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# **PATHS TO INTERDISCIPLINARITY IN HIGHER EDUCATION: COMPARATIVE ANALYSIS OF EXPERIENCES IN PORTUGAL**

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## **Abstract**

In a context of intense changes and global competitiveness, education is becoming increasingly relevant. In the underpinning societal challenges, higher education institutions are asked to innovate, by adopting a more flexible curriculum and promoting interdisciplinary experiences [1] [2]. Within this scope, the present communication analyses three solutions of interdisciplinarity: (a) Open study plans, without outset disciplinary specialisation, which incorporate in their realisation a significant margin of freedom on the part of the students in the elaboration of their educational curriculum; (b) Courses which although registered in an area of disciplinary specialisation, in their syllabus incorporate an interdisciplinary and "multivocational" orientation in their training-profession relations, offering wide-ranging opportunities for interdisciplinary training choices; (c) Education-training contexts built on the principle that higher education experiences, as constituent pillars of choices with a future for their students, should necessarily incorporate activities inside and outside the classroom, in a fruitful relationship with different aspects of academic, civic, economic and cultural life. The question that guides us focus on different solutions indicated, presenting them as possible paths, complementary and/or alternative, in the materialization of the contemporary demand for interdisciplinarity. For this purpose, the study analyses a graduation study programme of the type (a) offered by the largest Portuguese public university; two type (b) graduation and post-graduation programmes at another university and, in this same university, characterises the context of interdisciplinarity type (c). The analysis of the data collected allows an understanding of the difficulties inherent in multidisciplinary dialogue, but, at the same time, it points the way to solutions that reconcile the need for specialist expertise with interdisciplinary openness.

Keywords: Interdisciplinarity; Higher Education; Learning Environments.

## 1 INTRODUCTION

In a world crossed by transformative changes, higher education institutions, as contexts that seek to anticipate future challenges, building the critical mass capable of overcoming them, search for innovative solutions that can generate creative energies of inter-disciplinary dialogue and cross-disciplinary knowledge.

In this paper, we analyse three experiences of establishing inter and transdisciplinary dialogues. The methodology followed is based on a quanti-quantitative approach, using institutional data, produced by institutions under the jurisdiction of the Ministry of Science and Higher Education<sup>1</sup>. In addition, the websites and legislative documents that frame the production of the training offer are analysed and interviews are carried out with students who attend the new curricular offer.

## 2 OPEN STUDY PLANS, WITHOUT OUTSET DISCIPLINARY SPECIALISATION

In the practices of interdisciplinarity, a feature that distinguishes higher education institutions is the diversity of the training they provide, including syllabus that allow students to build a 'personalized' portfolio of academic skills tailored to orientations and preferences that are less shaped by a specific area of specialization. The principle underlying this offer thus proposes that students themselves can construct their personal curriculum, based on their own interests and imagination, instead of submitting to a pre-established programme [3].

The high flexibility of the options offered in the "General Studies" training programme, in place since 2015<sup>2</sup>, makes this course the most open one study degree cycle included in the training offer of the Lisbon University (the largest Portuguese University). To complete their degree – 180 ECTS, spread over 6 semesters – students can choose from a range of several hundred curricular units, offered in eight colleges: Faculty of Humanities, Faculty of Fine Arts, Faculty of Sciences, Faculty of Law, Faculty of Psychology, Faculty of Human Motricity, Higher Institute of Social and Political Sciences and Higher Institute of Economics and Management.

The Faculty of Humanities makes the integrated management of the processes of these students. It is at its campus that students attend a large part of the subjects of the common core consisting of only 10 curricular units/CU (60 ECTS). In particular, the mandatory CUs "Fundamental Texts" (18 ECTS) taught over three semesters, and a part also of the conditional CUs of "Big questions" and foreign language (minimum two levels), to which are associated a wide range of possible options, organised into four main scientific areas:

- Big question in sciences
- Big question in Arts and Humanities
- Instruments (logic, mathematics, etc.)
- Foreign language (two to three levels).

