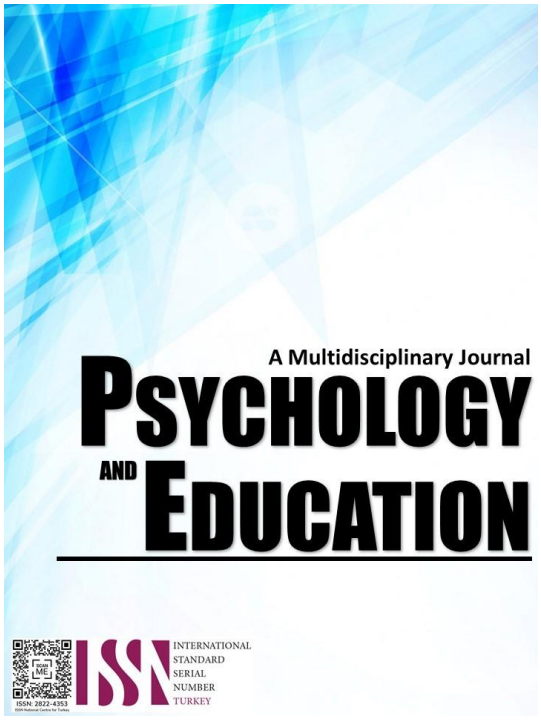
HEURISTIC APPROACH TO NURSING STUDENTS' ACHIEVEMENT TEST SCORES



PSYCHOLOGY AND EDUCATION: A MULTIDISCIPLINARY JOURNAL

2023
Volume: 6
Pages: 1048-1051
Document ID: 2022PEMJ509
DOI: 10.5281/zenodo.7576419
Manuscript Accepted: 2023-23-1

Psych Educ,2023, **6**: 1048-1051, Document ID: PEMJ509, doi:10.5281/zenodo.7576419, ISSN 2822-4353
Research Article

Heuristic Approach to Nursing Students' Achievement Test Scores

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Abstract

The study compared various approaches to the teaching of science. The evaluation of performance incorporates teaching and learning concepts. A random selection yielded 82 students of comparable academic standing. Both the pre-test and post-test groups were given instruction that was activity-based. The fact that the control group did better than the experimental group. It demonstrates that the conventional approach is the most effective way to instruct cellular respiration. Hence, the results of the traditional method were significantly better than those of the heuristic one. It has been shown to improve student achievement when taught in a conventional manner. Because males performed better than females, it can be concluded that gender and instructional methods in cellular respiration have no bearing on one another. The paper suggests that conventional approaches to education should be utilized in the classroom more frequently. This is especially the case if the method is able to pique the interest of male students. According to the result of the study, the advantage of heuristics is not restricted in any way because females perform well on heuristic achievement assessments.

Keywords: *conventional method, heuristic method, achievement scores, male, female, cellular respiration*

Introduction

The instructional process affords students the chance to learn new concepts, skills, and procedures. Without instruction, you will not learn any knowledge. There is more to teaching than simply transmitting one's knowledge. It requires educating them on matters they are incorrectly aware of as well as those they are unaware of. Education in the sciences involves the systematic learning of knowledge, with a focus on quantitative study and empirical underpinnings. For the progress of innovation in higher education, the cultivation of inventive talent is crucial. Curriculum, teaching technique, teaching topic, and evaluation methods are all included in the term "teaching system." Heuristic education promotes creative thinking and allows students to improve their skills, which is advantageous for experimental education Heuristic Teaching Method on Innovative Talents Cultivation of Electrical Engineering (2013) and (Zhou 2011).

The scientific approach to education is referred to as heuristics. It accomplishes it in a way that encourages original ideas in s while maintaining educational standards. The application of heuristics in the classroom is advantageous for both students and instructors. A heuristic education seeks to actively engage students in educational activities while simultaneously fostering subjectivity, optimistic thinking, problem-solving skills, and a passion for learning.

