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New Pedagogical Practices of Co-Creation Applied to Design

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ABSTRACT

With the creation in 1999 of a European Space for Higher Education, there was a change in the teaching paradigm, from a passive model based on the acquisition of knowledge, to an active model based on the development of competences (Legal regime of Higher Education degrees and diplomas, 2006). But the current social, environmental and technological challenges have changed teaching-learning methods and processes in a relatively short period of time, providing new pedagogical practices, where collaboration with other disciplines and actors enhance creativity, innovation and research in design. This article is the result of two experimental international pedagogical projects and pedagogical contents taught in the Project Management and Ergonomics curricular units, at the Master in Graphic Design from the Polytechnic Institute of Castelo Branco and of the Faculty of Architecture of the University of Lisbon, Portugal. This work has as main objective to identify new pedagogical practices of co-creation and agile methodologies applied in the development of Design projects in an academic environment, as well as to identify methodologies and models of collaboration and co-design, characterized by interdisciplinary dialogue in a collaborative context, considering alternative educational practices in teaching-learning of design.

Keywords: Design, Creativity, Co-creation, Pedagogical practices, Design education

INTRODUCTION

Signed by 29 European countries on the 19th of June 1999, the Bologna Declaration began a reform process aimed at realizing the European Higher Education Area, in the sense of harmonizing the duration of study cycles, recognizing qualifications and periods of learning abroad, implementing a higher education quality assurance system and facilitating the mobility of students and human resources, making higher education more inclusive and accessible, more attractive and competitive worldwide (European Commission, 2022).

The Bologna Process led to a pedagogical change and the consequent application of different methodologies, valuing student-centered learning and

results, allowing the application of new pedagogical methods and means of teaching and learning, focusing on student activity, promoting multidisciplinarity and innovation in processes, in a vision of lifelong training.

In this context, current social (health, education, inequality, justice, population aging, etc.), environmental (climate change, pollution, energy, water, etc.) and technological challenges (smartphones and tablets, digitalization, internet of things, reality virtual and augmented, APPs, social networks, artificial intelligence, etc.), including the effects of the 2019 pandemic crisis, have also changed teaching-learning methods and processes in a relatively short space of time, providing new pedagogical practices, where collaboration with other disciplines and actors enhance creativity, innovation and design research.

Following the restructuring of the teaching and learning methodologies inherent to the Bologna process and the implementation of an ECTS credit system, several higher education institutions, particularly in the area of design, have deepened or started to value new pedagogical practices of co-creation. (allowing the inclusion of different actors in the process of developing and solving design problems), but also project-based learning (which enables the construction of knowledge in a collective way, centered on teaching through the project, valuing the acquisition of competences through practice).

The present investigation thus results from the pedagogical and professional practice of the authors, from the applied methodology and the results of two international pedagogical projects in co-creation, from the analysis of the pedagogical contents taught in two curricular units, and from their results substantiated on project-based learning.

The main objective of this work is to identify new pedagogical practices of co-creation and agile methodologies applied in the development of Communication Design projects in academic environment, as well as to identify methodologies and models of collaboration and co-design, characterized by interdisciplinary dialogue in a collaborative context, considering alternative educational practices in design teaching-learning.

THE CASE STUDY

The work presented resulted from the participation in co-creation projects and the analysis of pedagogical practices developed in the Master in Graphic Design of the Polytechnic Institute of Castelo Branco, in association with the Faculty of Architecture of the Lisbon University (Portugal). Starting from the Master in Graphic Design as a case study, the two international pedagogical projects, "Link Me Up – 1000 ideas" and "HackExtrem – Movimento Extremadura y Portugal" are presented, as well as an analysis of the pedagogical content taught in Design Management and Visual and Cognitive Ergonomics curricular units.

"Link Me Up – 1000 ideas - Support system for the co-creation of innovation, creativity and entrepreneurship", is a project inserted in the context of entrepreneurship and creativity and co-creation initiatives in Polytechnic Higher Education in Portugal, carried out in co-promotion, considering

the potential for synergy, resources and experiences between 13 Portuguese polytechnic universities.

Born through the European Union initiative "New European Bauhaus", the "SWINg Bauhus – South Western Iberian New Bauhaus" is an open and cross-border movement between Portugal and Spain, which aims to rethink the Euroace territory (Alentejo and Central Portugal and spanish Extremadura), a proposal for an ecosystem of innovation projects focused on a green, sustainable, inclusive and digital future, where creativity and collaboration will be fundamental. In the context of the SWING Bauhus movement, the authors participated in the HackExtrem – Movimento Extremadura y Portugal program, lasting seven weeks, which aimed to identify challenges and seek solutions for future ways of life based on art, culture or social inclusion in the territory covered.

The Project Management curricular unit has as learning objectives, among others, the acquisition of skills by students in terms of planning, management, organization and production of the communication design project, as well as the acquisition of knowledge about design project methodologies and processes, as well as techniques to stimulate creativity.

