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Comparing Fishbowl and Didactic Teaching-learning methods in Physiotherapy Education: Effects on Cognitive and Affective Domains

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KEYWORDS

Physiotherapy Education, Fishbowl method, Collaborative method, Teaching-learning

ABSTRACT:

Purpose

The Fishbowl technique is an active, collaborative learning approach. In Physiotherapy education, where multidisciplinary teamwork is essential, students need structured collaborative learning experiences to develop core clinical competencies and prepare for future professional roles. This study aimed to evaluate the effectiveness of the Fishbowl method in enhancing knowledge, attitudes, and professional skills among undergraduate Physiotherapy students.

Design/methodology/approach

A randomized controlled study was conducted with 100 Bachelor of Physiotherapy (Semester IV) students. Participants were assigned to a control group (n = 50), receiving traditional didactic instruction, or an intervention group (n = 50), participating in Fishbowl-based learning sessions. Pre- and post-test questionnaires measured cognitive and affective learning outcomes, while post-intervention feedback was collected from students and faculty regarding engagement, communication, and collaborative skill development.

Findings

Students in the Fishbowl group demonstrated significantly greater improvements in both cognitive and affective domains compared to the control group ($p < 0.05$). Student feedback highlighted enhanced conceptual understanding, communication skills, and active participation, while faculty reported increased engagement, meaningful peer learning, and development of professional competencies.

Practical implications

The Fishbowl method can be incorporated into Physiotherapy curricula to promote active, collaborative learning, strengthen communication and teamwork skills, and support the development of core clinical competencies.

Originality/value

This study provides empirical evidence that the Fishbowl technique is an effective student-centered strategy in Physiotherapy education, producing gains in cognitive and affective outcomes, and offering a scalable model for fostering collaborative skills in health professional training.

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1. Introduction

Collaborative learning enables students to acquire not only course-related knowledge but also essential skills such as teamwork, communication, and accountability.[1] In this approach, students work in small groups, share knowledge, and rely on one another while remaining individually responsible for their contributions.[1] With the rapid expansion of academic content, students often struggle to assimilate large volumes of information efficiently, underscoring the need for more engaging and student-centered approaches to learning.[2] Globally, educational reforms in health professions are shifting from traditional lecture-based instruction toward more dynamic, interactive, and learner-centered pedagogies that better address student needs.[2]

Physiotherapy education, in particular, requires active, hands-on engagement to build professional competencies. [3] As the educational model transitions from teacher-centered to learner-centered instruction, the role of the instructor is redefined to that of facilitator and guide. This approach encourages students to actively participate, collaborate, think critically, and engage in reflective practice. [3] Within this context, the Fishbowl technique has emerged as a valuable pedagogical tool for promoting interaction and deep engagement.

The Fishbowl method also referred to as the group-on-group or cluster technique is a multimodal active learning strategy that fosters dynamic group involvement and accommodates diverse learning abilities. [4] Its structure consists of two concentric circles namely an inner circle that engages in discussion and an outer circle that observes, analyses patterns, and evaluates arguments. [5] After a set period, the groups switch roles, allowing all students to experience both discussion and observation. Faculty members supervise the process and facilitate synthesis during the summary session.[5]

Although collaborative learning strategies have been widely studied in various educational disciplines, there is lacunae in literature reporting their application in Bachelor of Physiotherapy (BPT) curricula. The present study aims to evaluate the effect of the Fishbowl teaching-learning method on student engagement, cognitive and affective learning outcomes, and overall educational experience. It further contributes to the ongoing dialogue on innovative instructional strategies that meet the evolving needs of Physiotherapy students.

2. Methods

This interventional study was conducted after receiving approval from the Institutional Ethics Review Committee (IERC) and the head of the Institute. Written informed consent was obtained from all 100 participating BPT Semester IV students. A convenience sampling method was employed.

