

# What can we built on in the initial pre-service chemistry teacher training?

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## *Abstract*

The results of the authors team's previous research have shown that the reasons for the failure of students entering chemistry teacher education programs lie in deeper deficiencies (Rusek et al., 2022; Tóthová & Rusek, 2022). These results are presented first. Next, results of the latest research focused on students' understanding of basic chemistry concepts follows. The Chemistry Concept Inventory – CCI (Kiviniemi et al., 2018) was used, from which items thematically related to water were selected. The CCI was transformed into a three-tier test (Milenković et al., 2016) form in order to provide information about students' ability to explain their responses as well as express their self-efficacy. The questionnaire was sent to most departments preparing chemistry teachers and also to chemistry students. Thus, the results present a comprehensive picture of both the effectiveness of chemistry instruction in high schools and the needs of students that need to be addressed at the beginning of college instruction.

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## *Keywords*

pre-service chemistry teacher training; chemistry concepts inventory; freshman students