It is astounding how attentive the students are during lectures. Occasionally, heuristics are overlooked and it may convey the appearance that the students are uncertain about the answer, do not know the solution, or would know the answer but did not comprehend the elicitation. In order for heuristic teaching to have a refining effect, heuristic training participants must exert greater effort. Every student is expected to participate in both pre-learning activities and classroom participation.

The success of the educational system depends on teachers. Based on their learning objectives, instructors of leadership employ active learning strategies. In addition to imparting knowledge from the textbook, they manage classroom order. Control, evaluation, organization, encouragement, participation, serving as a resource, tutoring, observation, execution, and assistance are all required of the modern educator. Teachers must possess a high level of self-control due to the fact that they assume a variety of roles throughout education. There are four actions that must be completed in order to implement the heuristic technique of instruction.

The study compared several distinct approaches to science education. The core of the performance assessment system is teaching and learning philosophies. There were eighty students with the same amount of educational experience who were selected at random. The participants in the treatment group received standard activity-based training during both the pre-test and post-test stages of this investigation. The fact that the performance of the

treatment group exceeded that of the control group suggests that the heuristic approach is the most effective method for teaching cellular respiration.

Research Questions

1. What impact does the heuristic teaching approach have on students' overall cellular respiration achievement scores?
2. How do the students' mean accomplishment scores for men and women differ as a result of the heuristic approach to education?
3. What impact does the gender and approach relationship have on the average student accomplishment scores?

Methodology

A quasi-experimental research design was used in this research paper. A Pretest non-equivalent control group design, specifically. The study was divided into two parts using a straightforward random sample methodology. One section was randomly assigned to the treatment group, and the other was randomly assigned to the control group. The 25 items multiple-choice questionnaire was pilot tested on 16 students who were not research respondents' with a .80 reliability index. These items were chosen from the Krebs cycle, electron transport chain, and glycolysis subtopics. The instrument was put through the face and content validation using a conventional test procedure. The Kuder-Richardson method was used to assess the dependability of the accomplishment

There were two educational programs were used in this study. The second technique is instructive, while the first is heuristic-based. The heuristic approach and the standard package are identical in terms of content, core educational goals, and evaluation methods. The researcher did not select treatment and control groups from the same school to ensure that the pupils in the two groups did not mix. This was done to lessen the possibility of a John Henry effect and to avoid mistakes brought on by interactions and idea-sharing between research participants from the two groups.

Results

Table 1. *Comparing the heristic and conventional group on post-test score*

Strategy	*Mean*	*N*	*Std. Deviation*
Heuristic Method	24.20	40	2.42
Conventional Method	24.64	42	1.24
Total	24.42	82	1.91

According to table 1, students who received instruction using the traditional method had a mean score of 24.64, whereas those who received instruction using the heuristic method had a mean score of 24.20. This demonstrates that the heuristic strategy does not support student achievement as effectively as the traditional method does in fostering students' achievement.

Table 2. *mean accomplishment scores for men and women differ as a result of the heuristic approach to education*

Gender	*Mean*	*N*	*Std. Deviation*
Female	2.00	32	.00
Male	2.00	10	.00
Total	2.00	42	.00

Table 2 shows the male and female students taught in the heuristic method with cellular respiration concepts earned a mean score of 2.00 and a standard deviation of.00. As a result, men and women fared equally well.

Table 3. *gender and method relationship have on the average student accomplishment scores*

		Gender	*Test Scores*	*Strategy*
Gender	Pearson Correlation	1	.103	-.042
	Sig. (2-tailed)		.355	.706
	N	82	82	82
Test Scores	Pearson Correlation	.103	1	.116
	Sig. (2-tailed)	.355		.297
	N	82	82	82
Strategy	Pearson Correlation	-.042	.116	1
	Sig. (2-tailed)	.706	.297	
	N	82	82	82

Although there is a significant correlation between teaching methods and gender (0.7), there is only a weak correlation between teaching methods and student performance on tests (Table 3). (0.29). It appears from this that there is no connection between gender, an achievement proven to be extreme, and the approach that is taken in the classroom.

