



ICEE Research Methodology: an overview

The ICEE research lasts 2 school years; it involves students, teachers, parents and business volunteers together with the headmasters of each school and it is based on quantitative as well as qualitative methodologies (360 approach).

The quantitative part of the research is based on a pre and post-test delivered twice (in 2015-6 and 2016-7); the qualitative part of the research is based on observations and semi-structured group interviews with students, teachers, parents and volunteers and well as on individual interviews with headmasters, representatives from ministries, and representatives from JA organizations.

Below we publish an overview of the research methodology, including a description of the main challenges the research team faced and the solutions identified.

The main data collection is through surveys to students, teachers, parents and business people in Belgium (Flanders), Estonia, Finland, Italy and Latvia. 25 schools participate. The research team has planned a total of 16 surveys, and each of them involve participants in mini-companies (test group) and non-participants in the mini-company (control group):

- 4 students surveys: Pre-test fall 2015/2016 and post-test spring 2016/2017
- 4 teacher surveys: Pre-test fall 2015/2016 and post-test spring 2016/2017
- 4 parents surveys: Pre-test fall 2015/2016 and post-test spring 2016/2017
- 4 business people surveys: Pre-test fall 2015/2016 and post-test spring 2016/2017

Compared to the original plan, a few changes and additions in the data collection and in the research design have been made:

- Data Collection: questionnaires on paper in addition to web-based questionnaires.
- Research Design: the Consortium agreed to include a completely external school in each country since the original plan did not account well enough the challenge of “isolating” the influence of mini companies only to students/teachers/parents that take part in mini-companies and not influencing the non-participants at the same school. This decision was also taken to avoid bias deriving from eventual communication activities or changes in the national priorities done by the Ministries involved in the project. This means that 25 schools are participating in the research (and not 20 as initially planned): in each country 2 academic schools and 2 vocational schools where the mini-company is running, plus a completely external school where the mini-company is not in place at all.

Generally, the data collection is web-based and involves a three-step procedure:

- Step 1: The school contact person receives an email with an information letter and a “link” to the survey for the students/teachers/parents.
- Step 2: The school contact person forwards the e-mail with the information letter and the “link” to the students/teachers/parents invited to participate in the survey.
- Step 3: The surveys are open for approximately one month.



The data collection the Consortium has encountered a few challenges:

- Language: The surveys have been translated from English to the national languages. In Estonia, some students, teachers and parents speak Russian and not Estonian. The solution was to translate the surveys both in Estonian and Russian.
- Internet: In some countries, not all parents had the opportunity to participate in a web-based survey. The solution was to print the survey and ask parents to fill the survey in on paper. Later the paper versions collected were punched into the web-based survey for the data analysis.
- Effects isolation: It is often difficult to isolate and document the effects of mini companies, especially when the penetration of this education programme is raised up to 50%. The research team applies a comparative design, where differences in scores between participants and non-participants are used as an estimate of the effects of mini-companies. Below a description of the challenges encountered and solutions applied regarding the isolation of the effects:
- Non-randomness: Estimates about the influence of mini-companies are uncertain if the distribution of participants in and outside mini-companies is non-random. The solution is to include questions about gender, ethnicity, age, previous entrepreneurial activity (and in the case of students, education program, parents' education and entrepreneurial activity) in the survey. In this way the research team will be able to control for other variables that also influence entrepreneurial attitudes and abilities etc.
- Self-selection in the student survey: If students themselves choose to participate in mini companies, there is a problem interpreting the direction of the relationship. Did a previous interest in entrepreneurship result in participation in mini companies or did participation in mini companies result in an interest in entrepreneurship? The solution to this challenge is to distinguish between students who take part in the mini companies as a mandatory activity and those who take part in it as an optional activity. In most of the schools participating in the project, the mandatory group is the majority since we have test-classes and control-classes.
- Variations among mini-company participants: It is fully possible to imagine that some participants in mini companies might get more out of participating than other participants. The solution is to ask questions in the survey, such as the role each student had in the mini company (manager, middle-manager, and employee), how many hours they participated (both in school and after school), etc.
- The impact of mini-companies on non-participants: With 50% penetration, it might be that non-participants at the same school are influenced by mini-companies and also change their attitudes towards entrepreneurship, even though they do not take part in mini-companies. The solution is also to invite samples of students/teachers/parents at another school to participate in the surveys. This means that the research is based on three groups of respondents: students/teachers/parents with mini-companies; students/teachers/parents without mini-companies at the same school; students/teachers/parents without mini-companies at another school.

About ethical issues in the data collection, all schools participating in the project have given their written consensus. The research team and the JA organisations provided all respondent groups with detailed information about the project, both orally in meetings and in a written way through documents. When sending out the surveys, an information letter has been provided to students, parents, teachers and business people. This letter describes the purpose of the study, underlines that it is voluntary to participate and explains that all data gathered from any respondent will only be available to the research team and used for the purpose of the project. The letter also provides contact information of the project leader and of a researcher, including email address and telephone number. When the pre-test and post-test survey are done, and datasets combined, direct personal information will be deleted in the data file. Moreover, in all reports and articles from the project, all data from respondents will be made anonymous.