WHY THE MATHEMATICS PERFORMANCE OF IRANIAN STUDENTS IN TIMSS WAS UNIQUE?

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The mathematics performance of Iranian students in the Third International Mathematics and Science Study (TIMSS), was way bellow the international average. However, only a few research studies and government-funded projects have been launched to investigate this matter.

In a study that we are reporting some of its results in this paper, we found out that the mathematics performance of grade 8 students was lower than grade 7 students in 25 questions that were administered to both groups of students. Before we go any further, we took these results, and contrasted them with the data from other countries participated in TIMSS' population 2. The results were astonishing, since this phenomenon was unique to Iranian students. In other words, Iranian students did worse when they got more formal instruction! In addition, the mathematics content of these 25 questions were mostly introduced to students at grade 8 and yet, they did better when they were not introduced to them at grade 7. We therefore, became certain that this unique phenomenon needs further scrutiny.

We thus, administered those 25 questions to four grade 7 and grade 8 students in the spring of 2003, to see if the same situation would happen again. Surprisingly again, the same thing happened for 17 out of 25 questions. To follow up on this matter, we interviewed 9 students from these four classes, and analysed those data to see what factors contribute to this unique result. The followings are some of our findings:

a. Most of these 25 questions used real life situations. Iranian students showed the lack of situated learning (Lave & Wenger, 1991) in their interviews.

b. At grade 7, students answered these questions using their common sense since they the mathematical content of them were not introduced to them formally. However, when they got the formal instruction for them, they were not able to use their common sense. This is what Hawson (1996) anticipated in advance, and called it the conflict between formal mathematics and commom sense/intuition.

c. Iranian students showed the lack of problem solving and metacognitive abilities in answering those questions.