

STIMULATING STUDENTS' CREATIVITY IN SUPPORT TO BUSINESS

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Abstract

The present paper views ways of stimulating students' creativity and critical thinking so that they can support business in finding innovative solutions to meet the demands of the smart sustainable specialization strategies (S4) of their regions since Smart Specialization is a top priority of the European Union. A special focus is placed on a new approach, CRE8® Workshop, developed as a concept by the Grants and Innovation Office at Karlstad University, Sweden. It is a method of creative problem solving in competition form, in which students develop innovative solutions to a real-world challenge posed by a company or other organization. The implementation of the CRE8® Workshop method in the region of Gabrovo with the participation of university and high-school students and local companies is presented.

Keywords: CRE8® Workshop, innovative solutions, smart sustainable specialization strategy, creativity.

INTRODUCTION

Smart specialization is an innovation policy of the European Union, characterized by the identification and strengthening of regional competitive advantages with wide stakeholder involvement. Nowadays, in the context of the European Green Deal and the 2030 Agenda for Sustainable Development, it is facing a major evolution with the proposal of moving from the current smart specialization strategy (S3) to smart specialization strategies for sustainable and inclusive growth (S4+). As noted by a recent report published by the Joint Research Center of the European Commission "S4+ means reinforcing the S3 mission-oriented policy approach with non-neutrality, direction, and system approach to engage regions in European initiatives dealing with missions. S4+ implies a policy shift in the way regions may consider setting policy priorities to push technological innovation and their responses to regional societal challenges." [1].

For regions to be able to implement this transition, local businesses need to boost

innovation at each level. The task is not easy but one of the best options to do it is to turn to the younger generations, who are considered the driving force behind new ideas. Therefore, it is crucial to encourage their creativity and critical thinking so that they could best support business in finding innovative smart and sustainable solutions.

CREATIVITY AND YOUNG PEOPLE

Creativity - what is it anyway? This is how almost all books and essays on this topic begin like this, because the term 'creativity' is as colourful as it is controversial. It is an open and multifaceted concept and often associated with artists, inventors, writers and, increasingly, students.

Researchers draw attention to the clear connection between a university education that promotes creativity and an innovative, future-oriented business and society and criticize the fact that some industrialized countries are lagging behind in terms of innovative capacity.

To get to grips with this problem and to foster the creative potential of students more strongly, a number of far-reaching

measures should be taken, most of which are aimed at the university institution and the curriculum.

For boosting creativity in university education, university teachers should promote reflective thinking in students. Situations in which students only absorb the information they receive without processing it further are considered uncreative.

Techniques for developing creativity also aim at supporting independent learning. Students who have everything handed to them (e.g. literature, scripts, guidelines, outlines) do not learn to make their own decisions and take (self-) responsibility for their own learning process and success even failure. The generation of new ideas is fuelled by the confrontation of individuals with unsolved problems. Confronting students with (learning) problems instead of removing them, trains this ability and also promotes their self-competence as future business people and employees. Ultimately, independence is also a characteristic, that can lead to increased motivation.

Increasing student intrinsic motivation, their willingness or rather enthusiasm to learn and solve problems play a major role in creative development.

Ideally, students are already motivated when they are asked to do something for their studies. 'Making something' in the sense of creating a product by looking at an object from several different perspectives comprises another technique of creativity in university education. When students not only absorb information and reproduce in the exams, but also apply their new knowledge by creating something of their own

Last but not least, students are supposed to develop original ideas. Most creativity techniques are initially aimed at overcoming mental blocks and developing many ideas through divergent thinking in the hope that the multitude of ideas will lead to a qualitatively appropriate, original idea.

By increasing their creativity, students can draw inspiration from a variety of sources and apply interdisciplinary thinking to their entrepreneurial endeavours, thus leading to a more inclusive and dynamic working environment in the future.

CRE8® WORKSHOP

CRE8® is a method of creative problem solving in competition form, in which students develop innovative solutions to a real-world challenge posed by a company or other organization. It was developed as a concept by the Grants and Innovation Office at Karlstad University (KAU), Sweden, with funding from Vinnova, the Swedish state innovation agency. The first workshop took place in 2017 and since then KAU has conducted CRE8® events with challenges from researchers, start-ups, small, medium and large companies and public actors.

The aim of the CRE8® workshop is to train the students to solve real problems and to develop team-working skills as a valuable experience for their future working lives. At the same time, the task owner gains new perspectives and ideas through the students' pitches and proposed solutions. Through CRE8®, the company can use the students' creative ability to find innovative solutions. The result is therefore not a new product or a new service. The outcome of the pitches is instead that a company or an organization gets help to think in new ways about an identified challenge.

