

# Between teaching and learning: Pre-service physics teachers' teaching experience

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**Abstract.** Higher education institutions providing education of future physics teachers in Czechia experienced lately an increase of students, who are teaching apart from their mandatory teaching practice. To understand this phenomenon a questionnaire survey on students' motivation and teaching experience was prepared and conducted among 80 Czech students of physics education. This contribution presents the methodology of questionnaire preparation and descriptive analysis of first results focusing on a workload of physics students-teachers and their motivation to conduct own teaching during studies.

## Introduction

The shortage of science teachers in European countries and the tense situation in the labour market provide more opportunities for science education students to start teaching during studies before completing their qualification [1,2]. This phenomenon brings new challenges into teacher preparation programs.

Despite being relatively unexplored or only studied at a regional level, the significance of student-teachers within the student population has been confirmed in German-speaking regions. Research in these regions has examined benefits of students' teaching experience, apart from the mandatory teaching practice, on studies and intentions to remain in the profession. Last mentioned was observed to be significant in some regions, when students-teachers were supported by school where they were teaching [3, 4].

Therefore, understanding this phenomenon is important, as it can have a positive effect on teacher retention and is closely linked to regional educational systems.

## Research goals

Conducted mapping of students-teachers in Czechia has confirmed their presence within the population of physics education students. Consequently, this research focuses on the following questions:

- Which students conduct their own teaching?
- What is the working routine of students-teachers (including aspects such as preferred type of school and workload)?
- What motivates students to conduct own teaching during their studies?

This contribution presents some of the preliminary results, yet further data analysis is ongoing.

## Methodology

The research adopts a quantitative approach and targets students of bachelor's and master's programs in physics education in full-time study in Czechia.

## Participants

During the spring of 2023, a mapping of students-teachers was conducted across 9 Czech universities offering programs in physics education. A total of 463 physics education students in bachelor's and master's full-time study programs were provided an on-line questionnaire via their study institutions and 108 responses, with consent to further participation in this research, were gathered along with individual voluntarily provided contacts for future communication. These students (including both teaching and non-teaching) form the current participant group.

## Questionnaire

The online questionnaire, focusing on students' general working experience with a specific focus on teaching, was designed based on a) the research tools described in [3,4], albeit not in their official translation, and b) the Czech version of TALIS 2013 survey to formulate items, where possible, so the results could be compared with responses from Czech teachers.

The questionnaire items are divided into five sections: demographic and study information, working experience, self-evaluation as a student/teacher, school support, and intentions to remain in the profession in the future, three- and four-point Lickert scale was used to measure attitude.

## Pilot study

A pilot study was conducted in early March 2024 with 20 bachelor's and master's students of biology education from the Faculty of Natural Sciences, Charles university, Prague. An adapted version of online questionnaire for biology students was distributed via email by their university lecturer, with master's students also being informed about the research in person. Data analysis of the pilot study results is currently underway.

## Conclusions

This research contributes to understanding the student-teacher phenomenon in Czechia, where more than a third of physics education students who participated in the mapping are students-teachers, with the majority concentrated in third year of bachelor's and first year of master's studies.

It underscores the importance of students-teachers' reflection and experience, as it can influence the tendency to remain in the teaching profession. Detailed results on students' motivation and workload are forthcoming and will be presented in conference contribution.

## References

- [1] Eurostat. (2023). Participation of young people in education and the labour market.
- [2] K. De Witte, W. De Cort, L. Gambi, Evidence-based Solutions to Teacher Shortages. *NESET report*, Luxembourg: Publications Office of the European Union, 2023. doi: 10.2766/475647.
- [3] I. Winter, C. Reintjes, S. Nonte, Unterrichten neben dem Studium. Eine Bestandsaufnahme hinsichtlich der studienunabhängigen Vertretungslehrkrafttätigkeit von Lehramtsstudierenden. In *Lehrkräftebildung in der Bedarfskrise* (133–155). Verlag Julius Klinkhardt, 2023. <https://doi.org/10.35468/6034-08>.
- [4] K. Bäuerlein, C. Reintjes, U. Fraefel, S. Jünger, Selbstprofessionalisierung in der Schule? – Eine Bestandsaufnahme hinsichtlich der studienunabhängigen Lehrtätigkeit von Lehramtsstudierenden im Schulfeld. *Forschungsperspektiven* **10** (2018) 27–46.