

# PROFESSIONAL DEVELOPMENT FOR HIGHER EDUCATION TEACHING STAFF: AN EXPERIENCE OF PEER LEARNING IN A PORTUGUESE POLYTECHNIC

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## Abstract

Several challenges have been tackled by Portuguese and European Higher Education, many of which are in the pedagogical arena. Although Pedagogy in Higher Education is not an invested area, there are studies, initiatives, projects, and structures of great quality in the national context. An important part of the advances in the area has resulted from the systematic analysis, sharing, and discussion of practices that have embodied several publications and sustained several interventions in Portugal and internationally. The EQUiPES - Study of Quality and Pedagogical Innovation in Higher Education aims to contribute to this body of experiences and studies that allows to understand and improve teaching and learning in Higher Education institutions, based on the analysis of practices in the Polytechnic of Viseu (PV) in communication with external partners. Peer learning and discussion groups are important for supporting pedagogical processes. Pedagogical action becomes something that is shared, regardless of scientific areas. In the past year, a group of seven professors developed a set of opportunities to share and discuss practices, named "Apps & Things", that ran 12 workshops. In this paper, we will present the set of workshops and analyze the pedagogical elements of each one, as well as how the technology was articulated with the pedagogical elements.

Keywords: Higher education, peer learning, pedagogy.

## 1 INTRODUCTION

Several challenges have been tackled by Portuguese and European Higher Education ([1], [2]), many of which are in the pedagogical arena. Although Pedagogy in Higher Education is not an invested area, there are studies, initiatives, projects, and structures of great quality in the national context ([1], [3], [5], [6], [7], [8], [9]). An important part of the advances in the area has resulted from the systematic analysis, sharing, and discussion of practices that have embodied several publications and sustained several interventions in Portugal and internationally. The EQUiPES - Study of Quality and Pedagogical Innovation in Higher Education aims to contribute to this body of experiences and studies that allows to understand and improve teaching and learning in Higher Education institutions, based on the analysis of practices in the Polytechnic of Viseu (PV) in communication with external partners.

In the past year, a group of seven professors developed a set of opportunities to share and discuss practices, titled "Apps & Things", that ran 12 workshops. In this paper, we present the set of workshops and analyze the pedagogical elements of each one, as well as how the technology was articulated with the pedagogical elements. The pedagogical elements identified were: assessment and evaluation; communication and interaction; planning and monitoring work; distance learning; students' participation; and trust. The experience is discussed in terms of the EQUiPES framework, intending to contribute to the visibility of Pedagogy in Higher Education, associated with peer-to-peer training opportunities and experiences.

## 2 POLYTECHNIC OF VISEU

The Polytechnic Institute of Viseu (IPV) is based in the city of Viseu, in the inner middle-center of Portugal. Four of its schools are located in Viseu: Education, Health, Agriculture, Technology and Management, and one in Lamego: Technology and Management. In the five schools, a total of 5,000 students are involved in 81 programMEs: Bachelor's and Master's degrees, as well as Post-Graduations and Technical-Professional Training programMEs (EQF level 5). The research is

organised in four research units: two research centres (CI&DETS: Research Centre in Innovation and Education and CISEd - Research Centre in Digital Services) and two local extensions of national research centres (Health Sciences Research Unit: Nursing (UICISA: E), hosted by the Nursing School of Coimbra, and CERNAS – Research Centre for Natural Resources, Environment and Society). This has allowed for international, national and internal collaboration across disciplinary areas. Academic research and education at IPV are characterised by a high level of ambition and encourage free and open communication and ideas. The diversity of qualification areas is brought together by a common pedagogical approach of valuing active learning along with practical experiences in real contexts through collaboration with local and regional stakeholders, enterprises, civil society, schools, and communities. The education ecosystem is also defined by its connection to research.

In its five schools, PV has a teaching staff of 400 members for 5400 students. The programs range from professional learning (level 5, no degree) to Masters level, with a large percentage of students enrolled in Bachelor degrees from different areas (teacher education, social work, and education, nursing, community health, engineering, arts, design and multimedia, marketing, management, tourism, media studies, agriculture, public relations, information and communication technologies, and sports). The majority of PV's study programs are professionally oriented, in line with the mission of the polytechnic Higher Education system. Each program is designed in close proximity and alignment with professional contexts and practices. The supervised practical training in professional contexts is combined with project-based learning throughout the programs and there is a strong emphasis on active learning strategies.

