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Scientific Reasoning Ability in Middle Schoolers related to MasterMind Discovery Strategy

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Abstract: A study, investigating the relationship between scientific reasoning and the capacity to discover the strategy to play an hypothetico-deductive game (MasterMind), posits that students being able to discover Complex Strategies (vs. General Strategy, Feedback Related, No Strategy) were also, on average, performing higher on our measure of scientific reasoning, itself composed of evaluative, experimental and scientific knowledge measures. In addition to bridge the discovery of complex strategies with higher SR ability, the finding also suggests the necessity to integrate rule discovery exercises in curriculum to 1- practice while 2- recognize valid reasoning procedures. Finally, inquiring about the middle schooler's capacity to recognize the most effective strategy, will help to assess the class level as a whole. Such assessment will help the teacher identify some needs and target effective lessons to explain and facilitate the transfer of CoV strategies to novel situations, as suggested by "real life" problem demands.