However, most of the syllabus is characterized by the possibility for students to choose "free options" (any subject from the designated faculties' training offer), involving more than 600 CUs. The conclusion of the course may culminate in any of the following solutions:

- 2 Majors (10 CU/60ECTS + 10 CU/60ECTS)
- 1 Major (10 CU/60ECTS) + 2 Minors (5 CU/30ECTS + 5 CU/30ECTS)
- 1 Major (10 CU/60ECTS) + 1 Minor (5 CU/30ECTS) + 5 free options/30ECTS
- 1 Major (10 CU/60ECTS) + c.10 free options/60ECTS
- 4 Minors (5 CU/30ECTS + 5 CU/30ECTS + 5 CU/30ECTS + 5 CU/30ECTS)
- No Majors or Minors: 20 free options

<sup>1</sup> <https://www.dgeec.mec.pt/np4/home>; <https://infocursos.mec.pt/>

<sup>2</sup> Official Gazette No 217, Series II, 11 November 2015.

The formal limits to students' choices are fundamentally related to the existing offer (which is quite diversified), the number of places available, and to the number of ECTS foreseen to complete the study program.

Within an ideological context inspired by the discourse of meritocracy, which assumes education as an essential tool for the recognition of value and for the capability of choice for joining the labour market [4], the "liberal orientation" underpinning the (new) general studies programme is well received by young people wishing to enter higher education. Following the trends observed in the demand for higher education in Portugal, since 2019 there has been an increase in the number of students seeking this General Studies offer, reinforced also by the consolidation of the "strength index" (relative weight of candidates entering the course in the 1st option), as well as the associated grades (166.4 in 2021, against 153.6 in 2019). The institutional statistics also indicate that the sociodemographic profile of the students attending this offer shows a relative higher prevalence of females (64% compared to the national average of 55%), as well as a significant presence of students over 23 years old (around 28%; national average of 11%)<sup>3</sup>.

In an exploratory study of the lived experience of students attending this offer, carried out on the basis of interviews, the reasons for choosing this course include both previous experience in other more closed disciplinary courses, which ended up not fulfilling expectations, as well as the hesitation or even absence of a clear disciplinary project.

Despite the wide range of possible options, in their testimonies the students denote the difficulties of choice, and many would like to be able to take even more curricular units. The weekly timetables management which have to accommodate formative offer taught in different institutions - not all located in the Campus of the City University – where are located the Faculty of Humanities, the Faculty of Science, the Faculty of Law and the Faculty of Psychology –, and also the fact that these institutions sometimes do not coincide in their school calendar are other factors mentioned.

I chose General Studies because there wasn't an area that I was sure was all I wanted to pursue – I had various interests and wanted to explore various things. I didn't know what I wanted to do, and I decided to choose the course because that way during my degree I could explore different areas, I could understand what I liked more and what I liked less, and I could combine different interests.

(...) there are not really negative aspects. The only "negative" aspect is not being able to choose more disciplines, because we have limited credits. Another issue is mobility, being in several colleges sometimes makes schedules difficult and then having a very different calendar... and it's not being able to go so deep into a specific area. But it is three years where I learn about what I want to learn. In general, I feel that I can choose the subjects I want, I learn what I want, I am acquiring culture, I am exploring various areas, it is super enriching and I don't feel limited. It doesn't limit my knowledge because a person knows what they want to know without any great restrictions.

(Joana, 21 years old; ex-student of Biology, currently attending the 2nd year of General Studies, majoring in Philosophy).

Meanwhile the definition of the academic paths has implications for the recognition of graduates "specialists", both for labor market purposes and for the pursuit of post-graduate studies. The "Major" route allows the student to obtain a degree in one or two main subject /area(s), following an academic or professional disciplinary pathway; Whereas "Minor", although it does not incorporate the concept of disciplinary specialization, allows some deepening of knowledge in specific areas, being attractive to those who prefer to keep their options open while with some degree of disciplinary in-depth study.

### **3 SOCIOLOGY: A "BROADBAND" SUBJECT AREA**

The second example we analyse is related to the disciplinary offer of Sociology at a University in Lisbon, the Iscte- University Institute of Lisbon.