Another contribution to close interdependent relationships between IPV and the industry and businesses comes from the Demola.net innovation groups that started in 2021, developing co-creation projects in close collaboration with enterprises, cultural and public sector, NGOs, and other entities. IPV is offering training in Demola.net methodology for its teaching staff to act as mentors of projects involving students from different programmes, as well as students from vocational schools in the region. Each multidisciplinary group will take on challenges presented by companies/entities and develop innovative solutions, evaluated by the companies/entities themselves. The dialogue and cooperation between research, education, society, business and industry have the potential to develop expertise for all involved parties.

Regarding innovation and entrepreneurship, IPV already has initiatives that put together students, companies and ideas. Mentorship programmes (Poliempreende, Mark'It, Concurso Universitário & Politécnico CAP – Cultiva o teu futuro) have grown over the years, with several successful results. A good connection between these initiatives and the learning activities in the courses is also in place.

For every student, IPV strives to promote inclusion and equity through formal and non-formal education, based on the use of participatory and innovative pedagogical approaches and digital technologies. The student body composition raises specific challenges in terms of support needed. At the national context, our students come from all over the country even if the majority is from around the city of Viseu and Lamego. A significant number of students are from low SES and request bursaries. IPV's programmes have also attracted students from several countries. This has created different diversity and inclusion challenges - both at the Polytechnic and for life in the city for many of the students.

IPV has developed solutions for some of the problems that have been identified. There is support for special needs students through the Mission Groups for Special Needs and for Inclusion. The last one in particular, "PV+ Inclusion", reflects the commitment of the institution with the community in terms of supporting and reducing disparities of underprivileged groups. The Group has put in place an active network of mentors for migrants and a Local Centre for the Support of Migrants (CLAIM), based on volunteer work.

It is also a question of inclusion and democracy that drives the strong emphasis of IPV on the involvement of students in decision making. In every school and in the IPV Board, students have representation and they are also included in the Mission Groups that deal with specific situations. The Students Associations are very active and their voice and participation are a common part of the day to day life of the institution.

Beyond its student community, there are activities and projects directed at the larger community, for example the monitoring and evaluation of mental health indicators of children and teenagers; and the health literacy for the young population. With the American Psychological Association (APA), there is a partnership to develop research-action projects oriented to children/youth, families, communities and collaboration with UNODC related themes that can promote social inclusion.

A different take on inclusion is accomplished through art and culture, as forms of representation / interpretation of the world and expression of human knowledge. The interaction and correlation between these two domains, involving local and regional communities, through artistic experimentation and research, has created different opportunities for students to connect to the city, to heritage and to the community. IPV has started experimenting with projects that involve students in artistic and cultural projects developed in partnership with the local and regional cultural institutions.

### 3 A PEER LEARNING EXPERIENCE

The particulars of the programmes and pedagogical practices of the IPV pose challenges for Pedagogy and pedagogical knowledge and competencies, developed in the workplace through action, but also through reflection ([10]). Peer learning and discussion groups are important for supporting those processes. Pedagogical action becomes something that is shared, regardless of scientific areas ([11]). In the discussion of pedagogical practices, a focus on the learning and the students is important and technology has been highlighted as facilitating that shift ([12]).

In the past year, a group of seven professors developed a set of opportunities to share and discuss practices, named “Apps & Things”, that ran 12 workshops. The topics of each workshop were selected based on the teachers’ own pedagogical experience.

#### 3.1 The workshops

A title of each workshop follows: 1) Check knowledge with the Socrative App, 2) Quick communication in pedagogical contexts, with Slack, 3) Digital tools for student assessment by students, 4) Slides, how I want you, 5) SCRUM in the implementation of PBL, 6) Acadly, 7) Collaborative work management with Trello, 8) Video for the production of educational content. Some of the workshops ran twice: “Check knowledge with the Socrative App”, “Digital tools for student assessment by students”, “Slides, how I want you”, “Acadly”, to allow the teaching staff from the school in Lamego to participate without having to travel. Those four workshops were held in the same day. The eight original ones ran on Wednesday at the end of the day (17.30-20.00). All workshops were conceived to last one hour with another half hour for discussion. In practice, all ran for close to three hours. Each week a different place was chosen so that all schools were included as venues. They ran from October 2019 until January 2020.

