

## **Abstract**

This thesis explores the use of an adaptive e-book. The main aim of this work is to analyze the impact of the "Adaptive E-book for Supporting the Teaching of Chemical Calculations by the Flipped Classroom Principle" within the course *"Introduction to Chemistry Studies"* as a recommended study resource. Based on a pre-test conducted according to the methodology of Ruska et al. (2021), highly successful and less successful students in the area of solving chemical calculations were identified. A sample of them (N = 10) was provided with the adaptive e-book as a support tool for studying chemical calculations. At the end of the semester, a post-test was conducted to again verify the students' ability to solve chemical calculations. Subsequently, an interview was conducted with each respondent. Respondents expressed their opinions on individual chapters of the e-book, their methods of working with it, and provided perceived opportunities for improvement to make the support more effective for them. The obtained results were analyzed and evaluated concerning the effect of using the adaptive e-book, measured as the students progress between the pre-test and post-test. Based on the findings, possible modifications and expansions of the first version of the e-book were proposed to improve its impact on student learning. Additionally, the possibilities of integrating the adaptive e-book into the teaching of chemistry at universities, especially within programs focused on education, were discussed.