

From Teachers' Innovative Practices to Students' Co-Creation: A Glimpse of the Project "Link Me Up – 1000 Ideias"

Rosina Fernandes and Susana Amante

Polytechnic Institute of Viseu and CI&DEI, Viseu, Portugal

rosina@esev.ipv.pt

susanamante@estgv.ipv.pt

Abstract: Higher Education Institutions are, more than ever, open to innovative practices, and nowadays the triple helix of University, Industry and Government is taking place through the implementation of projects such as "Link Me Up – 1000 Ideias". This project, funded by COMPETE, was created as a network bringing together thirteen Portuguese Polytechnic Institutes to promote entrepreneurship among students, called talents, in academia. In a multidisciplinary approach, a co-creation team of 4-6 students, working together with organisation partners and using teacher's innovative practices, explore a future-oriented challenge in order to design solutions, ideas and future scenarios, in an 8-week process that aims to empower students to create their own innovative companies or projects and to help them to be prepared for the transition to the world of work, developing soft skills that are required in our competitive society. This project is linked to another, entitled "Learning based on co-creation processes," funded by POCH, in a partnership with DEMOLA Global, which provides teachers (in this process, they become facilitators) with innovative methodologies that are then operationalised when implementing co-creation challenges. In this study, we aim at presenting the "Link Me Up" project from the point of view of students from the Polytechnic Institute of Viseu and local organisations, by a) reflecting upon the questionnaires applied to students and companies to assess their degree of satisfaction with their participation in the project, identifying key areas enhanced by the experience. Additionally, b) we will look at the reports written by the group of students as they summarise the work developed in partnership with companies throughout eight intensive weeks. We will conclude, not with a retrospective view, although it is important to look at the past to build the present, but with the perspective of a future that is collaborative, reflective, critical and increasingly creative.

Keywords: higher education students, co-creation, design thinking, triple helix, employability skills

1. Higher education and innovative practices

Nowadays, the responsibility of Higher Education Institutions (HEI) goes beyond the concern with the certification of graduates and the conferring of degrees to commit to the students' training, at a global level, and their preparation for the growing demands of the job market. These demands require the development of specialised technical skills, but especially transferable/soft skills, because these competencies support career development through continuous adaptation to the opportunities and challenges of the world of work (Qizi, 2020).

In light of the above, the creation of support services in HEI is of utmost importance in order to help students in their career preparation, along with the implementation of projects based on the triple helix concept of University, Industry and Government. In fact, these projects in partnership with regional companies and state entities, and making use of external funding that allows for the development of training initiatives complementary to the formal curriculum, offer opportunities for student involvement in innovative actions, with an emphasis on research in the area (Arulmani et al., 2014; Fernandes, 2013; Orteu, 2017). This interest in the adaptive transition of students to the job market is a concern of theorists, researchers, directors, and teachers. Indeed, the involvement of teachers in training based on innovative pedagogical practices, centred on the student as the main actor in the teaching-learning process, has proven to be promising in some higher education institutions (Carvalho et al., 2022).

In fact, students' active role in the construction of their academic training project and preparation for professional practice is undoubtedly an established crucial point of the responsibility of HEI in promoting a successful transition to active life. In this process, the student is recognised as a competent subject due to his/her performance of role-taking experiences (rather than role-playing, as traditionally put) in a work context, with real organisations that welcome students in a process centred on their talent, through continuous self-reflection on praxis that allows the transversality and generalisation of the knowledge developed when entering the job market (Mangas, 2020).

2. Entrepreneurship and innovation promotion in Higher Education

The COVID-19 pandemic has confirmed that technological advances allow for the emergence of new forms of work (e.g., remote work) and new professions that require different and higher levels of knowledge, so the worker is increasingly valued today because s/he is the cause of an organisations' wealth (Noutel et al., 2021).

In this sense, preparing students for the demands of the labour market and for the development of the (constantly evolving) skills needed entails changing training programmes, namely adding the dimension of innovation and entrepreneurship, not just for those who are interested in creating their own jobs, but, above all, for the students' development of entrepreneurial and creative skills, which enhance the employability of graduated youth (Mónico, 2021).