A small description of each workshop reveals the topics that were presented. The texts were written by the trainers themselves.

- 1 Check knowledge with the Socrative App: In this workshop, the Socrative application will be explored, allowing the elaboration of questions, the results of which are immediate, facilitating the evaluation of knowledge and making the class more dynamic and interactive.
- 2 Quick communication in pedagogical contexts, with Slack: Performing team tasks can greatly benefit from digital tools that allow fast communication between those involved. In this workshop, the use of the Slack software will be explored and testimonies of its systematic use will be shared in pedagogical contexts that include group work, project / internship orientation, coordination between teachers who share a course and, even, between teachers of a programs
- 3 Digital tools for student assessment by students: The purpose of this session is to share very simple and practical techniques to make classes more interactive between the teacher and students thanks to the Mentimeter and to involve students in the evaluation of colleagues by Google Forms.
- 4 Slides, how I want you: The use of slides has become a standard in the educational environment. However, the use of this tool requires care, so as not to contribute, itself, to distort the learning process. In this sense, a reflection on this theme will be presented. Techniques will also be exposed that, depending on the situation, can be adopted / adapted to improve the pedagogical relevance of the slides, including in terms of their design and complementation or replacement with other formats.
- 5 SCRUM in the implementation of PBL: The implementation of Project Based Learning (PBL) requires sensitivity, ingenuity and the ability to adapt to the idiosyncrasies of each group of students. This session will present the principles of using the SCRUM methodology - popular in project management in a business environment - and the results of the experience of its use in

several classes of the ESTGV Computer Engineering course. It is hoped to be able to trigger an open and potentially generative discussion to optimize this approach to the PBL.

- 6 Acadly: The digitization of education is already a reality in higher education. Acadly appears as a support platform for teachers in the management of their classes, allowing them to register attendance, share content with their students, create discussions on topics for different groups, and even conduct surveys or surveys. evaluation tests.
- 7 Collaborative work management with Trello: The systematization of work plans and the dynamic management of the commitments into which they break down play a crucial role in academic projects, especially in situations of team work. In this workshop, the Trello tool will be explored and the experience that already exists in its integration in different pedagogical contexts will be shared.
- 8 Video in the production of educational content: In specific situations, it may be interesting to communicate educational content in video format. To that end, possible approaches will be discussed and conditions and equipment suitable for the respective capture will be demonstrated.

All participants had to register before attending the workshop. The week that registrations opened, 20 to 30 participants registered for all workshops, filling every place. In the small registration questionnaire, participants revealed they were interested in opportunities to think about pedagogy and, mostly, learn new things that could support innovation. Therefore, the choice of workshops was not based on their content. Instead, participants saw the workshops as a package of training and chose all of them.

Participants came from all five schools. Since some of the teaching staff of the School in Lamego have their residence in Viseu, it was possible for them to join the sessions in Viseu. Even when the workshops were held in Lamego, there were 3 participants from Viseu who traveled there for the opportunity to participate, since it had not been possible in Viseu.

## **3.2 The pedagogical dimensions**

For this paper, the content of each workshop was analysed. This included the support materials that were provided, the themes that were presented by the trainers and the discussions that happened after the session, with the participants' questions and sharing of experiences. Six themes emerged: assessment and evaluation; communication and interaction; planning and monitoring work; distance learning; students' participation; and trust.

### *3.2.1 Assessment and evaluation*

Three of the workshops focused directly on assessment and evaluation "1) Check knowledge with the Socrative App", "6) Acadly" and "3) Digital tools for student assessment by students". The first two introduced the app but also the concept of formative assessment. The colleagues shared their own practices and relevance of small checks of understanding throughout the sessions. The exercises were based on questions created for the workshop, but real class questionnaires, used in teaching Informatics and Marketing, were shared and discussed between colleagues. The third workshop was framed by conceptual information on participatory assessment by students. The short information was used to frame real practices of using Moodle and Google Drive for students to submit small pieces of work and having colleagues assess and feedback on them.

Indirectly, the workshops "4) Slides, how I want you" and "5) SCRUM in the implementation of PBL" connected to assessment and evaluation as basic pillars of Pedagogy. By looking into teaching strategies, both discussed how assessment should be congruent with teaching.

