learning. These challenges may lead to disengagement, stress, and suboptimal development of clinical competencies.

Given that teamwork is an essential component of nursing practice, it is imperative to prepare students for collaborative work environments during their training. By understanding how students interact, communicate, and function within teams during PBL activities, educators can identify common barriers to effective collaboration and design targeted interventions to address them.

A study by **Cresswell et al. (2020)** emphasized that structured teamwork training in nursing programs significantly improved students' ability to communicate, delegate, and resolve conflicts effectively—demonstrating the value of intentional focus on team dynamics in academic settings.

Assessing team dynamics not only highlights strengths and areas for improvement but also informs curriculum planning, team-based assessments, and faculty facilitation techniques. This study is necessary to bridge the gap between theoretical instruction and practical teamwork experiences, ensuring that nursing students are not only academically competent but also professionally prepared to contribute meaningfully in multidisciplinary healthcare teams.

Objectives of the Study

1. To assess the overall level of team dynamics among nursing students engaged in Project-Based Learning (PBL).
2. To identify specific dimensions of team dynamics—such as communication, collaboration, leadership, accountability, and trust—that require improvement.
3. To examine the association between selected demographic variables (e.g., age, batch, type of residence, family structure, and geographical area) and team dynamic scores.

Review of Literature

Team dynamics play a pivotal role in shaping student experiences and learning outcomes, especially in collaborative, active-learning environments such as Project-Based Learning (PBL) in nursing education. Numerous studies have emphasized the significance of interpersonal interactions, communication, trust, and role clarity in team-based learning settings.

Johnson & Johnson (2018) highlighted the importance of **cooperative learning**, describing it as a powerful pedagogical approach that promotes mutual interdependence, individual accountability, and group processing. Their research demonstrated that students engaged in cooperative teams tend to exhibit improved academic performance, interpersonal skills, and motivation. These findings are particularly relevant in nursing education, where teamwork and collaborative decision-making mirror the demands of clinical practice.

Salas et al. (2020) explored the impact of **leadership and trust** on team effectiveness in healthcare education. Their findings underscored that trust among team members fosters psychological safety, allowing individuals to voice opinions, admit mistakes, and engage more deeply in the learning process. Furthermore, effective leadership—whether formally assigned or organically emerging—was shown to enhance coordination, conflict resolution, and collective goal achievement, all of which are essential in both academic and clinical settings.

Thompson et al. (2017) examined how **clearly defined team roles and structured communication** contribute to the success of project-based activities. They found that when students understand their responsibilities and maintain open channels of communication, projects are more likely to be completed efficiently and to a higher standard. In nursing education, this translates into better preparation for real-world scenarios where role clarity and teamwork are crucial for delivering safe, high-quality patient care. Together, these studies provide a strong foundation for investigating team dynamics in nursing students participating in PBL. They also reinforce the need to assess specific dimensions such as communication, leadership, trust, and accountability to identify areas that may require targeted interventions or curriculum enhancement.

Hypotheses

H1: There is a significant association between selected demographic variables (age, batch, type of reside-

nce, type of family, geographical area) and team dynamic scores among nursing students in project-based learning.

H₀1: There is no significant association between selected demographic variables and team dynamics scores among nursing students.

Methodology

Research Design-Descriptive, cross-sectional survey design

Setting-Holy Spirit Institute of Nursing Education, Mumbai.

Population-B.Sc Semester Students

Sample Size-A total of 113 nursing students were selected using purposive sampling.

Inclusion Criteria

- Students currently enrolled in a nursing program
- Participated in at least one PBL activity in the academic year
- Willing to participate in the study

Exclusion Criteria

Students not involved in any team projects

Data Collection Procedure

- Formal permission obtained from the Principal
- Informed consent from each participants
- Self-Structured Questionnaire administered in respective classroom
- Time taken: 20 minutes

Data Analysis

- Descriptive statistics: frequency, percentage, mean, standard deviation
- Inferential statistics: Chi-square test for association between demographic variables and team dynamics

Demographic Profile (N=100)

- **Age:** 75% (20–25 years)
- **Gender:** 80% Female, 20% Male
- **Residence:** 60% Hostelite, 40% Non-hostelite
- **Background:** 65% Urban, 35% Rural
- **Batch:** 25% in each year

Team Dynamics Scores

- **Positive (55–75):** 68 students
- **Moderate (35–54):** 28 students
- **Negative (15–34):** 4 students
- **Mean Score:** 59.2 ± 8.3

Association with Demographics

- Significant association between year of study and team dynamics score ($p < 0.05$)
- No significant association with gender or residence

Demographic Variables	Chi-square	P-Value	Significance Level
Age	22.68	0.0001	Significant
Batch	13.91	0.0075	
Type of Family	7.84	0.0198	
Type of Residence	3.73	0.155	Non-Significant
Geographical Area	1.46	0.481	

Discussion

Most students experienced **positive team dynamics**, especially in communication and trust. However, some moderate or negative experiences were linked to unclear role assignments and conflict resolution challenges.

Key Insights

- Higher-year students showed better team coordination, likely due to experience.
- Female students had slightly higher scores in trust and collaboration.
- Leadership opportunities were not evenly distributed across all teams.

Conclusion

The study reveals that team dynamics among nursing students engaged in PBL are generally positive, supporting the effectiveness of collaborative learning. However, structured role distribution and conflict resolution strategies need to be reinforced.

Implications for Nursing Education

- Incorporate teamwork skill-building sessions
- Provide leadership rotation in projects
- Conduct regular feedback and reflection sessions

Recommendations

1. Conduct interventional studies to improve low-performing dimensions.
2. Include teamwork training in the curriculum.
3. Encourage mentor-guided team reflections after each project.

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