As we have seen, the ever-changing labour market implies an entrepreneurial profile in all areas (Fernandes et al., 2021). Innovation is increasingly necessary for all careers and the promotion of students' creativity and design-thinking skills that may lead to the creation of business ideas should be a priority for HEI, no matter the field of study (von Thienen et al., 2017).

In this sense, the project presented in the next section enables students to develop the skills necessary to create new and meaningful solutions to challenges faced by organisations and to discuss future scenarios in order to allow companies to be ready for future demands. In this process students redesign work processes in the light of the recent technological advances we pointed out before.

3. "Link Me Up – 1000 Ideias" Project at the Polytechnic Institute of Viseu

3.1 Project framework

The Polytechnic Institute of Viseu (IPV), committed to promoting the quality of teaching, innovation, and bringing academia closer to local organisations, has been investing in the students' training to increase the quality of employment (IPV, 2021a). In this context, according to the same source, IPV has embraced the project entitled "Link Me Up – 1000 ideas," a Support System for the co-creation of innovation, creativity and entrepreneurship (01/SIAC/2020 – Application no. 072070), led by IP Leiria, but resulting from a Consortium of 13 Polytechnic Institutes of the Network of Portuguese Public Polytechnic Institutions.

This project is co-financed by European and national funds, in a total of €5,562,774.12), through COMPETE (Operational Programme for Competitiveness and Internationalisation, cf. Project File at https://site.ipv.pt/linkmeup_proj.htm).

The project aligns with aspects of the triple helix concept previously introduced and includes novel features that have not been incorporated into other discussions of this concept, as we will mention below.

In fact, according to the Project File (IPV, 2021a), it aims to develop more than 1000 ideas, from 2021 to 2023 (6 biannual editions, the 1st and 2nd completed, the 3rd and 4th ongoing), in multidisciplinary and international co-creation processes between students and organisations, with the support of teachers/facilitators.

3.2 The Pedagogical Innovation Course at IPV

3.2.1 Course presentation

The implementation of the "Link Me Up" Project at IPV is carried out through the Pedagogical Innovation Course (non-degree course, with 6 ECTS, totalling 162 hours), closely connected to the Finnish platform DEMOLA - demola.net (IPV, 2021a). Since 2008, Demola has been a recognised international service for organisations, focused on driving forces and opportunities for the future, considering higher education students (Generation Z) as experts and promoters of change (Demola, 2022). This course is dependent on the "Learning based on co-creation processes" project (ref. no. POCH-04-5267-FSE-000818), a training course for teachers to become facilitators (IPV, 2021b).

The target audience of the Pedagogical Innovation Course includes Higher Professional Technical Courses - CTeSP, Graduation, Postgraduation and Masters' students, from all knowledge areas, integrated into

interdisciplinary work teams (maximum 6 students) that collaborate with community organisations with the support of teachers/facilitators from different IPV schools (and also from vocational schools) in co-creation projects to solve real organisational challenges (IPV, 2021a).

At the beginning of the course, a challenge proposed by each of the local organisations and designed by facilitators is presented and made available on the Demola-Portugal 20-23 platform (<https://www.cocreationportugal.com/>).

During 8 to 10 weeks, the teaching-learning process is enhanced by the use of active and innovative methods, focused on multidisciplinary, multinational and multicultural development and management, using the DEMOLA platform, in weekly (online) meetings between students and the organisations' representatives, aided by various stakeholders and experts that are invited to discuss the challenges, and by field trips both to research centres and to the participating partner organisations (IPV, 2021a). The process of planning the future and goals to achieve (strategic vision), along with immersion in the problem/challenge, ideation based on the insights collected and prototyping (validation of the idea), as a design-thinking process (Brown, 2009; Reche & Janissek-Muniz, 2018), are some of the strategies students use to address and explore the challenge, with the support of teachers/facilitators and Demola mentors. Ideas are brainstormed, using rapid prototyping, from the perspective of innovation and value creation for different stakeholders (IPV, 2021a).

In the end, according to IPV (2021a), students should have reached conclusions (solutions/future scenarios) and be able to effectively communicate their ideas to an audience (Final Pitch).

