**Influence of prior knowledge, comprehensive learning approach, problem-based-instruction and assessment impact on student's basic knowledge conceived in mathematics**

Dr. Nazmi Xhomara

Lecturer, Department of Mathematics and Statistics, Faculty of Information Technology and Innovation, Luarasi University, Tirana, Albania.

[nazmi.xhomara@luarasi-univ.edu.al](mailto:nazmi.xhomara@luarasi-univ.edu.al)

ORCID: <https://orcid.org/0000-0003-1810-525X>

**Abstract**

*The purpose of the study is to investigate the influence of prior knowledge, comprehensive learning approach, problem-based-instruction and assessment impact on student's basic knowledge conceived in mathematics. A quasi-experimental research design and a structured questionnaire were used in the study. Two experimental groups, and two control groups of students were involved. It is found that there is a negligible correlation between prior knowledge and basic knowledge conceived, meanwhile comprehensive learning approach and assessment impact correlate positively with knowledge conceived. Problem-based-instruction correlates positively, and traditional approach correlates negatively with knowledge conceived. The study found that 50% of the variance of basic knowledge conceived levels is explained by prior knowledge, problem-based-instruction, comprehensive learning approach, and assessment impact.*

***Keywords****: prior knowledge, comprehensive learning approach, problem-based-instruction, assessment impact, student's basic knowledge conceived in mathematics*

Prior mathematical knowledge is thought to be one of the most important premises to obtain good grades in mathematics in the university studies. The comprehensive learning approach, problem-based-instruction, and knowledge assessment are supposed to be some of the most important variables that impact basic knowledge conceived in mathematics. Therefore, the investigation of the relationship between prior mathematics knowledge, comprehensive learning approach, problem-based-instruction used by the teacher, assessment impact, and knowledge conceived in mathematics is important.

The results of the study show that there is a negligible correlation between prior knowledge and basic knowledge conceived, and there is not a statistically significant relationship between them. It is found that a comprehensive learning approach and assessment impact correlate positively with knowledge conceived. It is found that problem-based-instruction correlates positively with knowledge conceived, meanwhile traditional approach correlates negatively with knowledge conceived. The study found that 50% of the variance of basic knowledge conceived levels is explained by prior knowledge, problem-based-instruction, comprehensive learning approach, and assessment impact. The study confirmed that the comprehensive learning approach makes the strongest unique contribution to explaining basic knowledge conceived in mathematics. Problem-based-instruction is making a significant positive contribution, meanwhile, the traditional approach is making a significant but negative contribution to the prediction of basic knowledge conceived in mathematics.

The faculties, as well as mathematics lecturers should pre-test prior knowledge of students to strengthen their work to increase their academic success in mathematics, as well as, should promote the comprehensive learning approach, and problem-based-instruction. The faculties, as well as mathematics lecturers, also should use assessment to increase its impact on students' learning, and should support the students to be able to learn the basic math concepts.