Interdisciplinarity is one of the characteristic features of the sociology curriculum. This orientation is related to the institutionalisation of the disciplinary field in Portugal, which was very constrained by the political conditions linked to the dictatorial regime that ruled until 25 April 1974.

<sup>3</sup> [www.infocurso.mec.pt/](http://www.infocurso.mec.pt/)

On the eve of the revolution, following Veiga Simão's reform of the education system and of the public universities, in 1972, the ISCTE-Instituto Superior de Ciências do Trabalho e da Empresa (ISCTE-Higher Institute of Labor and Business Sciences) was established, integrating in its offer the new degree in "Labour Sciences", which explicitly took on the designation of "Sociology" only after the installation of democracy.

Trojan horses" with which the universities and the country were modernised. (...) At that time, in the 1970s, the words "sociology" and "management" were frowned upon by the conservative and authoritarian regime. Sociology was not well known, but it was suspected that, being etymologically close to socialism, it was communism in disguise<sup>4</sup>.

From its beginnings, the course has followed a disciplinary vocation of great openness to the other social sciences, in an orientation that seeks to facilitate an initial level of debate and reciprocal information. In the first years of ISCTE's training offer this line was common to the courses in management, sociology and, from 1982, also anthropology, since students only chose the disciplinary specialization line after completing the 1st year of the study cycle.

Between the years 2006 e 2009<sup>5</sup>, a revision of the course curricula is implemented in order to adapt their programmes to the Bologna model. This process culminates in the sociology syllabus which is still in force today, and which has since then been offered at the (new) School of Sociology and Public Policy, formally established in 2009.

Of the total of 180 ECTS that students must complete to conclude the degree programme (also over 6 semesters), the following are part of the common core with compulsory attendance theoretical, methodological, operational/instrumental, and relational curricular units [5].

Curricular units (CU) that make up the common core curriculum of sociology at Iscte:

- Theoretical disciplines (7 CU/42 ECTS)
- Statistics/data analysis and statistical sources (5 CU/30 ECTS)
- Methods and Laboratories for design and observational research (5 CU/30 ECTS)
- Laboratory of ethics and profession in sociology (1 CU/6 ECTS)

The remaining curricular plan includes three conditional optative's in introduction to other social sciences (18 ECTS), two "free optative" (12 ECTS) – including in this set the possibility of attending a professional traineeship in Sociology. In the third and final year of the course students have the possibility to choose between six subareas of specialisation in Sociology (sociology of the family; sociology of the environment; sociology of law; sociology of work, etc.) or following the specialisation path in Public Policy (both equal 36 ECTS).

To have their degree, as with the other bachelor's degrees at Iscte, students must also conclude 6 ECTS of soft skills curricula units. Since 2009, this offer has been provided by the Iscte Soft Skill Lab, not only for this degree course, but for all the University's 1st cycle and integrated masters courses (to which we will return later).

Similarly, to the General Studies degree analysed before, Sociology has also managed to ensure a consolidated level of demand (553 applicants for 63 places in 2021), with the increase in the average entrance (151.5 in 2021, compared to 141 in 2019). The feminine tendency of the demand is reinforced here (73%), being also present some students over 23 years old (20%).

In the dominant representations Sociology appears, fundamentally, as an academic disciplinary area, mainly linked to research and teaching. Moreover, it is a subject with low presence in the optional courses at secondary school and, more generally, which raises strangeness and the perception of little familiarity [6]. These factors represent challenges to its visibility as a subject area of first choice for applicants to higher education. Despite this, studies on the professionalisation of graduates in the area reveal not only that there is recognition of their "expertise", but also emphasise the "multivocal" character of the relations between training-profession. This is also evident in the demand for sociologists by companies and other organisations in various sectors (human resources, data science and data analysts; municipalities and other public bodies; third sector organisations, etc.) [7]. This diversity of areas of professional practice undertaken by sociologists is consistent with the open nature of the relations with the professionalization of its graduates, and also with the characteristics of

<sup>4</sup> <https://www.iscte-iul.pt/conteudos/iscte/quem-somos/12/historia-iscte>

<sup>5</sup> In 2007, the University is renamed Iscte – University Institute of Lisbon.

interdisciplinary transversely that differentiates its syllabus, built with a view to providing graduates in the area with greater fluidity and easiness in the construction of global approaches.