3.2.2 Course benefits

The course structure, complying with the prerequisites of the Bologna process, relies on student-centred teaching methodologies, as well as the co-construction of transversal competencies/soft skills, such as: i) thinking and questioning; ii) communication (namely in English) and work in multidisciplinary and (inter)national teams; iii) solving complex problems; iv) dealing with/managing uncertainty and change; v) creating and innovating in organisational contexts (IPV, 2021a).

Some course tangible benefits are: i) 6 ECTS as a diploma supplement; ii) allocation of credits to curricular units; iii) scholarship; iv) International Certificate from the Finnish Government Accreditation Agency; v) possibility of participating in a national competition (prizes of €5000, €3000 and €1500) and participation in an international event (IPV, 2021a).

Furthermore, intangible benefits are associated with this experience: i) work on a real-life challenge; ii) connection with the labour market/organisations; iii) development of skills relevant to one's professional life (*curriculum vitae* enhancement); iv) academic recognition; v) network extension; vi) ownership/copyright of the project results (creation of employment, possibility of patents and the development of prototypes with project funds). We found evidence in the literature regarding these benefits associated with the project, given its implementation in other countries, namely in Spain, a cultural context close to the Portuguese (Catalá-Perez et al., 2020).

4. Link me up – 1000 ideas Project Results: the IPV experience

So far, two editions of the project have been carried out, with 16 teams of students exploring challenges around themes such as technologies; culture and art; social and community development; health, sports and well-being; economy; sustainability and environment; tourism; and communication. The organisations involved in these two editions included technological companies/digital services, associations, museums, small companies, large local companies, municipalities, business consulting services, industry, and sports clubs, among others.

4.1 Results from the students' perspective

4.1.1 Students' profile

So far, 75 students have completed the course in the 16 IPV co-creation teams (42 in the 1st edition and 33 in the 2nd). It is worth mentioning the participation of 7 IPV students in teams from other Polytechnic Institutes (3

in the 1st edition and 4 in the 2nd), with 2 students from other Polytechnic Institutions (2nd edition) integrated into IPV teams.

International students have also participated in IPV teams (3 in each edition), mainly from China and Brazil. The contribution of these students has allowed Portuguese students to have contact with cultural specificities in addressing the challenges, as well as the opportunity to develop English language skills, so important in today's job market and often missing in Portuguese students (Amante et al., 2021).

In the student's profile, the female gender stands out (68% in the 1st edition and 57% in the 2nd), which is expected if we take into account the literature on female students' engagement with extracurricular activities in comparison with males but also surprising because the male gender is typically more represented in entrepreneurship projects, reflecting gender inequalities that we still find in the Portuguese labour market. The project has proven to be very important in training future entrepreneurial female students, countering these stereotypes rooted in the Portuguese culture (Ferreira, 2020).

The average age was 25 in the first two editions, with students ranging from 19 to 56 in the 1st edition and from 18 to 43 in the 2nd edition. The participation of older students is unexpected, as, when applying for funding, this project highlighted youth entrepreneurship as its top priority. However, the results show that everyone's contribution is welcome to this project.

Most participants are undergraduate students, and the project has so far involved 5 Master's students in each edition, with very interesting participation, given the maturity and experience that these students usually bring to the teams. CTeSP students did not participate in the first two editions.

Students come from different IPV schools, but courses in the social, education and communication areas are more highly represented, which is not very common in entrepreneurship projects, although the focus on social entrepreneurship should increasingly deserve our attention (Fernandes, 2021; Nicholls, 2008), perhaps because of the project's focus on social and societal challenges and less on profit/business issues. The areas of engineering, management and technologies follow (with an increase in the 2nd edition of the project), as expected in these kinds of projects. So far, the least represented areas in the project are art and culture, as well as sport and health. We plan to draw upon the experiences and testimonies of students from these underrepresented groups in marketing initiatives when we promote the next editions of the project as a mechanism to help increase their participation.

4.1.2 Satisfaction with participation in the project

As part of the project evaluation, which IP Portalegre is responsible for, and IP Setúbal is carrying out, we learnt from the satisfaction questionnaires that there was a degree of satisfaction of 84% in the first two editions.

