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Results Of Research-Based Approach Applied To Training

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Abstract:
Research-based learning is the most effective learning model that allows teachers and students from educational institutions at all levels to develop and practice their thinking skills at a deep level through scientific research, and to apply knowledge. The purpose of the study was to examine the impact of research-based instruction on students' academic achievement. This is a study conducted in February and June 2024 on students of the Nursing class of the Darkhan-Mountain Regional School of Medicine. A total of 110 students aged 20-23 (57 experimental groups + 53 controls) participated. One of the most important elements of our research is to develop students' research skills through training. Progress in research capacity was evaluated in the study steps, and the sum of the assessments obtained at each step was reduced to the A, B, C, D, and F scales (A=90-100; B = 80-89; C 70-79; D = 60-69 and less than 60 considered F which is failure.
Keywords: *research-based methodology, training, research, students, research based learning*

INTRODUCTION

Research-based teaching methods are one of the most innovative trends in education and instruction and have evolved as a response and form of traditional forms of instruction during the discoveries and changes that took place in the science of education in the 1960s. [1] Based on the research, students identify the main problems and questions of the research in order to find knowledge and solutions. This is at odds with traditional educational methods, and traditional instruction generally relies on a teacher who has knowledge of the subject and the facts he or she presents. For this reason, research-based training is often conducted with the help of a teacher. [2] In principle, research-based instruction is closely related to the development of thinking skills, experience, and problem-solving skills. [3] Skills that students will acquire in research-based learning include:

- have a strong understanding of basic thinking and strategy.
- solving problems creatively, logically, and systematically and
- an evidence-based, honest, and open-minded approach. [4]

In other words, students are required to have the skills to communicate, collaborate, be competitive, and be able to adapt and analyze to technological advances. To clarify the above explanation, research-based learning is a model of learning in which the learner creates knowledge by making assumptions, gathering information, drawing conclusions, and reporting as they learn. Research-based learning is conducted within the framework of constructive learning theory, which builds on students' prior knowledge and experience and develops students' understanding of the process of social interaction. [5]

Constructivism holds that knowledge is created as a result of an individual's interaction with the environment. Therefore, learning is, on the one hand, a process in which the learner actively formulates and constructs new ideas and new concepts based on their current and past knowledge. This means that as a result of learning, a person's personal knowledge and personal experience is drawn into the creation of a person's personal knowledge, i.e., that knowledge enters the application cycle. Research-based learning is a learning system that uses real-world learning, problem-solving, collaborative learning, continuous learning, and discovery, based on the above basic principles of constructive theory. [6] [7] [8] [9] [10] For example, this model allows students to gain knowledge through research, such as searching for information, making assumptions, gathering data, analyzing, drawing conclusions, and writing reports. [11] Research-based learning is a model that combines research with learning. It is considered a hall study in the sense that it is aimed at improving the quality of educational practice and improves the skills of teachers by applying a combination of theory and practice to educational institutions. Students are taught to be proactive in a scientific way. [12] [13] [14] In a research-based learning approach, there is

no perception that the results are right or wrong. Students evaluate the strengths and weaknesses of their own results. [15] Students feel that they have a responsibility to solve problems when they are making an effort to find a solution and when they take action. [16] By adopting a research-based approach, students will be able to develop their creativity. Interesting discussions also take place and students have the opportunity to gain knowledge in the field of model research. [17] During the research-based training, students not only get information from lectures, but also have the opportunity to participate in research and report on issues. A feature of research-based learning is that learning is more reflective of the constructive flow of learning, which is an active learning process for the creation of knowledge. Constructivist instruction will help you develop the ability to think through problem-based teaching methods and tools. There are a variety of research-based interpretations of learning and teaching, as well as different levels of research that may be available within the scope of this topic. [18] [19]In research-based learning, the process of learning in which people participate involves certain stages. [20] [21]Mongolian scientist Ch. Avdai defined the next steps of the research by considering that research is a purposeful activity that can be used to identify new patterns of change and change of the object under study depending on various factors and that this pattern can be applied in life and practice in the future [22]. These include:

- To select the topic of research and analysis and to set goals.
- Examine the current state of what you are trying to study and make an appropriate assessment.
- Defining the purpose of the research work
- Development of research methods
- Conduct research
- Develop and analyze research results
- Making recommendations and conclusions based on the results of the research

In our study, we applied the steps developed by Ch. Avdai. According to the study, students are motivated to improve collaboration based on the knowledge they have gained in the course of their research.Therefore, research-based design is important for developing cognitive skills. This model allows students to learn not only from lecture material provided by the instructor, but also through research practices related to research, such as making assumptions, gathering data, analyzing, testing, and drawing conclusions from data.