### *3.2.2 Communication and interaction*

Pedagogy being a relationship, all workshops touched upon this theme. Some of the main contributions were from "2) Quick communication in pedagogical contexts, with Slack", which focused the benefits of clear, searchable, almost immediate communication between students, students and teachers, and between the teaching staff, for learning and for managing learning. In a different way, "4) Slides, how I want you" brought forward the importance of thinking the visual part of communication.

Finally, “8) Video for the production of educational content” journeyed through guidelines and suggestions regarding the use of cameras, lighting and microphones in several pedagogical situations. The discussion was, once more, very telling of the concerns of teachers: the symbolic power of the microphone or how the perception of the speaker influences the communication situation, for example, were part of the content made available for the participants.

### *3.2.3 Planning and monitoring work*

Again about how students interact between themselves in terms of group work, “7) Collaborative work management with Trello” and “5) SCRUM in the implementation of PBL” presented good suggestions for structuring that process. Beyond the app and the strategy, those sessions were rich in discussions about limitations of group work in Higher Education and how planning and monitoring are essential components of it.

The previously mentioned “2) Quick communication in pedagogical contexts, with Slack” was also relevant in terms of showcasing how fast communication between teachers can lead to decision making that answers daily problems and improves pedagogical work.

### *3.2.4 Distance learning*

Even before the COVID-19 pandemic, interest in distance learning was high amongst the participants: “2) Quick communication in pedagogical contexts, with Slack”, “3) Digital tools for student assessment by students”, “6) Acadly”, and “8) Video for the production of educational content” made direct mentions to how technology can distribute teaching and learning in terms of time and spaces.

### *3.2.5 Students’ participation*

Interestingly, motivating students’ for the classes/session was an important topic for participants. It was brought up in most sessions, with different dimensions, according to the topic of the workshop. In “1) Check knowledge with the Socratic App” and “6) Acadly”, the focus was on making sessions interactive. In “2) Quick communication in pedagogical contexts, with Slack”, it was about engaging students in discussions, in being present throughout the semester in terms of discussions and participation in tasks. In “3) Digital tools for student assessment by students”, it was about making them co-responsible for the evaluation and learn criteria of quality. In “4) Slides, how I want you”, it was about mistakes to avoid as a teacher/speaker. In “5) SCRUM in the implementation of PBL” and “7) Collaborative work management with Trello”, it was about making students authors and managers of the process. The trainers all presented students’ participation as something positive and to be fostered. The discussions were more balanced, with some colleagues arguing the limitations and difficulties of a participatory culture.

### *3.2.6 Trust*

Across all workshops and discussions, the concept of trust was present. In a first interpretation, there was the idea of trusting pedagogical processes to technology. If “1) Check knowledge with the Socratic App”, “2) Quick communication in pedagogical contexts, with Slack”, “3) Digital tools for student assessment by students”, “6) Acadly”, and “7) Collaborative work management with Trello” were examples of how technology is capable of extending the possibilities of a teacher, the other two were more focused on how not to break the trust between teacher and students through misuse of technology: “4) Slides, how I want you” and “8) Video for the production of educational content” were guidelines based on good and bad examples of the use of technology.

In a second interpretation of trust, between human beings, all workshops showed a positive view of students, as open to innovation, interested in participating, capable of taking on challenges, both in terms of using different technology and in terms of being trusted to evaluate, communicate, create, and manage.

A third interpretation of trust that came from the sessions, was between colleagues. The trainers presented themselves in a humble way, talked about mistakes, limitations and struggles with their practice. The participants were supportive, interested and available to listen.

## **4 CONCLUSIONS**

The Polytechnic of Viseu has had some projects focused on pedagogical dimensions in Higher Education. It has a tradition of work-oriented training and a strong connection to the industry in its

pedagogical approach. This allows for innovative and quality practices to exist in the different schools. The workshops under “Apps & Things” aimed at bringing forward some of the colleagues who have good practices and have some dimension of reflection about them. This is essential if one is to share knowledge in a relevant way. The sessions were successful and the concept of peer-learning became practice.

All participants suggested that further support was made available when trying to implement some of the proposals that were presented. This opens different opportunities for more intensive learning but also requires time. Pedagogical change and innovation is known to be demanding ([13]) but small contributions are nevertheless relevant.

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