# Return on Experience - St Kliment

The main goal of the project is to facilitate the STEAM education (science, technologies, engineering, arts, and mathematics) through the meticulous designing of a methodology, instruments and practical examples for Escape rooms (ER). The target group are secondary education teachers who are given the chance to upgrade and expand their didactic spectrum.

The Teachers' guide is a unique piece of work in the project's frame and the first tangible result from its implementation.

A second set of instruments could be further found in the Escape Room Creation Guide.

The E-learning module provides secondary education teachers with the opportunity to create a complete escape room and train their digital skills thus enabling the production of their own new content including multimedia resources.

During the project's processing the elaborated methodology was applied in the creation of three escape rooms. For instance, the 'Useful bacteria' ER's pedagogical objectives are oriented towards understanding that most bacteria are beneficial to human beings, raising the awareness that some bacteria can help us being healthy, learning about a scientist who discovered the benefits of a bacterium. It is designed for 13-15 years old students and the STEAM subjects covered are prokaryotic cells (Biology), fermentation process and production of yogurt (Technologies).

Feedback provided by our teachers was collected by filling in Google forms in-depth questionnaires. The questions cover all aspects of the process - from devising the idea of the ER to the assessment of its application. The respondents had to prepare the materials (printouts, instructions, puzzles etc.) and the physical environment and ambience for the escape room (decoration of the room lesson related to the radioactivity as an example). The teachers highly estimate the communication with the school's infrastructure and their colleagues: "When needed they gave me great support!"

The ER preparation sessions with the students might include an introductory lesson on the escape room topic. This was the case with the second ER applied. After that the teacher proceeded with a lesson related to radioactivity and atomic structure.

The questionnaire invites teachers to mention some practical implementation tips. A special stress is made on managing time when preparing for the escape room (it's time consuming) and having a list of all the puzzles and hiding spots on hand during the session. The attentive creation of the ambient of the room seems to be of primary importance as well. The most important thing is to arrange the room so that it could be comfortable for the work of several teams. There must also be room to go between teams to look for hidden challenges.

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All teachers define ER STEAM tool as a great experience which inspires: “It gave me a lot of ideas for my next projects and implications in my work”. According to the respondents the motivation of students to study science after ER participation is higher.

Among the biggest challenges teachers involved had to face while designing the ER were to see if the theoretical ideas (puzzles) and the idea in general could be implemented in reality: “It was hard to predict the actions and reactions of the students.” Reflecting upon some potential partnerships with exterior actors/parents/stakeholders on the ER implementation the teachers announce their will to include representatives of these groups: “I would convince them that the preparation is as exciting as the game itself”.

While invited to make an overall return on experience from the ER methodology teachers undoubtedly declare that it significantly helped their students to learn to work in a team and significantly increased their efficiency.

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