Table 4. *students overall scores on cellular respiration and their gender and teaching method*

		Gender	*Test Scores*	*Strategy*
Gender	Pearson Correlation	1	.103	-.042
	Sig. (2-tailed)		.355	.706
	N	82	82	82
Test Scores	Pearson Correlation	.103	1	.116
	Sig. (2-tailed)	.355		.297
	N	82	82	82
Strategy	Pearson Correlation	-.042	.116	1
	Sig. (2-tailed)	.706	.297	
	N	82	82	82

Table 4 displays the link between students' overall scores on cellular respiration and their gender and teaching method. The ANCOVA table for hypothesis 1 indicates that the F-cal (1.18), at a significance level of 0.05, is less than the critical value (.27). The decision rule is to reject the null hypothesis when the calculated value exceeds the critical value with a predetermined probability threshold. Given that the estimated value is less than the essential value, the null hypothesis must hold. Therefore, the researcher concludes that there is no statistically significant difference between the average test results of students who learnt about cellular respiration using the heuristic method and those who learned about it using the conventional way.

Table 4 displays that the two-way interaction F-value is 1234.77, while the critical value for hypothesis 3 at the 95% confidence level is.00. Based on the decision rule, the researcher maintains the null hypothesis and concludes that there is a substantial difference and significant interaction between gender and teaching style in terms of how effectively students learn about cellular respiration.

Table 5. *gender relationship with students' average success scores*

Source		*Type III Sum of Squares*	*df*	*Mean Square*	*F*	*Sig.*
Intercept	Hypothesis	3048.74	1	3048.74	608.15	.00
	Error	76.35	15.23	5.013[a]		
Strategy	Hypothesis	1.18	1	1.18	.52	.47
	Error	158.15	70	2.259[b]		
Gender	Hypothesis	4.59	1	4.59	1.67	.28
	Error	8.40	3.05	2.75[c]		
Pretest	Hypothesis	85.89	7	12.27	4.41	.13
	Error	7.78	2.80	2.77[d]		
Gender * pretest	Hypothesis	5.80	2	2.90	1.28	.28
	Error	158.15	70	2.25[b]		

Table 5 demonstrates that the value of F-cal (1.67), which was calculated using an alpha level of 0.05, is more than the critical value. The estimated number is greater than the critical value at the alpha level that was specified, which means that the null hypothesis is invalid. As a consequence of this, the researcher concludes that the null hypothesis should not be accepted and draws the conclusion that the mean achievement scores of male and female students who were taught cellular respiration using the heuristic method are statistically significantly different from one another.

Discussion

The results of this study indicated that students who were taught cellular respiration using the conventional way did better than those who were taught using the heuristic method. The conventional group's achievement results were attributable to the conceived science being clear and the concepts being connected. Thus, the results of this study contrasted those of Abonyi and Umeh (2014), who found that the heuristic approach is superior to the conventional way and that there is no interaction between genders and linear algebra student achievement. Not all new innovations in teaching and learning increase and attract student learning, inspire, minimize the abstract nature of the subject, and facilitate recollection of taught material, according to the findings of this study.

Using the heuristic method, there was no statistically significant difference between the mean achievement scores of male and female students. The study's heuristic results indicated that there is a substantial relationship between the method and gender in terms

of male and female performance in cellular respiration learning. The conventional way indicates that promoting high success in boys is effective. The conventional method generally assumes that different learners with different characteristics learned in the direct teaching-learning process and that the instructional method maximizes the learning outcomes of an instructional method for males since the heuristic method could be effective for a group of male students.

Conclusion

The results of an examination examining the influence that using a heuristic approach has on the level of performance achieved by students studying cellular respiration. The findings demonstrated that the traditional approach was more successful than the heuristic one. As a result, it encourages student achievement. As a consequence of this, males performed much better than females when the standard method was utilized, and there is no evidence to suggest that there is a substantial link between teaching strategy and gender in cellular respiration.

According to the findings of the study, the traditional method of teaching should be utilized more frequently in the classroom. This is particularly the case if the method can attract, excite, and hold the attention of male pupils. As a result of the research, it was determined that the application of heuristics was not restricted because females learned and did well on heuristic accomplishment assessments.

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