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EFFECTIVENESS OF DEMONSTRATION AND LECTURE TEACHING METHODS ON NURSING STUDENT'S LEARNING: A COMPARATIVE ANALYSIS

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Abstract

Background: *The level of education has increased overtime with improved method of teaching in most institutions. Over the years, there have been an increased rate of poor performance among adult learners due to inexperienced instructors and the unavailability of instructional materials to demonstrate before the learners while teaching subject.*

Methodology: *A comparative cross-sectional study conducted to achieve the study objectives. This research design was suitable because it allowed for a comparison between two different teaching methods which are lecture teaching and demonstration teaching commonly used in nursing educational Institutes.*

Results: *Results present a comparison of student performance based on two different teaching methods: The Lecture Method and the Demonstration Method, with an equal number of participants (n = 25) in each group. Students taught through the Lecture Method obtained a total of 962 marks out of 1500, which corresponds to a mean performance of 64%. In contrast, students taught using the Demonstration Method achieved a total of 1008 marks out of 1500, representing a higher average performance of 67%.*

Conclusion: *In conclusion, the study demonstrated that the Demonstration Method of teaching is significantly more effective than the traditional Lecture Method in improving students' academic performance. With a balanced gender representation and a predominantly younger age group, the findings suggest that interactive, student-centered approaches lead to better learning outcomes.*

INTRODUCTION

The level of education has increased overtime with improved method of teaching in most institutions today in Nigeria. Over the years, there have been an increased rate of poor performance among adult learners due to inexperienced instructors and the unavailability of instructional materials to demonstrate before the learners while teaching subject like Biology. This effect is mostly noticed in most of secondary schools; maybe due to lack

of infrastructural development and finances to run the activities of the institutions.[1] As knowledge regarding human development and learning has grown at a rapid pace, the opportunity to shape more effective educational practices has also increased. Taking advantage of these advances, however, requires integrating insights across multiple fields—from the biological and neurosciences to psychology, sociology, developmental and learning sciences— and connecting them to knowledge of successful approaches that is emerging in education. This article seeks to contribute to this process by drawing out the implications for school and classroom practices of an emerging consensus about the science of learning and development (SoLD), outlined in a recent synthesis of the research (Cantor, Osher, Berg, Steyer, & Rose, 2018; Osher, Cantor, Berg, Steyer, & Rose, 2018). Using these articles as a foundation, we synthesize evidence from the learning sciences and several branches of educational research about well-vetted strategies that support the kinds of relationships and learning opportunities needed to promote children's well-being, healthy development, and transferable learning. In addition, we review research regarding practices that can help educators respond to individual variability, address adversity, and support resilience, such that schools can enable all children to learn and to find positive pathways to adulthood.[2] The current generation of students has prompted a significant transformation in instructional methods, moving away from passive lecture-based teaching toward more dynamic, interactive learning experiences. As Generation Z students enter higher education, their preference for technology integration, collaborative activities, and real-world application has reshaped classroom expectations. Research increasingly supports innovative strategies such as problem-based learning, gasification, and digital engagement tools, emphasizing the need for educators to adopt flexible and student-centered approaches to foster deeper learning and sustained academic interest.[3] The demonstration method is a teaching strategy that involves presenting lessons by actively showing students a particular process, situation, or object, often accompanied by oral explanations. This approach enhances students' understanding by providing concrete examples and engaging multiple senses during the learning process. Recent studies have highlighted the effectiveness of the demonstration method in improving students' academic performance across various disciplines. For instance, a study conducted by Prananda et al.[4] The demonstration is that which trains student in the art of careful observation, which is essential for a good nurse. The demonstration method in itself is learning through observation. Through demonstration method the student not only can hear the explanation but also can see the procedure or process. The demonstration method projects a mental image in the student's mind. The demonstration method has universal appeal, because it is understandable to all and also adoptabletobothindividualandgroupteaching.[5] The demonstration teaching strategy involves visually presenting actions, activities, or practical work related to the facts and principles of a lesson. This method enhances the teaching and learning process by providing concrete examples that help students grasp complex concepts. By showcasing real objects, instruments, phenomena, actions, and events pertinent to the subject matter, demonstrations offer a visual explanation of facts, concepts, and procedures. Learners are expected to replicate the demonstrated behavior to master the skill. Recent studies have highlighted the effectiveness of the demonstration method in improving students' understanding and engagement. For instance, a study by Ozuho et al. (2021) found that using the demonstration method in physics classes significantly enhanced students' concept comprehension and learning activities. Similarly, research by Hussain (2020) demonstrated that the demonstration method effectively aids in teaching abstract concepts to children aged six to ten, leading to improved learning outcomes.[6] The demonstration method is a widely recognized instructional strategy where teachers illustrate concepts, processes, or the use of tools and equipment in a tangible and practical way. This approach allows students to observe real-world applications, enhancing their understanding through direct engagement. Unlike the lecture method, which tends to be one-sided, the demonstration method promotes student participation by combining observation with verbal explanation. Students become active learners as they visually experience the apparatus and processes being taught, which helps sustain their attention and foster deeper comprehension.[7] One of the common methods that have a special place in the training programs is lecture. Lecture is a simple, fast and cheap method to present the vast issues to a lot of groups of learners. Inactiveness of the students, tiring long lectures, one-way communication, and fast forgetting of the issues are the disadvantages of this method. According to

