MEASURING PROBLEM SOLVING COMPETENCIES IN CHILDHOOD

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Problem solving abilities are seen as core-competencies and nearly every school subject keeps them in focus (*Klieme* et al., 2005). But leading a learner to those abilities poses a major question: taking the guided or the unguided path? Following the research question of comparing learning effects from inquiry learning and instruction on problem solving abilities, a new problem solving paradigm had to be found. The authors used a standardized diagnostic tool for interpolation problem solving, named as ZOO GAME. Before expanding the ZOO GAME approach for an inquiry learning phase, it had to be converted from an analog test instrument into a computer-based assessment test (*De Jong* and *Van Joolingen*, 1998). Within the ZOO GAME approach the participant has to transform a well-defined problem from a beginning state to a goal state by using a special set of complex rules (*Fritz* and *Hussy*, 2000). In a further step the instructional phase has been replaced by an inquiry learning scenario. This design of different pre-phases leads to a comparable planning phase, in which central indices measure the effectiveness and efficiency of interpolation problem solving. Two studies (N=138 and N=177) have been arranged in eleven primary schools of North-Rhine Westphalia. By Comparing the dispersions of planning span between the learning groups a significant difference is given, $\chi 2$ (4, n=138) = 26.01, $p < .001$ with an effect power of Eta2 = .43. Under the «exploring» condition the numbers of best planners as well as the numbers of worst planners double. It becomes apparent that inquiry learning leads to better results in planning behavior concerning the effectiveness, but it is also widening the division between good and bad planners. These facts lead to the assumption that inquiry learning generates a different quality of knowledge.