

## **COMPUTER GAME AND INTRINSIC MOTIVATION: A RE-IMPLEMENTATION OF WEST**

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This research investigates the effects of a modified WEST system for students to learn about the arithmetics of binary numbers. The subjects went through the same following stages in the research. In the first stage (10 minutes), they learned the basic concept of the arithmetics of binary numbers. In the second stage (30 minutes), the subjects were divided into seven groups. Each group used a different method to practice to solve a series of binary number based arithmetic problems. In the last stage, they took a test to demonstrate their knowledge of binary number arithmetics, and completed a questionnaire to reveal their feeling about the various methods used in practicing problem solving. The subjects responded that they were motivated, had strong interest, and felt been challenged to learn in a computer game learning environment, and especially when the learning environment contained competition and/or cooperation factors.

**Keywords:** arithmetics, binary numbers, competition, cooperation, instructional games, intrinsic motivation