

AN INVESTIGATION OF THE EFFECT OF PREREQUISITE LESSON OF MATHEMATICS IN SUCCESS OF MATHEMATICS STUDENTS IN THE RELATED LESSONS

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Abstract

In this paper, the effect of passing prerequisite lesson of mathematics on academic achievement of mathematics students in the related lessons has been investigated. The statistical population of the research is 60 graduated students in mathematics in PNU of Astara, which have passed the lessons related to prerequisites lessons of mathematics. General hypothesis of research consisted of “prerequisite lesson of mathematics impacts on academic achievement of mathematics students in the related lessons or there is a statistically significant relationship between passing prerequisite lesson of mathematics and success of students in the related lessons.” The results of this research showed that the students who were required to take prerequisite lessons in mathematics, had a positive effect on their success in related lessons.

Keywords: prerequisite lesson of mathematics; the related lessons; students' success.

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1. Introduction

Some sciences have priority over the other sciences: Sometimes the priority of a science is that the science is the tool and thinking format of another science such as mathematics that is the expression format of many sciences such as physics and economics and so on. Nowadays, we cannot learn economic science without learning math and logic, as it is not possible to understand the physics without mathematics. Therefore, mathematics is an introduction to many sciences. Naturally, deep learning and understanding of some issues is stopped on some of the other sciences. Among the academic courses, this logic also been accepted that some lessons are considered as prerequisites for the other subjects. (Education Code associate and bachelor courses 1997, p. 95 and set of regulations and guidelines and educational facilities 1996, p. 50). Therefore, those who were admitted to national university entrance, in Associate and Bachelor courses in all specialized fields, which their raw scores in entrance examinations in one or more lessons at the discretion of educational council of admitted university were below than a certain quorum, they were required to pass -according to the requirements of the field- the lessons that the university determined as a prerequisite in addition to the lessons contained in the approved program. From this perspective, Evaluation and Education Organization of Iran was obliged to put the records of admitted students including raw scores of them in each of the test materials at the disposal of the relevant universities after the announcement of entrance exam results (the Supreme Council for Planning of the Ministry of Science, Research and Technology, 1997, p. 50). The importance of mathematics is at a level that students should pass some units of mathematics as basic course or as a prerequisite in all fields. However, according to the perspective of PNU indicating that prerequisite mathematics leads to high time and cost consuming and has no significant effect on the success of students in related courses, consequently; it was removed from educational programs. Now a perspective that exists at the University is that students have been dropped by removing prerequisite mathematics units from their related courses. The core issue is to investigate the effect of prerequisite lesson of mathematics in success of mathematics students in the related lessons.

2. Research Method

In this study, the main population is all the students of mathematics field of Astara Payam Noor University who have passed the lessons related to mathematics prerequisite. The information on

60 graduates until the second semester of the academic year of 2014 -2015 has been extracted and its results, the probability of 99%, can be generalized to the main population. The available information in the education of Astara Payam Noor University was used to collect research data through studying the students' records. In the cases, which there was uncertainty it has been referred to students directly. In analyzing the data, the known methods in descriptive statistics were used to realize the relationships between the variables.

Table 1. The effect of passing and not passing math prerequisite lesson on general math 1 score and the numbers of the terms have taken to gain a passing grade in this course

Math prerequisite lesson	The mean score of General Mathematics 1	The mean score of the numbers of the terms have taken to gain a passing grade in this course
The students who should have completed math prerequisite lesson or courses and they did	11.65	1.2
The students who should have completed math prerequisite lesson but they did not	10.13	1.9
The students who did not require math prerequisite courses	14.2	1

As shown in Table 1, there is a significant relationship between passing and not passing math prerequisite lesson and the success of students in general math 1, (Correlation coefficient between the score of math prerequisite lesson and general math 1 is 0.426), in such an extent that the mean scores of general math 1 for the students who were required to pass math prerequisite lesson, but for some reasons have not passed it, is less than the mean scores of the students who

have passed math prerequisite courses ($10/13 < 11/65$). In addition, there is a significant relationship between passing and not passing math prerequisite lesson and the numbers of the terms have taken to gain a passing grade in general math 1 so that the average of the numbers of the terms have taken to gain a passing grade in general math 1 for the students who were required to pass math prerequisite lesson, but for some reasons have not passed it, is higher than the average of required terms to gain a passing grade in general math 1 for the students who have passed prerequisite math.