studies, in lecture method about 80% of presented trainings are forgotten within 8 weeks.[4] Due to the limitations of the lecture method, many experts emphasize completion of traditional teaching methods and use of blended teaching methods. The blended education is actually a combination of two or more methods that use other teaching methods such as multimedia courses, seminars and e-learning, in addition to the presence classes. Recent studies suggest that a combination of face-to-face training with e-learning education method is more flexible than other methods.[8] Inter teaching is an approach to classroom instruction that has its roots in behavior analysis. A typical inters teaching session proceeds as follows. Before each class, the instructor distributes a preparation (prep) guide that contains questions designed to lead students through a reading assignment. Students answer the questions before class and prepare to discuss their answers with another student.[9] Each class session begins with a brief lecture in which the instructor dedicates approximately one-third of the period to reviewing challenging content from the previous lesson, based on areas where students demonstrated difficulty. Following this review, students form pairs and engage in structured peer discussions centered on their completed preparatory guides. During this collaborative phase, the instructor circulates through the classroom, providing clarification and answering questions in real time. Upon concluding their discussions, students submit a feedback sheet that includes any questions or concepts they would like further explained. This student-generated input informs the instructor's planning of a focused, clarifying lecture to begin the subsequent class session. To incentivize active engagement, students are awarded points for participation and additional "quality" points if both they and their discussion partners perform well on assessments.[10] The benefits of demonstration as a teaching method are a better learning experience in the classroom for students. It generates interest of students in the subject and helps in developing the spirit of inquiry. Students cooperating in the teaching-learning process and the process of learning becoming permanent in the student's life. Demonstration teaching method strategies are helpful to restore and memorize knowledge effectively.[5] By this method student will be encouraged to achieve more knowledge than lecture method of teaching. This method of teaching will make students more active than lecture teaching method. Students become familiar with various scientific instruments and methods of experimentation. This method allows the Teacher to establish a good rapport with the students. Students feel motivated and inspired. The demonstration method helps build working models for future use. Teachers do not have to indulge in lengthy lectures, which sometimes bore students.[5] The primary objective of this research is to examine whether the use of demonstration and lecture methods, alongside multimedia and other technological advancements in education, leads to improved learning outcomes in terms of cognitive knowledge acquisition and psychomotor skill development. Additionally, the study seeks to explore student nurses' attitudes toward multimedia as a teaching approach. Understanding students' perceptions of various learning experiences is crucial for designing more effective classes and optimizing the use of teaching tools, as attitudes significantly influence learning outcomes. This research holds value for nursing education administrators, faculty, and student nurses by providing insight into the educational benefits of integrating advanced technologies into nursing curricula. It aims to inform decisions regarding the adoption of multimedia tools, which often require substantial financial investment, while highlighting their impact on both theoretical knowledge and practical skill acquisition. Recent studies support the integration of these technologies in nursing education. For instance, Alqahtani et al. (2021) found that incorporating multimedia-based instruction in nursing programs improved students' cognitive performance and practical competencies compared to traditional teaching methods. Similarly, a study by Lee and Kim (2022) revealed that the use of video-assisted demonstrations enhanced psychomotor skill learning and increased student engagement in clinical practice courses. Moreover, research by Nguyen and Pham (2023) examined nursing students' attitudes toward digital learning tools, indicating a generally positive perception of multimedia-supported instruction due to its flexibility and ability to enhance understanding of complex concepts.[11,12] In recent years, the landscape of nursing education has undergone significant transformations due to shifts in healthcare delivery models. With the reduction in hospital stays and an increased emphasis on primary care and home-based services, nursing programs face challenges in securing sufficient clinical placements within acute and long-term care settings. Consequently,