As for the curricular unit of Visual and Cognitive Ergonomics, this has as learning objectives the acquisition of knowledge about perception and cognition, knowing how to create real conditions for the implementation of visual reading appropriate to the human factor and the application of knowledge about perception and visual cognition to projects of communication design.

METHOD

Globalization is not a contemporary phenomenon, having seen in the most recent past an accelerated evolution of the world since the fall of the Berlin Wall and the end of the Cold War, but also the technological acceleration with the democratization in the use of the world wide web, the digital communications and technological advances after the global subprime crisis. The new sociological and technological challenges and the sustainability of the planet began to focus different attention from policy makers, organizations and citizens in general, but also from educational institutions.

In this context, design has also adapted, applying new models, new ways of conceiving, different technologies and adopting new pedagogical practices in its teaching. It was from this problematic that we intended to analyze the teaching of communication design, starting from the case study of the Master in Graphic Design, in particular the analysis of two curricular units (which use project-based learning as a teaching methodology) and of two pedagogical co-creation projects.

For this article, it was carried out a descriptive research, from qualitative basis, using a literature review in the area of methodologies, techniques and models applied to the different phases of projects in communication design and collaboratives. The technique of document analysis of the contents and pedagogical practices developed in the two selected curricular units was applied. The case study method was also used, applied to two international

pedagogical projects "Link Me Up – 1000 ideas" and "HackExtrem – Movimento Extremadura y Portugal".

RESULTS

Link Me Up

The project "Link Me Up – 1000 ideas - Support system for the co-creation of innovation, creativity and entrepreneurship" aims to promote co-creation processes and training for entrepreneurship as a tool for learning, innovation and connection to the business fabric. In this project, the Demola Global co-creation model was applied to help companies explore trends, phenomena or technologies of the future. Demola Global (Finland) is an international innovation challenges platform that brings together students and organizations. Challenges are designed to solve real future challenges and create new service concepts and demonstrations. A multidisciplinary team of university students and experts from the organization work together on an innovation challenge, during an eight-week process, where the team co-creates solutions for a given topic.

The program is structured in two parts, the first with a duration of seven weeks of teacher training, aimed at acquiring skills based on co-creation processes. The second part, aimed at university students, consists of the development of innovation challenges, designed to solve real problems of the future and create new concepts, thinking about new products and services.

In this project, the authors of this article (facilitators) participated in the training and, later, researched a topic to explore with an organization, to which the challenge was proposed. The project started with the creation of the team of 6 elements through a call and the challenge began. The 8-week schedule was divided into two parts, the first part of research and analysis of the present context and the second part, speculative and proposing future scenarios.

PRESENT (4 weeks) - DESIGN RESEARCH: Week 1 - Project Kick-Offs; Week 2 - Design research; Week 3 - From present to future; Week 4 - Partner and Team Facilitation Skills. TOOLS: Industry reports; Academic articles; Demola reports; Benchmarking; Stakeholder identification; Interviews; Observations; Mystery shopping. (Deliverable: PESTLE analysis).

FUTURE (4 weeks) - SPECULATIVE DESIGN: Week 5 – Futures; Week 6 - Supporting Decision - Making & Refine and Package Phase, Week 7 - Final Meeting Preparations; Week 8 - Project Final Meetings & Wrap-up. TOOLS: How Might We – statements; What If - questions; Signals; Trends; Scenarios; Backcasting; Evidence. (Deliverable: Final Report).

HackExtrem

The HackExtrem project – Movimento Extremadura y Portugal, aimed to identify models of collaboration and co-design, with the objective of promoting joint lines of work and blurring the boundaries between scientific development, innovation, design, creativity and culture, placing the focus on aesthetics, on the new beauty, which will have as references digitization,

sustainability and social inclusion in the Euroace Euroregion (Portugal and Spain).

The authors participated in the HackExtrem program for seven weeks, having defined the multidisciplinary teams of 6 elements and the challenge to be developed in the first session. The program was structured in two face-to-face sessions (the first and the last) and the remaining sessions online. The collaborative methodology was structured as follows.

Week 1 - CHALLENGES: Identification and definition of the main challenges facing Extremadura and Portugal. (TOOLS: Problem solving; Innovation ecosystem mapping; Audience definition; Interviews); Week 2 - REALITY: Immersion to understand the context and the challenges to be faced. (TOOLS: User Profile; Interview; Empathy Map); Week 3 - IDEAS: Generation of proposals and development projects for Extremadura and Portugal. (TOOLS: Mind map; Road map; Functionality list); Week 4 - SELECTION: Selection of the best proposals and ideas. (TOOLS: Decision Criteria; Prioritization (GUT, RICE, Eisenhower Matrix); Refinement (Mind Maps, PNI - Positive, Negative, Interesting); Week 5 - PROTOTYPING: Building prototypes. (TOOLS: Headlines of the Future; Fake Ads; Storyboarding; Space Recreation; Mockups; 3D Prototypes; Lego Serious Play); Week 6 - VALIDATION: Validation of prototypes. (TOOLS: MVP (Minimum Viable Product); KPI (Key Performance Indicator); Validation Pitch); Week 7 – PITCHING: Consolidation of learning and preparation of the final pitch; Week 8 – PITCH: Final presentation of the projects.

