

The root causes of the students' errors in solving the mathematical literacy problems

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Abstract

The purpose of this research was to identify the errors of students in solving the mathematical literacy problems based on PISA studies' framework. This research was carried out with a qualitative approach and the task-based interview. The research sample included nine students at the beginning of the 10th grade who participated voluntarily in the academic year 1397-98. Data was gathered through interview with the participants, based on the 4 tasks derived from the mathematical literacy test which was developed by Mohsenpour et al. (1394). After interviewing the participants and transcribing the spoken text, data analysis was done through systematically reducing the text based on the meaningfulness and meaninglessness of the information obtained from the students' answers. The findings indicated that the most common errors were: 1-carelessness in reading the math questions, 2-the dominance of the students' mental frameworks during reading the questions, 3-inability in applying a mathematical model to the real life model, 4-inability in recognizing the features of the geometric shapes, 5-lack of understanding the mathematical meaning of the words that have an informal language usage, 6-making mistakes in the concepts of the perimeter and area, 7-lack of attention to the concept of the units of measurement and conversion of the units, 8-inability in interpreting the mathematical numbers in the real world and 9- difficulty in working with the decimal numbers. Based on these findings, the researchers concluded that the root causes of these errors is due to an emphasis on the rote learning and less attention to the conceptual learning, lack of opportunity for trial and error as a useful strategy for the math problem solving, and formal and unreal usage of the applied math problems in the curriculum and the math course classes.

Keywords

Mathematical Literacy, Error, Task Based Interview

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