2) Methods and Methodology:

a) Participants and setting

The study enrolled 110 male and female students pursuing a bachelor's degree in nursing at the Darkhan-Mountain Regional Medical School.

b) Study design

A trial-based approach to the study-based training was conducted in February and June 2024. Observational methods, quantitative and qualitative research methods were used in the design of the study.

c) Sampling process

There were 57 students in the experimental group and 53 in the control group. A research-based approach was applied to the students in the experimental group. The students in the control group were taught in the traditional way. Initially, all students received 16 hours of lectures. Then, based on the theoretical knowledge of the lecture, he was given instructions on the methods and steps to conduct research by choosing a specific topic in the practical course. The students studied the results by conducting measurements, developing research on their own, and discussing the results in seminar classes. The following methods were used to assess the level of research competence. These include:

- Be empathetic.
- Be able to participate**.**
- Ability to explain.
- Ability to apply it in practice
- Ability to take initiative and lead
- 2.4 Statistical analysis

The collected data was entered and analyzed by using SPSS version 21.0 statistical software. A comparative study was conducted using a combination of the students' progress and intervention assessments. Descriptive statistics of continuous variables were expressed as Mean ±Standard Deviation (±SD), P-value ≤ 0.05 was considered as statistically significant.

d) Ethical consideration and confidentiality Prior to the study, informed verbal consent was obtained from each individual student. In regard to confidentiality, the participants were informed that the obtained information will not be made available for anyone who is not involved in the study and it will remain confidential for the purposes that intended for.

110 participants were included in the current study. Ages of these participants were ranging from 20 to 23 years old.

Table 1.

Before experiments

Group	n	$\bar{x}$	SD	df	t	p
Controls	53	1.7	0.91	38	**0.28**	**0.78**
Experimental	57	1.8	1.09			

As shown in table 1, there is no statistically significant difference between the means of the two groups (P-value = 0.78) regarding their pre-test outcome

Table 2.

Positive Attitudes in Students' Learning Patterns During the Experiment

Statements	1-5 point
Improved reading skills	4.8
Improved interoperability	4.5
Improving Your Speaking Skills	4
Increased Analytical Capacity	4.1
Increased Ability to Write Reports	4.7
Taking things more seriously	4.2

Table 2 shows the Lykert 5-point rating of positive attitudes in student learning and the average score of the total students.

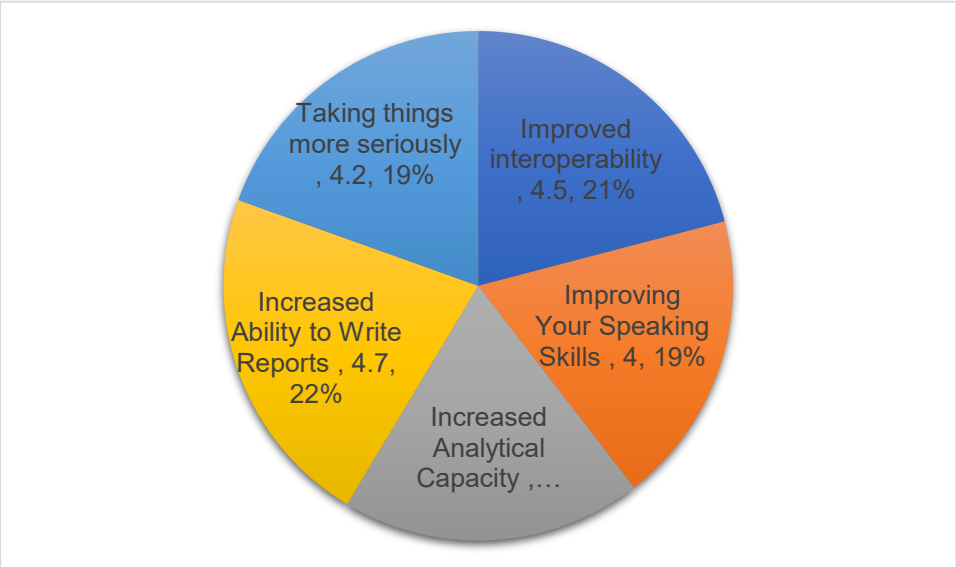

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Table 3.
Results of the Student Progress Exam