Baseline knowledge and attitudes toward Medical Ethics, Human Rights, and Professional Values were assessed using a pre-test questionnaire, which was re-administered after the teaching-learning intervention. Students were divided into a control group (n=50), which received traditional didactic instruction, and a study group (n=50), which participated in the Fishbowl method. The primary investigator facilitated all sessions with assistance from trained faculty members.

For the study group, a 45-minute didactic session was conducted prior to implementation of the Fishbowl activity. Students were then oriented to the Fishbowl protocol and divided into two subgroups (Group A and Group B). Group A initially formed the inner discussion circle while Group B observed from the outer circle; roles were later reversed with a new topic. Faculty moderated both discussions and offered guidance as necessary. At the end of both sessions, a plenary presentation was conducted in which representatives from each group summarized the discussion. The primary investigator then summarized the entire topic. Feedback on the Fishbowl method was collected from both students and faculty through a self-reported questionnaire.

3. Results

A total of 100 Bachelor of Physiotherapy (BPT) students participated in the study, with 50 students in the Didactic (Control) group and 50 in the Fishbowl (Study) group. Table I shows the mean pre-test and post-test scores for the affective and cognitive domains of the course *Medical Ethics, Human Rights, and Professional Values*. Both groups demonstrated significant improvement after the teaching interventions (paired t-test, $p = 0.001$). The Fishbowl group exhibited a significantly greater increase in post-test scores compared to the Didactic group (independent t-test, $p = 0.01$), indicating superior learning gains through the Fishbowl method.

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Student Feedback on Fishbowl Method

Student perceptions regarding the benefits and challenges of the Fishbowl method are presented in Tables II and III. For perceived benefits, responses were significantly non-uniform ($\chi^2 = 23.03$, $p < 0.001$), with the majority of students reporting improvements in understanding and communication skills (39%). Reasons for disapproval did not reach statistical significance ($\chi^2 = 5.11$, $p = 0.078$), while suggestions for improvement were significantly distributed ($\chi^2 = 17.29$, $p < 0.001$), with increasing preparation time cited most frequently (58%).

Student perceptions of affective and cognitive domain improvements were strongly positive (Table III). Across all items including knowledge gained, retention, interpersonal skill development, and tolerance for challenges distributions were statistically significant (χ^2 ranging from 45.4 to 57.2, $p < 0.001$), highlighting the effectiveness of Fishbowl in fostering active engagement, knowledge retention, and communication skills.

Faculty Feedback on Fishbowl method of Teaching-learning

Faculty perceptions regarding the Fishbowl method are summarized in Tables IV and V. Regarding benefits, most faculty reported active engagement (50%), improved communication skills (38%), and promotion of critical thinking (12%). These distributions were not statistically significant ($\chi^2 = 3.11$, $p = 0.21$). Challenges encountered during implementation were significant, particularly the lack of classroom space ($\chi^2 = 10.60$, $p < 0.01$). Faculty recommendations to improve the Fishbowl process were significant, with 88% suggesting preparatory work for students ($\chi^2 = 9.00$, $p = 0.003$).

Faculty perception regarding time management, adequacy of classroom and space, availability of support staff, and enhancement of teamwork, global competence, and interpersonal skills demonstrated statistically significant distributions (all $p < 0.05$) (Table V). Most faculty agreed that Fishbowl enhanced student engagement, learning retention, and collaborative skills, although logistical challenges were noted.

Overall, the quantitative and qualitative data indicate that the Fishbowl method significantly improves both affective and cognitive domains among BPT students compared to traditional didactic teaching. Student and faculty feedback supports its use as an interactive, student-centered approach that enhances understanding, communication, confidence, and teamwork, despite requiring careful management of time, space, and participation.

TABLE I. Pre-test and Post-test Scores for Affective and Cognitive Domains (n = 100)

Domain	Group	Pre-Test Mean ± SD	Post-Test Mean ± SD	p-value (Paired t-test)	Between-Group p-value (Independent t-test)
Affective + Cognitive	Didactic (Control, n=50)	12.00 ± 5.11	19.12 ± 4.95	0.001	—
	Fishbowl (Study, n=50)	11.00 ± 4.82	23.56 ± 4.72	0.001	0.01

Legend: Paired t-test used for within-group comparisons; independent t-test used for between-group comparisons.