### **3 SPECIALISATION, INTERDISCIPLINARITY AND TRANSVERSAL KNOWLEDGE: A MODEL THAT ALLOWS RECONCILING DISCIPLINARY TRAINING AND OPENNESS TO A RAPIDLY CHANGING WORLD**

Education-training contexts, built on the principle that higher education experiences are constitutive of future-oriented choices for their students, should necessarily incorporate activities inside and outside the classroom that facilitate self-confrontation, experimentation, and discovery. In these the practices of interdisciplinarity are not reduced to the formative offer of programmes such as those we have just analysed but are also enhanced by the sharing of experiences and perspectives between all members of the academic community: teachers, researchers, students and others who daily circulate on the university campus.

This context of openness stimulates curiosity and is particularly important in a cultural framework, such as the one that still characterises higher education students in Portugal: a) very young age profile: around 75% are under 25; b) less than half perform some kind of work activity until the end of their training (close to 40%; half of which only occasionally); c) many of these students, especially those who are financially dependent on their parents (70%) and live with them until at least the end of their training, live in a prolonged and materially dependent guardianship of their family [8]. d) Studies on the attitudes and perceptions that guide them towards a future professional insertion and "career" indicate that one of the most widely held convictions of these young people tends to attribute the pathway through the educational institution to the virtual widening of opportunities [9]. Some represent the first generation of their family to reach this level of education, for these, the acquisition of the diploma materialises a statutory promise, of great privilege.

These traits pose great challenges to academia. What is at stake is not only the disciplinary training, but also the apprehension by students of soft skills that enable them to be prepared for a world crossed by intense changes [1] [2].

The technological innovation and high competitiveness that marks economic activity today requires qualified people with expertise of a high technical and scientific level in specialised areas. But it also calls for self-knowledge and relational skills to reflect on, identifying and valuing personal resources; social and emotional intelligence skills to use communication assertively and effectively, among other transversal skills, such as study support skills, language teaching and digital literacy skills enabling academic success, as well as skills to integrate the labour market.

At Iscte Soft Skills Lab<sup>6</sup>, these pedagogical activities are carried out by a body of specially contracted teachers (professionals from different areas and researchers), organised into three departmental groups: languages; transversal competences; innovation and pedagogical development. The action of this unit with the students results as a complement to reinforce the disciplinary training, allowing a learning framework that, without annulling the possibility of specialisation, ensures skills-based and career-oriented education experiences

As we mentioned above, at Iscte all students must complete at least 6 ECTS of this transversal formative offer. This provides an additional opportunity for interdisciplinary confrontation. For example, by organising group classes composed of students from different areas and fostering pedagogical practices of teamwork, which provoke reflexivity and debate. In transversal CUs such as "Critical Thinking", "Conflict Management", "Sustainability", etc. students from different disciplinary ranks are invited to think of themselves and others in a variety of ways and to clearly defend their positions on various topics.

### **4 CONCLUSIONS**

As we have seen in the analysis of the examples given, interdisciplinary studies, as a concept, are constructed based on a disciplinary structure [3]. To make interdisciplinarity effective it is fundamental to understand that no disciplinary area or profession is isolated from others, and to be fully aware that in order to interact it is necessary that each one knows how to define themselves and be competent in

<sup>6</sup> <https://online-learning.iscte-iul.pt/courses>.

their field without overlapping with others. The interdisciplinary approach is the space for dialogue par excellence, but multidisciplinary practice requires much more than the presence of professionals from different backgrounds in the same team or project, it requires, above all, the abandonment of sectarian and centralizing professional postures. This is, in fact, a fundamental element for the exchange of knowledge, favouring enlargement and flexibility within the scope of knowledge.

From an interdisciplinary approach we can reach the development of communication between the sciences with a view to unity of knowledge, called transdisciplinary. This refers to the dynamic created by the simultaneous action of the various levels of reality. It is between disciplines, through different disciplines and beyond all disciplines [11] that professional posture allows the "space of difference" to pass through.

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