Table 2. The effect of passing and not passing math prerequisite lesson on the mean score of basic and specialized courses and GPA

Math prerequisite lesson	the mean score of basic and specialized lessons	Average
The students who should have completed math prerequisite lesson or courses and they did	13.25	13.65
The students who should have completed math prerequisite lesson and they did not	12.05	12.95
The students who do not require math prerequisite courses	13.82	13.94

As can be seen in Table 2, there is a significant relationship between passing and not passing math prerequisite lesson and the success of students in the main courses so that the mean scores of main courses of the students who were required to pass math lessons in prerequisite form, but they have not passed this lesson for some reason, is less than the mean scores of the students who have passed math prerequisite courses or lessons ($12/05 < 13/25$).

In addition, there is a significant relationship between passing and not passing math prerequisite lesson and graduation GPA. The graduation GPA for the students who were required to pass math

prerequisite lesson but for some reasons have not passed it, is less than the graduation GPA of the students who have passed prerequisite math lesson in their courses (12/95 < 13/85).

3. Results and Analysis

With regard to the points raised, we can say that students who do not need to pass the math prerequisite courses are more successful than others. The reason can be considered due to students' strong base in mathematics, so that the students before entering the university their score in math exam have been higher than 50 percent. For this reason, they were exempted from passing prerequisite math courses at the University. It is understood that they do not need to pass a prerequisite math lesson. Because they are more successful in the related courses to prerequisite math lesson. Nevertheless, the problem is the students who prior to entering the university their score in math exam have been less than 50 percent. The university is obliged them to pass mathematics prerequisite courses. The question now is whether passing the prerequisite math courses leading to the success of this group of students in the fields of basic and specialized math or impact on them or not? According to the conducted research, the students who their university entrance score in math exam is less than 50 percent the university is obliged them to pass mathematics prerequisite courses. If they pass the math prerequisite lesson in the fields of basic and specialized math courses. They are more successful than the students who their math exam score have been less than 50 percent and the university is obliged them to pass it. Therefore, prerequisite math lesson for the students who should pass it leads to gain higher scores in basic and specialized math lessons. The general recommendation is to maintain prerequisite math courses for the students who their scores in math in the entrance examination is less than 50 percent. Whereas passing the basic lessons is essential to understand the main lessons, removing prerequisite math courses does not seem correct without deeper analysis. If in cases that does not exist any relationship between the prerequisite lessons and the rate of success in the main lessons. In all probability, it refers to the quality and content and the methods of presenting the materials presented in prerequisite courses. Such a study can be effective in modifying the content and methods of delivery of the mentioned lessons.

4. Conclusion

According to the conducted research, the students who their university entrance score in math exam is less than 50 percent the university is obliged them to pass mathematics prerequisite courses. If they pass the math prerequisite lesson in the fields of basic and specialized math courses. They are more successful than the students who their math exam score have been less than 50 percent and the university is obliged them to pass it. Therefore, prerequisite math lesson for the students who should pass it leads to gain higher scores in basic and specialized math lessons. The general recommendation is to maintain prerequisite math courses for the students who their scores in math in the entrance examination is less than 50 percent. Whereas passing the basic lessons is essential to understand the main lessons, removing prerequisite math courses does not seem correct without deeper analysis. If in cases that does not exist any relationship between the prerequisite lessons and the rate of success in the main lessons. In all probability, it refers to the quality and content and the methods of presenting the materials presented in prerequisite courses. Such a study can be effective in modifying the content and methods of delivery of the mentioned lessons.

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