Students highlighted the project's contribution to the development of these skills: i) research, information gathering and analysis (92%) and teamwork/relationships (92%); ii) digital skills (90%) and management tools (87%); iii) creativity (86%) and critical thinking (84%); iv) entrepreneurship (77%) and leadership (77%); v) training (64%) and interest (12%) in creating own employment.

From a qualitative perspective, according to the questionnaire developed by IPV, we can point out some student testimonies. They consider that this is a unique, incredible, intense, challenging, very interesting and enriching experience, which requires effort, dedication and time, but which is a fantastic opportunity for any student. Participation in the project allowed students to: i) work as a team and with colleagues from other courses, schools and countries; ii) build networks and make friends; iii) have a perspective on the world of work, as well as acquire knowledge and experience as preparation for their professional future; iv) feel active, included and needed; v) understand what they want for their professional life; vi) learn about new tools; vii) produce an innovative idea in a short time process. They highlighted the importance of the facilitator's support and his/her distinct role from the traditional teacher. Here students are not passive consumers of information, as in the traditional approach to teaching, but knowledge producers.

In addition, some students had never prepared their *curriculum vitae* and did so for the application, some had never spoken English and had to do so to communicate with international colleagues and to prepare their final pitch, and others explored their vocations in a real context.

The analysis of the students' final reports reveals that: i) 43.7% suggest the development of technological resources as a solution to the explored challenge (e.g., app, hologram, artificial intelligence device); ii) followed by the proposal of action strategies in 31.2% of cases (e.g., training program, event, social project, list of initiatives); iii) and, finally, 18.7% put forward the development of a product (e.g., game, loyalty or reward programme, food resource). The challenge exploration may also result in an alternative option, centred on the description of future scenarios (e.g., projections on changes, consumer profiles), rather than solutions, but it was less represented (6.2%) in the students' reports.

4.2 Results from the organisations' perspective

So far, 16 partner organisations have been selected to develop the same number of co-creation cases.

The analysis of the satisfaction questionnaires showed a satisfaction level of 91% in organisations. Partners highlighted collaborative work and valued creation as the main benefits of participating in the project (94%). Then, they pointed out the possibility of acquiring multidisciplinary knowledge (91%) and the construction of new solutions (89%). The opportunity for self-knowledge about the work developed by the organisation, namely the identification of opportunities and threats (86%) and critical analysis of information about the organisation and the surrounding context (77%) were also recognised as relevant aspects associated with this project. Less valued were the digital skills developed (69%) and the implementation of management tools (63%). The innovative aspect of welcoming students as talents stands out, which is different from the perspective traditionally adopted during academic internships.

5. Final remarks

At IPV, the project has attracted the interest of academia, involving 10 teachers facilitating 8 challenges and co-creation teams per edition, and boosting the motivation of hundreds of applicants. In fact, there are cases of students who repeat the experience even without access to the above-mentioned tangible benefits, therefore, proving they are intrinsically motivated.

The results are encouraging for students, with signs of entrepreneurial attitudes including in less common areas. The purpose of creating their own job has not been the focus identified by students. The project has essentially enabled, from the students' perspective, the development of soft skills/transversal competencies, rather than the training of entrepreneurs and leaders. This is a project focused on co-creation and relationships, working on crucial human competencies in today's society.

The main result pointed out by the companies is centred on the link between academia and the business world, in line with the project's objectives. The opportunity for innovation and cross-referencing of knowledge of a multidisciplinary nature is also highlighted by those responsible for the organisations.

These findings are aligned with data from initiatives of this nature in other Polytechnics of the Consortium. In fact, this project contributes to the wider knowledge, understanding and literature on university-industry/organisational/community engagement at a national level, and also due to data publication such as this paper, we hope at an international level too.

We can anticipate some difficulties regarding the continuity of the initiative arising from the end of funding, essential to student field trips and scholarships, as well as the other tangible benefits identified above. We hope that these new methodologies may find their way into regular classes and the interest of community organisations in welcoming our talents, both as students and already graduated as future workers, will remain.

In this experience, we highlighted the teacher as a facilitator of learning, along with the active role of the student at the centre of the process and the partner organisations of the academy as co-builders of knowledge. It seems to us that the future of higher education will certainly involve co-creation learning and linking all (academy and community) up. This is the aim: to put the knowledge of academia truly at the service of society.

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