Project Management

Starting from the document analysis of the contents and pedagogical practices developed in the Project Management curricular unit, there was verified an approach to ethical issues and deontological issues inherent to the profession and to the communication design project, but also an interesting focus in terms of methodologies, models and techniques focused on ideas generation and stimulus to creativity (brainstorming and brainwriting techniques, mind mapping, scenario building, ideas association, Delphi, 7×7, attribute listing, drawing technique and technique of the two hemispheres) and focused on the communication design project, its management and processes (integrative thinking, design thinking (Brown, 2017), models by Gui Bonsiepe (1984, pp. 34–37), Bruno Munari (1993, pp. 39–67) and Nigel Cross (1984), Lean, Agile, Scrum, Kanban, Design sprint and Squad), offering students a toolkit of means adaptable to the different phases of the communication design project.

Visual and Cognitive Ergonomics

The syllabus of the curricular unit reflects on perception, attention, memory, the representation of knowledge and mental image, introducing notions of experimental research in cognitive ergonomics, methods and techniques of ergonomic intervention in information design, creating skills for an ergonomic approach to systems and user-centered design.

The project developed aimed at the graphic and ergonomic analysis of information and guidance systems for pedestrian and cycling routes in Portugal, having applied a design methodology divided into 4 phases. Phase 1, Research and analysis, began with the survey of symbol systems (pictogram inventory) developed for various institutions, defining the list of referents (message areas) and subsequent analysis of the effectiveness of symbols (evaluation) at three levels : Semantic analysis (grouping of signs by message areas with common meaning); Syntactic analysis (analysis of the form of each sign); Pragmatic analysis (application of the ISO 9186–1 Standard).

Phase 2 of the project, corresponding to graphic development, started from the pictograms selected in the previous phase, having proceeded to the redesign of the symbols (definition of the library of shapes, construction grid, conception method and design). Phase 3 consisted of evaluating the previously redesigned symbols, applying the ISO 9186-1 Standard (ISO 9186-1:2014) to validate the system. The process was completed in Phase 4, corresponding to standardization, in which guiding principles and standards for the construction and application of the system were developed.

DISCUSSION

Starting from the analysis of two curricular units of the Master in Graphic Design, which use project-based learning as a teaching methodology, and from two pedagogical co-creation projects, in which students and teachers participated, it was possible to identify the application of new pedagogical practices. of co-creation in the development of communication design projects in the academic environment, practices that allowed the inclusion of different actors in the process of development and resolution of design problems, giving rise to participatory, ergonomic, inclusive and user-centered projects.

The results achieved after applying the selected methodology allowed the identification of a very significant number of methodologies, techniques and models applied to the different phases of the communication design project, offering students a toolkit adaptable to the different phases of the project, whether in an initial structuring phase of the problem, stimulating creativity, or problem solving and agile methodologies, project planning or management, design management or design thinking.

The analysis made to methodologies and techniques taught or applied in pedagogical projects suggests an approach focused on the acquisition of competences by students, in which they have a more active role in the search for solutions, replacing pedagogical practices more focused on the teacher's role as holder and transmitter of knowledge, also using collaborative and co-design models, which allow an opening of the problem and the project to stakeholders and users/audiences, allowing an interdisciplinary dialogue in a collaborative context and the adoption of alternative educational practices in design teaching-learning.

CONCLUSION

The acquisition of a competence arises when the student, faced with a given situation, is able to adequately mobilize the various previous knowledge, selecting and integrating them in a way adjusted to that situation (Roldão, 2003). In design teaching, this issue implies a change in the teaching paradigm from a passive model, based on the acquisition of knowledge, to a model based on the development of competences (Decree-Law n°74/2006) and on the autonomous work of students, precisely a of the objectives of the Bologna Process in Europe.

The results obtained allow us to consider different pedagogical approaches to project-based teaching, as often happens in communication design, combining theoretical teaching with the consolidation of learning through practical projects, in a co-creation regime, for which was identified a remarkable set of methodologies applicable to the different phases of the design project, with their selection falling on the students.

The research presented results from a review of the literature in the area of methodologies, techniques and models applied to the communication design project and collaborative, from the documental analysis of the contents and pedagogical practices developed in two curricular units and, also the analysis of two pedagogical projects. It was thus possible to identify new pedagogical practices of co-creation and agile methodologies applied in the development of communication design projects in the academic environment, as well as to identify methodologies and models of collaboration and co-design.

The application of the methodologies, methods and techniques analyzed, in the context of the design project, can facilitate the projectual methodology, open the project to the collaboration of the multiple involved, adapt processes to the objective of each project, consolidate results and contribute significantly to teaching and student learning.

Based on the present study's analysis of the pedagogical content and results of academic projects of two curricular units, and of two international pedagogical projects of co-creation, its scope may limit the results obtained, suggesting, for future research, the expansion of the case study to multiple curricular units and academic projects in co-creation. A review of the more extensive literature in the areas of co-creation, design methodologies and techniques, and project/problem-based learning is also recommended.

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