nursing students encounter fewer direct patient care experiences in traditional hospital environments.[13] The increasing complexity of clinical environments has underscored the need to develop innovative educational strategies that simulate real-world patient care scenarios within the classroom. To address this, nursing educators are integrating technology-enhanced learning tools that offer students immersive and interactive experiences. Among these, multimedia-based learning has emerged as a powerful method, enabling students to engage with realistic audiovisual simulations that enhance clinical reasoning and decision-making, often more effectively than traditional lectures and demonstration.[14] Nurse educators are often overwhelmed with educating students who have different learning styles from those of previous generations of students. Educators often employ a variety of pedagogical approaches to encompass the diverse ways students learn in efforts to promote student engagement and academic achievement.[15] In efforts to promote student engagement, Hung suggests students have to be socially active to construct knowledge in the educational environment. Social constructivism theory, which was the foundation for this study is applicable to nursing education and new students.[16] The social nature of collaborative learning occurs when students have the opportunity to utilize other students' interdependent thoughts, dialogue, deliberation, and differing perspectives to reach socially constructed knowledge. However, there remains a lack of nursing research utilizing this theoretical framework.[17] Many of our standard methods of teaching have been shown to be comparatively unproductive in the students' ability to master and then retain vital concepts. The traditional methods of teaching (lecture, recitation, and laboratory) do not tend to foster collaborative problem-solving, critical thinking and creative thinking.18 It is evident from the above discussion that demonstration based Teaching Strategy has the significant impact on students' achievement. Demonstrations provide the multisensory approach to teaching through practical hands-on learning using working models. It is also evident that this Teaching Strategy can be successfully implemented at the university level with moderate initial investments in time and money and a commitment to effective teaching. The outcome of Demonstration based Teaching Strategy with significant success in nursing education is widely reported by the researches cited.[19] It is also evident that a large body of education literature reveals positive impact of Teacher Effect on student achievement. However, most studies are limited to elementary schools, used less precise methods and do not use proper regression techniques.[20] The emergence of interactive video (IAV) and multimedia as teaching methodologies in nursing curricula has been apparent in recent years as nursing faculty strive to teach a wealth of nursing theory. Interactive video is defined as a program that is designed in segments, in which the user's responses to items influence the pathway of the program thus creating a learner-driven experience multimedia involves the interfacing of several pieces of equipment including a computer, laserdisc, videocassette recorder and tape player. Presentations can be carefully designed with computer graphics, motion video and their visual elements to create programs that are tailored to the needs of individual classes. Such programs are teacher-driven.[21,22]

As Weiner et al (1993) point out, today's nursing students are offered "...a plethora of information and our job as nurse educators is to help them organize and differentiate this information to provide quality nursing care". They further state that any methodology, which fosters attainment of such a goal, should be considered important. IAV and multimedia provides students with realistic patient situations via video clip scenarios and use of branching computer programs. Such technology might serve to stimulate skills useful in clinical practice and, therefore, help to educate professional nurses who are capable of meeting their clients' needs on all levels.[11] Employers complain that today's college graduates are severely lacking in basic skills particularly communication, problem solving, the ability to prioritize tasks and decision- making.[23] A high dropout rate is a current problem in the Nursing schools. The institutions have to raise the student success ratio and have to reduce the numbers of dropouts. It is reported that the Universities around the world are investing major efforts to: (a) identify the challenges faced by nursing education programs, and (b) make changes to achieve what is generally termed as "Excellence in Nursing Education". The poor performance of students in nursing education may be attributed to poor teaching strategies and skills. These problems have led to desperate search for appropriate teaching strategies that would best be used to realize the aims of Nursing teaching, thereby improving learning and skills acquisition.[24-26] Lecture strategy contains a verbal presentation of ideas, facts, concepts

