

Title : Development of Problem-Solving Skills for Nonroutine Problems with the Use of a Web-based Resource: A Case Study of Constructivist Learning

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ABSTRACT

This study investigated how students develop their problem-solving skills for nonroutine problems with the use of a Web-based learning resource. Set in a social constructivist learning environment, the researcher conducted her study using junior high school students of an academically and technically-oriented exclusive private school for boys in Makati City during the school year 2002-2003. Phenomenography was employed to describe and explain the students' problem-solving processes, to determine their level of understanding of word problems through the use of a Web-based problem-solving unit, and to assess the on-task activity of the students. The students' attitudes toward problem solving and toward the learning environment were qualitatively analyzed. The study covered a period of four weeks and was conducted during the regular mathematics class hours of the students. The design of the study consisted of the following phases: (1) Orientation, (2) Pretesting, (3) Exposure to Problem-Solving Unit, (4) Posttesting, and (5) Interview. Data for this study were gathered and analyzed through the use of the following instruments: a Web-based problem-solving unit, pretest/posttest nonroutine problem solving sheets, reproduced activity sheets, an observation checklist, a self-report questionnaire, the student's journal, a problem-solving attitude scale, an attitude scale toward the learning environment, and audiotaped interviews.