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Layers of Student Understanding Based on Pirie Kieren's theory in Solving Story Problems in Terms of Cognitive Style

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ABSTRACT
Objective: Understanding lines and angles serves as the foundation for further mathematical topics such as trigonometry, geometry, calculus, etc. Students may struggle with advanced mathematical reasoning and problem-solving without a firm grasp of these basic concepts. This study aims to investigate how students' mathematical understanding processes are based on the folding back theory. **Method:** The research utilizes a qualitative approach with descriptive eksploratif design. Two subjects were selected from 28 seventh-grade students, each representing the field-dependent and field-independent cognitive style. Data was collected through mathematical comprehension tests, GEFT tests, and interviews. Data were analyzed through data reduction, data presentation, and verification stages, with each subject being interviewed to verify the processes. **Results:** Based on the research results, students in the field-independent cognitive style were much more active and better understood the problem-solving process than those in the field-dependent. However, both subjects still required learning assistance. **Novelty:** This research explores the folding back theory in the mathematical understanding process based on cognitive styles, whereas previous studies have mainly focused on mathematical comprehension abilities. Therefore, further research would benefit from using instructional media to better engage students in understanding the material.

INTRODUCTION

Education is an effort to prepare a golden generation through guidance, learning, and training activities to improve the quality of future generations, one of which is by taking formal education at school. In the learning process at school, there are various subjects, one of which is mathematics. This subject is familiar to the world of education, where mathematics is studied from elementary to tertiary education levels. Mathematics is a mandatory subject at every level of education because, in mathematics, students will think concretely, critically, logically, systematically, and interconnectedly between each piece of material. So, in studying mathematics, understanding skills are needed; this ability is essential in studying mathematics (Hikmah & Saputra, 2023).

According to Khalid et al. (2021), understanding is an essential ability for students to have because understanding means students' knowledge of concepts, procedures, and strategies for solving a given problem. So, the process of student understanding is an exciting topic to discuss because the process of Understanding is a process of growth and development of student thinking (Lynch et al., 2021). In understanding the process of growth and development of students' thinking, several theories have emerged that have discussed the process of student understanding; there are several theories, namely Skemp's in 1987, Hibert and Carpenter's theory in 1992, Piere-Kieren's theory in 1994, and many more researchers

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