A CRE8® workshop takes around six to seven hours and, in order to maximize creativity, students come unprepared. They are not informed about the challenge or the task owner organization in advance. The students themselves must be unprepared, but finding and formulating the task owner's challenge requires preparation. The challenge must be reasonably general but still well-defined. Therefore, it is important that someone who is CRE8®-trained assists the task owner in formulating the challenge

After some instruction on pitching techniques and the jury's assessment criteria, the organization and its challenge are presented to the students. The students are divided into teams of 3 to 5 people at random, as the optimum number is 4 teams and 4 students per team. Then they have three to four hours to find creative and innovative solutions to the challenge without computers or mobile phones. The pitch itself may take a maximum of five minutes and is performed in front of a jury of four people, of which at least one person must be trained in CRE8® and at least one must come from the day's task owner. All team members should be engaged in the 5-minute pitching and answering jury's questions.

The assessment of each team is done according to the following criteria:

A) Presentation (0.2)

- Content: structure, golden thread;
- Technique: flow of speech, team's organization and cooperation; timekeeping.

B) Problem analysis (0.25)

- Solution relevance to the challenge;
- Wide perspective vs focus on important issues;
- Showing the future perspective.

C) Solution (0.4)

- Innovative thinking and creativity;
- Consideration of alternative solutions;
- Implementation and feasibility;
- Sustainable solution.

D) Answering questions of the jury

- Clear and distinct answers;
- Participation of the whole team;
- Handling of the questions as a team.

Based on the jury's assessment, a winner is selected. All members of the winning team receive small prizes so that their critical thinking and creativity is recognized and further encouraged. No big prizes should be given.

CRE8® WORKSHOP IN BULGARIA

The first CRE8® workshops in Bulgaria were organized at the Technical University of Gabrovo, Bulgaria, by the Regional Innovation Centre "Ambitious Gabrovo" and Gabrovo Municipality within the ERASMUS+ project *Alliance of Regional Innovation Ecosystems Based on Smart Sustainable Specialization Strategies* (ARIES4), funded by European Commission.

The two CRE8® workshops were held on 16.11.2023 and 25.04.2024, respectively. Both events included 8 high school students and 8 university students, forming 4 teams for each workshop. The challenges presented to the students were developed by two companies with the help of 2 people trained in CRE8® at KAU, Sweden. The companies were selected according to the priority economic sectors stated in the Smart Specialization Strategy (S3) of Gabrovo Municipality, namely Mechatronics and ICT.

During the first CRE8® workshop the students tried to find a sustainable solution to a problem raised by Mechatronica, a Bulgarian company producing packaging machines. They had to respond to the following challenging question "*How do we retain talented young engineers graduated from the Technical University of Gabrovo?*". A variety of solutions were proposed from financial benefits and favourable working conditions to prospects of career development and training. The fourth team most thoroughly analyzed the problem and suggested the most sustainable solution, which included a new aspect, i.e. since most university graduates come from other Bulgarian towns, the team proposed logistics support and financial support for renting a flat in addition to the above-mentioned solutions. Moreover, the team members answered the jury's questions best. The company was impressed by the students' presentations where possibilities for career development and welcoming working environment were placed first

rather than remuneration. The winning team members were given tickets for a theatre performance.

During the second CRE8® workshop students were challenged to find a solution to a problem defined by Senstate Technology, an EnvTech (Environmental Technology) company which develops innovative IT solutions for environmental monitoring, namely “*How can we engage the community in problems related to air quality?*”.

The solutions that the teams presented within 5 minutes through the pitching method were extremely interesting, from a social platform and mobile apps to the use of influencers in TikTok. The four-member jury, including company representatives and members of the project team, had a very difficult time deciding on the winner, as all the teams had innovative ideas. What prevailed in the final assessment was the team presentation and the answers to the questions asked by the jury. Team 1 won the first place with their solution to create a social platform for healthy outdoor living, including a mobile app with the possibility to report air quality pollution and encourage the platform users through additional functionalities to actively participate in the process, identify problems and activate relevant institutions to find solutions. An innovative strategy to promote the platform by deploying QR codes for direct reporting in public places was also presented. The company owner gave the winning team members home station for air quality monitoring.

CONCLUSION

CRE8® workshop appears a very effective way of stimulating creativity and critical thinking in young people so that they can support companies in finding innovative smart and sustainable solutions to their current business challenges. Being innovative, companies could best boost regional growth in compliance with the S4 strategies of their regions.

Moreover, by participating in CRE8® workshops students can improve their teamwork and master the pitching technique which will help them present their ideas more effectively to their future employers.

Acknowledgments: The present paper is funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them.

REFERENCE

- [1] Mara D. Stimulating Students’ Creativity through Learning Workshops. 2020. 14th International Technology, Education and Development Conference, Valencia. P. 4517-4521.
- [2] Sonnenburg, S. Kooperative Kreativität. Theoretische Basisentwürfe und organisationale Erfolgsfaktoren. 2007. Wiesbaden, Deutscher Universitätsverlag
- [3] https://commission.europa.eu/about-european-commission/departments-and-executive-agencies/joint-research-centre_en.