TABLE II. Student Feedback on the Fishbowl Method (n = 50)

Category	Response	Number of Students	Percentage (%)	χ^2	p-value
	Improved understanding & communication skills	15	39	23.03	<0.001

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Perceived Benefits	Better interaction opportunities	11	28		
	Boosts confidence	6	15		
	Think critically & respond quickly	4	10		
	Varied perspectives on one topic	2	5		
	Active participation in learning process	1	3		
Reasons for Disapproval	Dislike group studies	7	63	5.11	0.078
	Lack of confidence in sharing opinions	3	28		
	Overshadowed by vocal peers	1	9		
Suggestions for Improvement	Increasing preparation time	29	58	17.29	<0.001
	Mixing groups to work with different peers	16	32		
	Training students with limited communication skills	5	10		

Legend: χ^2 and p-values were calculated using the Chi-square test to assess the distribution of responses in each category. Percentages may not sum to 100 due to rounding.

Table III. Student Perception of Affective and Cognitive Domain Improvement Using Fishbowl Method of Teaching-Learning (n = 50)

Question	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	χ^2	p-value
I learned a lot through the Fishbowl method	10%	58%	24%	8%	0	45.40	<0.001
I remember much of what I learned	14%	66%	12%	8%	0	51.36	<0.001
Fishbowl helps improve my knowledge regarding the course	54%	36%	6%	4%	0	57.20	<0.001
Fishbowl improves interpersonal skills (communication, leadership, accountability)	26%	62%	8%	4%	0	49.92	<0.001
I have high tolerance for challenge due to Fishbowl method	10%	38%	50%	2%	0	45.80	<0.001

Legend: χ^2 and p-values were calculated using the Chi-square test to assess the distribution of responses for each question. Percentages may not sum to 100 due to rounding.

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TABLE IV. Faculty Feedback on Benefits, Challenges, and Enhancements (n = 16)

Category	Response	Number of Faculty	Percentage (%)	χ^2	p-value
Perceived Benefits	Active engagement of students	8	50	3.11	0.21
	Improves communication skills	6	38		
	Promotes critical thinking & real-world application	2	12		
Reasons for Disapproval	Time-consuming	2	50	0.00	1.00
	Demands significant preparation	2	50		
Challenges Faced	Lack of classroom space	11	69	10.60	0.005
	Not all topics suitable for Fishbowl	3	19		
	Difficulty providing individual feedback	2	12		
Suggestions for Improvement	Encourage preparatory work to enhance discussion quality	14	88	9.00	0.003
	Use of technology to enhance discussions (e.g., video recordings)	2	12		

Legend: χ^2 and p-values were calculated using the Chi-square test to assess distribution of responses in each category. Percentages may not sum to 100 due to rounding.

Table V. Faculty Perception Regarding Use of Fishbowl Method of Teaching-Learning (n = 16)

Question	Yes	No	Not Sure	Percentage Yes (%)	Percentage No (%)	Percentage Not Sure (%)	χ^2	p-value
Time management is adequate	2	13	1	12	82	6	10.13	0.006
Initial preparation is required	14	1	1	88	6	6	14.50	<0.001
Adequate number of classrooms are available	0	15	1	0	94	6	14.50	<0.001
Is adequate space available	0	15	1	0	94	6	14.50	<0.001
Use of AV aids is required	0	15	1	0	94	6	14.50	<0.001