and generalizations. The practice of this method is that of spoon-feeding the learners with facts or information. The students remain passive and obtain information from their teacher.[27]

Objectives

1. The purpose of this study was to identify the effectiveness of the demonstration teaching method and the lecture teaching method.
2. To observe whether the students get the best results in the examinations by using which method.

Methodology

A comparative cross-sectional study conducted to achieve the study objectives. This research design was suitable because it allowed for a comparison between two different teaching methods which are lecture teaching and demonstration teaching commonly used in nursing educational Institutes. Second year nursing students of Sir CJ Institute of Psychiatry College of Nursing Hyderabad participated in the study. The study duration was 03 Months from April 2025 to July 2025. Sample size was calculated as 50 students from second year generic BSN from the population of 57. In this research study non-random convenient sampling applied. 25 students were given lecture method and 25 were given demonstration method on same topic delivered in class and a predesigned questionnaire based on objective based questions related to that topic were asked to both groups. Data was analyzed through SPSS and mean scores of both groups were compared to assess effectiveness of teaching and demonstration method.

Ethical considerations

- The study conducted after permission from head of Nursing institute and PNS-LUMHS Jamshoro
- Consent taken from all participants.
- Confidentiality of all record was maintained.
- Research process has not affected the participants.

Data was used only for the purpose of research project only.

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RESULTS

Table No.01 GENDER

GENDER DISTRIBUTION	Frequency (n=50)	Percentage (%)
Male	23	46%
Female	27	54%
Total	**50**	**100%**

The gender distribution of the study participants is presented in the table above. Out of a total of 50 respondents, 23 (46%) were male and 27 (54%) were female. This indicates a slightly higher representation of female participants compared to male participants in the sample.

Table No.02 AGE

Age category	Frequency (n)	Percentage (%)	Mean	±SD
16-20 years	41	82%	**19.2**	**0.7**
21-25	9	18%		
Total	50	100%		

Table No. 02 presents the age distribution of the study participants. The majority of respondents (n = 41; 82%) were in the 16–20 years age category, with a mean age of 19.2 years and a standard deviation (SD) of 0.7, indicating a relatively homogeneous age group. The remaining 9 participants (18%) fell within the 21–25 years age category. This distribution suggests that the sample is predominantly composed of younger individuals, particularly late adolescents or early adults.

Table No. 03: Marks obtained by students through teaching and demonstration methods

LECTURE METHOD n = 25		DEMONSTRATION METHOD n = 25	
Marks Obtained	Total	Marks Obtained	Total
962 (64%)	1500	1008 (67%)	1500

Table No. 03 presents a comparison of student performance based on two different teaching methods: The Lecture Method and the Demonstration Method, with an equal number of participants (n = 25) in each group. Students taught through the Lecture Method obtained a total of 962 marks out of 1500, which corresponds to a mean performance of 64%. In contrast, students taught using the Demonstration Method achieved a total of 1008 marks out of 1500, representing a higher average performance of 67%. These findings suggest that the Demonstration Method may be more effective in enhancing student learning outcomes compared to the traditional Lecture Method. The difference in percentage points, although modest, highlights the potential benefit of incorporating interactive or practical elements into instructional strategies.

