

Motivation towards learning (that results from preferences) is the key factor for students' educational success. The presented project aims to find answers to research questions referring to the **mutual relationship between preferences and competences of students**. It refers to the understanding of factors influencing motivation and the educational outcomes of students. On the basis of the theory and empirical literature, we will focus on **learning-process-related preferences** (towards grades and marks, subjects in school, modes of teaching, and reading activities) and **preferences towards education and future professional career**. An empirical exploration of these issues will allow to test several research hypotheses derived from the theory of the economics of education. Moreover, answers to research questions will allow to analyse key aspects of human capital creation in the economy - these are, therefore key issues also from the perspective of economic and social development analysis.

To assess relationship between **preferences and competences**, both need to be measured **within one questionnaire**. Existing research aimed at acquiring knowledge about the **preferences** of students are based primarily on questionnaire surveys in which students had to respond to what extent they agree with the statements or how important for pupils particular attributes of education are etc. With the use of traditional survey tools of these kind, revealing preferences is extremely difficult due to the low credibility of answers to direct questions. In contrast, in this project, the hypothetical choices method (Discrete Choice Experiment, DCE) will be applied to reveal valuable information about what students prefer regarding important aspects of the learning process, particular subjects, teaching methods, and their educational and professional career. Whereas to measure **educational outputs (competences)** a state-of-the-art psychometric approach based on IRT (eng. Item Response Theory) model will be used. **The uniqueness of the project lies in the collection and analysis within one database of both data on competences and preferences, measured using the most advanced and reliable techniques.**

Data for the project will be collected in a large-scale survey - Test for International Comparisons of Knowledge and Skills (TICKS) (in 2012-2019 "Competences") conducted yearly by Evidence Institute Foundation (EIF). A proof-of-concept study was already performed before submitting this proposal. In 2018 Evidence Institute performed "Competences 2018" on more than thirty thousand primary and secondary school students. Apart from competences assessment (standardized using IRT on the PISA scale), in "Competences 2018", a prototype version of the hypothetical choices (DCE) preferences assessment was successfully included. Evidence Institute Foundation will proceed in the following years with similar large-scale online surveys and officially intended to include described in this project research on preferences within at least two following editions of EIF quantitative assessments.

Unlike most research on motivation and preferences, which focuses on behavioral methods and self-reports of experiences, in this project, apart from advanced methodology, the differentiating factor is also the use of neuropsychological and biological backgrounds to explain the process of human capital formation. One of the goals is to investigate whether non-invasive stimulation can determine the educational preferences and learning process. The neurobiological aspect primarily aims to complement and understand the concept of preferences and skills influencing education and future professional path.

An insight into 14 and 15-year-olds competences and preferences for learning process characteristics and future educational and professional career, is crucial for a **better understanding of determinants of choices within students' learning process and their educational and professional path**. This project contributes to the **development of the research methodology**. This is the first-ever incident of capturing at one time preferences and competences measured with described state-of-the-art methods. Moreover, project results can have important practical applications in policymaking in the field of education, which affects the economy in general. Educational decisions (resulting from preferences and motivations) are among the most important and have long-term consequences in the lives of people and the whole society.