

## **ABSTRACT**

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The aim of the dissertation thesis is to examine the development of integrated science process skill - hypothesis formation, with high school students, using the proposed activities, experiments planned by students themselves and discussions between teacher and students. The development of science process skills, also integrated skill - hypothesis formation, is the goal declared in State educational program. If teachers want to help high school students to acquire the skills to formulate hypotheses of high quality, they should offer them opportunities to apply the skill in various contexts. The introduction of the thesis is dedicated to the specification of research problem, research questions and hypotheses of research. The second chapter is focused on the specification of hypothesis formation as a part of empirical methods of cognition and inquiry-based science education – strategies focused on students' active learning. In the third chapter we analyse research tools determining the quality and level of acquisition of hypothesis formation by high school students. Subsequently, we present activities aimed on the development of hypothesis formation and hypothesis formation training, which includes the proposed activities, experiments planned by students themselves and discussion between teacher and students. The research with the aim of evaluating the benefits of implementing hypothesis formation training in the education of physics and identifying quality level of students' hypothesis formation before and after implementation hypothesis formation training was carried out. The results of research suggest that it is possible to develop integrated science process skill - hypothesis formation using the proposed activities, experiments planned by students themselves and discussions between teacher and students.

**Key words:** hypothesis formation, development of hypothesis formation, hypothesis quality assessment, physics education, high school.