Group	n	$\bar{x}$	SD	df	t	p
Controls	53	3.18	1.35	38	**2.68**	**.01**
Experimental	57	3.91	1.29			

Table 3 shows the results of the average scores obtained in the test group tests. It's statistically significantly higher than the control group. (t=2.68; df = 38 and P-value = 0.001). This means that research-based approaches are impacting student academic achievement.

The research proficiency of the students in the experimental and control groups was evaluated on a per-student basis, and the average scores received by the students in the two groups were assessed. As shown in Figure 1:

Figure 1.
Average Grade Scores of Students in Both Groups

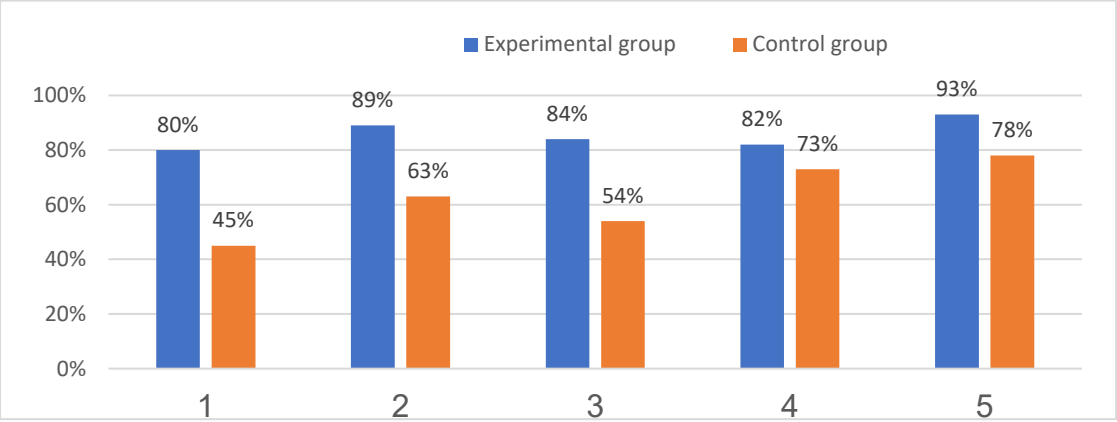

Figure 1 shows a markedly improved student research proficiency (80%-93%) in the experimental group.

Table 4.
Final Student Exam Results

Group	n	$\bar{x}$	SD	df	t	p
Controls	53	.6	2.15	38	**4.13**	**.000**
Experimental	57	8.6	2.63			

Table 4 shows the results of the average score of the experimental group in the final test. It's statistically better than the control group. (t=4.13; df = 38 and P-value = 0.000).

RESULTS

Analysis of course results and final result data. According to the results of the study, the group (experiments) that used the research-based approach were statistically significantly higher than the control group. (controls) (t=2.68) (df=38) (P value=0.001) There was also an improvement in the research capacity of the Test group.

DISCUSSION

The study was conducted on students in the Nursing Department of the School of Medicine of the Darkhan-Mountain Region and was tested in the training using a research-based approach. Students who took the research-based approach learned more effectively than those who took the traditional method.

The workshop is a collaborative creative activity of teachers and students with the goal of meeting the needs of the community and the individual. The training method is based on the concept that it serves a specific purpose [23] [24].

Based on social and human development and information, the foundation of 21st-century learning is the study of scientific phenomena and processes, and the goal is to achieve the results of good decision-making and rational living [25].

5) Conclusion

Research-based learning has theoretical significance in that it defines the scientific basis for applying it to educational activities. Furthermore, the study provides knowledge and guidelines to policymakers, planners, students, and teachers as well as for researchers.

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