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Availability of adequate faculty/support staff	4	11	1	25	69	6	6.00	0.05
Fishbowl increases student interest	10	6	—	63	37	—	3.13	0.077
Fishbowl improves knowledge retention	11	5	—	69	31	—	4.50	0.034
Fishbowl enhances transfer of concepts	8	7	1	50	44	6	1.88	0.391
Fishbowl enhances self-directed learning	11	5	—	69	31	—	4.50	0.034
Fishbowl improves interpersonal skills	12	4	—	75	25	—	5.33	0.021
Fishbowl improves teamwork ability	14	2	—	88	12	—	14.50	<0.001
Fishbowl helps make students globally competent	15	1	—	94	6	—	14.50	<0.001

Legend: χ^2 and p-values were calculated using the Chi-square test to assess distribution of faculty responses for each item. Percentages may not sum to 100 due to rounding. "—" indicates a category not applicable

4. Discussion

The present study aimed to evaluate the effect of Fishbowl vs. Didactic Methods of Teaching-learning on Affective and Cognitive Domains of Physiotherapy Students.

This study demonstrated that the Fishbowl method significantly improved both cognitive and affective learning outcomes compared to traditional didactic method in teaching the course of Medical Ethics, Human Rights, and Professional Values to BPT students. Student feedback reported that the Fishbowl method enhanced understanding, communication, knowledge retention, and interpersonal skills, while suggesting more preparation time. Faculty observed increased engagement, collaborative skills, and critical thinking, though they noted logistical challenges such as space and time management. Overall, both students and faculty viewed Fishbowl as an effective, student-centered learning approach.

Findings from the present study align with results from a recent quasi-experimental study by Santos Cerqueira, Gilberto, et al. evaluating the open Fishbowl method for teaching endocrine system anatomy to undergraduate medical students reported Fishbowl to be significantly more effective than traditional Teaching-learning methods.[6] Students in the Fishbowl group achieved higher test scores and demonstrated greater classroom interaction and engagement. The method promoted active participation, dialogue, and student-centered learning, supporting its use as an effective active teaching strategy in anatomy education. [6] Another comparative study conducted among clinical-phase medical students found that virtual Fishbowl teaching resulted in significantly higher quiz scores compared to virtual seminars. [7] Students in the Fishbowl group also reported greater active involvement and engagement in learning. [7] Another study among final-year undergraduate dental students demonstrated that a combined Fishbowl snowball teaching approach significantly improved activity participation and formal thinking scores compared to routine virtual lectures. [8] The study reported integrating active learning strategies enhanced student engagement and conceptual

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understanding more effectively than traditional teaching methods among undergraduate dental students. [8] A quasi-experimental crossover study among undergraduate medical students found that combining lectures with the Fishbowl technique significantly improved post-test scores compared to lectures alone. Students reported greater interest, active participation, satisfaction, and improved retention of key concepts.[9] The results of a study by Burhan, Bilal Ali Burhan, et al demonstrate that the Fishbowl technique significantly enhanced both classroom engagement and self-regulated learning among intermediate Iraqi EFL learners.[10] The significant improvements in post-test scores on the engagement and MSLQ measures indicate that structured, discussion-based instruction can promote active participation and deeper cognitive involvement.[10] The findings support the pedagogical value of incorporating learner-centered discussion strategies to strengthen both engagement and self-regulated learning in EFL classrooms.[10]

The findings of the present study, together with evidence from previous research, consistently support the effectiveness of the Fishbowl method as a learner-centered instructional strategy across diverse educational contexts. The significant improvements observed in both cognitive and affective domains among physiotherapy students highlight its potential to enhance not only knowledge acquisition but also professional values, communication, and critical thinking skills. Despite minor logistical challenges, the overall positive perceptions of both students and faculty reinforce the value of integrating structured, interactive learning approaches such as the Fishbowl method into health professions education to foster deeper understanding, active engagement, and holistic student development.

5. Conclusion

The Fishbowl teaching-learning method significantly improved affective and cognitive learning outcomes among Bachelor of Physiotherapy students. Students and faculty reported enhanced communication, confidence, interaction, and engagement. Despite challenges related to time, participation equity, and student comfort levels, the Fishbowl method demonstrates strong potential as an effective complement to traditional instructional strategies in health professions education.

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