Table No. 04: Mean difference of scores using independent t test

Teaching Methodology	N	Mean
Lecture method	25	35.52
Demonstration method	25	40.32
t-value	-3.2	
p-value	0.002	

Table No. 04 shows the comparison of student performance based on teaching methodology using an independent samples t-test. The group taught using the Lecture Method (n = 25) had a mean score of 35.52, while the group taught using the Demonstration Method (n = 25) achieved a higher mean score of 40.32. The t-value was -3.2, and the associated p-value was 0.002, which is statistically significant at the $p < 0.05$ level. This indicates that there is a significant difference in mean scores between the two teaching methods. The results suggest that the Demonstration Method was significantly more effective in improving students' academic performance compared to the Lecture Method.

Discussion

Present study showed that Out of a total of 50 respondents, 23 (46%) were male and 27 (54%) were female. This indicates a slightly higher representation of female participants compared to male participants in the sample. Some studies indicated significant role of gender in differentiating creative potential and critical thinking skills, while other did not support hypothesis about significance of gender.[28]

Regarding age, a significant majority of the participants (82%) were in the 16–20 years age range, with a mean age of 19.2 years and a standard deviation of 0.7, suggesting a fairly homogeneous age group. The remaining 18% were in the 21–25 years category. This concentration in a younger age group may reflect a developmental stage where students are more responsive to interactive and practical learning approaches, such as the Demonstration Method. The studies known to us regarding the age-related findings of university educators present a mixed picture concerning the technological acceptance and competence of higher education instructors. Several studies suggested that younger educators are more open to technology and exhibit greater competence. Zhang and Villanueva noted that 21–30-year-old teachers demonstrated higher digital competence. Similarly, Berber et al. reported outstanding competence among 21–27-year-olds, and Mah and Groß identified age-related differences in the positive perception of AI, with those under 30 rating it lower compared to older groups. In contrast,

several studies found no significant correlation between age and technological attitudes or literacy.[29]
In current study Table No. 03 compared the marks obtained by students taught through the Lecture Method and the Demonstration Method. Students in the **Lecture Method group scored 962 out of 1500 (64%),** whereas those in the **Demonstration Method group scored 1008 out of 1500 (67%).** While the difference of 3 percentage points appears modest, it suggests that the Demonstration Method has a potential edge in enhancing comprehension and retention among students. Currently, many educators focus on achieving curriculum targets, prioritizing memorization over understanding. Students are not trained to discover knowledge or find concepts independently, resulting in a quick loss of the taught material. This is evident in classrooms dominated by teacher-led activities, leading to low student engagement and poor learning outcomes. This issue is also present in the Gebog sub-district, where science learning remains teacher-centered, relying lecture and discussion methods, causing students to be passive. This approach emphasizes curriculum demands and textual delivery over developing learning abilities and individual growth. Such conditions hinder the expected development of student abilities and activities, leading to unsatisfactory learning outcomes. Students often feel bored and disinterested due to a lack of creative teaching methods, one-way communication, and insufficient interaction between teachers and students.[30] The demonstration method is a teaching strategy where instructors actively show students how to perform a task or understand a concept, which students observe with the intention to replicate. This method is particularly effective in teaching subjects that require practical skills and visual understanding, such as science and agricultural studies.[31]

Conclusion

In conclusion, the study demonstrated that the Demonstration Method of teaching is significantly more effective than the traditional Lecture Method in improving students' academic performance. With a balanced gender representation and a predominantly younger age group, the findings suggest that interactive, student-centered approaches lead to better learning outcomes. Statistical analysis confirmed a significant difference in mean scores between the two methods, highlighting the value of practical and engaging instructional techniques. These results underscore the need for educators to adopt more dynamic teaching strategies that actively involve students in the learning process to enhance educational effectiveness.

Recommendations

- Institutions should incorporate demonstration-based teaching, particularly in skill-based subjects, to enhance student understanding and engagement.
- Educators should adopt a blended teaching strategy that combines lecture with demonstration or interactive techniques to cater to different learning styles.
- Faculty development programs should focus on training instructors in interactive and student-centered teaching approaches to move away from passive lecture-based instruction.
- Teaching strategies should promote student interaction, critical thinking, and hands-on practice, especially in practical subjects like nursing.
- Future studies with larger and more diverse samples should be conducted to validate and expand upon these findings, including variables such as gender, age, and prior knowledge.

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