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The Research-Teaching Nexus from the Portuguese Academics' Perspective: A Qualitative Case

Study in a School of Social Sciences and Humanities

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Abstract

This paper reports on a study conducted as part of an action-research project – INTEGRA I&E - aiming to promote the research and teaching (R&T) nexus at the School of Social Sciences and Humanities of a Research University in Lisbon, Portugal (Instituto Universitário de Lisboa, ISCTE-IUL). This study set out to investigate a multi-informant perspective of the academics' rhetoric (conceptions, perception of barriers/facilitators and consequences) concerning the nexus, which can be considered at different levels of the curricular and organizational structure. Focus groups were conducted with 26 professors and 8 researchers from six different disciplinary areas and, afterwards, recorded and transcribed. A content analysis was used to categorize and quantify participants' responses. Four themes emerged: practices linking R&T, barriers, facilitators and consequences of the nexus. Different levels of analysis were identified for each theme, namely, the level of ISCTE-IUL, Research Centers, Departments, Courses and Classes. Some disciplinary differences were also encountered. This study contributes with a multi-informant and multi-level perspective of academics' conceptions of the R&T nexus in a Portuguese research-oriented university.

Keywords: research-teaching nexus, academic staff, levels of analysis, content analysis, focus groups

Research and teaching (R&T) are two important tasks for universities and their integration is generally viewed as positive (Zamorsky 2002; Boyd et al. 2010). Indeed, R&T integration, *e.g.* through research-based learning, is seen as a major strategy to improve the quality of teaching and learning in Europe's higher education institutions (European Commission 2013).

In Portugal, the debate on the R&T nexus has also gained centrality in the discourses of universities. This has been accounted for by some of the profound changes that the Portuguese Higher Education System has suffered in the last decade (Rodrigues and Heitor 2015), namely: 1) the integration of teaching and research units in the organic structure of universities (Higher Education Act; RJIES, Law 62/2007); 2) the increased efforts to focus the learning process on students instead of teachers, following the Bologna Process; 3) the definition of R&T integration in the first two education cycles as one of the standards against which the quality of higher education courses has been assessed by the national Agency for the Evaluation and Accreditation of Higher Education (A3ES; Rosa, Sarrico, Machado and Costa 2015); and 4) the integration of doctoral programs and students in R&D Units as a criterion to evaluate and fund the latter (Fundação para a Ciência e Tecnologia - FCT 2013).

In order to determine how far these changes have reached the Portuguese higher education institutions, Santiago and collaborators (2014) highlight the importance of analyzing academics' perceptions on this matter. In fact, this is a gap in Portuguese higher education studies, since most of them have been oriented to institutional governance and managerial levels (*e.g.* Magalhães and Santiago 2012). By conducting a large scale survey, which explored 1320 Portuguese academics' perceptions regarding the relationship between R&T, Santiago and collaborators (2014) determined most participants considered that research reinforces teaching,

but they perceived spending more hours per week in teaching than in research, consequently

creating a tension between the two. This suggests that, in Portugal, the political and institutional

discourses on R&T are not entirely reflected in academics' reported practices and agendas.

In this context, and being a Research-oriented University, the Instituto Universitário de

Lisboa (ISCTE-IUL) embraced the R&T nexus as part of its mission and its strategic priorities

(Reto 2013). However, an institutional evaluation by the European University Association

(Müller, Ostrovsky, Pol, Prisacariu and Rozsnyai 2013) found a gap between ISCTE-IUL's

discourses on the R&T nexus and its actual practices. Aiming to bridge this gap, ISCTE-IUL

supported an action-research project called INTEGRA I&E. This project was proposed by

ISCTE-IUL School of Social Sciences and Humanities (SSSH) and it aimed to assess the extent

of the gap and recommend future actions to minimize it. This paper reports on one study of this

project, which set out to investigate academics' discourses and reported practices of R&T

integration.

Previous Research on Academics' Perceptions of R&T Nexus

Research on academics' perceptions of the R&T nexus has been mainly focusing on their

conceptions of the nexus and their perceptions of its barriers, facilitators and consequences for

teaching and research.

As for academics' conceptions of the nexus, they are diverse, characterizing it as complex

and to some extent contradictory. Although several meta-analysis have pointed out that there is

little or no relationship between teaching effectiveness and research productivity (*e.g.* Allen

1996; Feldman 1987; Hattie and Marsh 1996), qualitative studies showed that most academics

generally perceive a symbiotic relationship between R&T (Neuman 1992; Lucas et al. 2007).

Moreover, as Neuman's (1992) study pointed out, academics' discourses indicated that the

connections between R&T could be conceived as tangible, intangible and global. At an individual level, the tangible R&T connection comprises its visible forms (*e.g.* transmission of recent research results), while the intangible connection covers its tacit forms (*e.g.* stimulating the development of students' research dispositions). The global connection refers to the existent research programs, at a departmental level, which may assist courses' design.

Three other dimensions of the R&T relationship derived from academics' discourses (Griffiths 2004): 1) specific vs. diffuse, *i.e.*, academics incorporating their research work into teaching activities vs. providing a more general way of thinking based on academics' research experience; 2) weak vs. strong, *i.e.*, research is presented as information content (*e.g.* listing academics' research outputs on reading lists) vs. used in shaping the learning activities carried out by students (*e.g.* students participate in academics' research); and 3) unidirectional vs. bidirectional, *i.e.*, teaching practice informed by research vs. research and teaching being mutually informed. In sum, academics' conceptions of the nexus are complex and multidimensional.

Academics' perceptions of the factors that promote or hinder the nexus are also multi-layered, *i.e.*, individual, disciplinary/departmental, institutional and national/international factors have been pointed out (Jenkins et al. 2003). For example, at an individual level, academics who perceived the R&T relationship as unidirectional considered its integration more problematic (Grant and Wakelin 2009). The R&T relationship is also shaped by how disciplinary communities conceive these two activities, hence, leading to different curricular orientations (Jenkins, Healey and Zetter 2007). For example, the R&T nexus is more often considered to be more tenuous and harder to achieve in the so-called "hard" disciplines, where research is more often conceived as an act of "discovering new grounds" and focused on producing external

outputs (*e.g.* Chemistry, Physics) than in "soft" disciplines, like social sciences and humanities (*e.g.* Psychology, Anthropology), where research is conceived as process of observing and gathering information to answer questions and increase understanding of the social world (*e.g.* Brew 2003; Neumann, Parry and Becher 2002; Robertson 2007; Alpay and Verschoor 2014).

The institutional context is also highly relevant for implementing the nexus (Lucas et al. 2007). Departments with cohesive and collaborative cultures share very strong R&T links; hence at the departmental level, these characteristics, as well as the faculty size, presence of graduate programs and the research grants received can facilitate the nexus. In contrast, Durning and Jenkins (2005) demonstrated that policies of separation between R&T challenge academics' efforts to achieve synergies between these activities. In fact, Feather (2012) found out that academics who were not given the opportunity to develop their own research, viewed their primary role as professors, undermining their nexus practices.

At the same time, academics perceive an increased competition between research and teaching due to the shifts in governance in higher education, including intra-university policies using rewards and penalties via financial incentives and staffing policies, as well as budgetary pressures and growing student numbers (Leisyte, Enders and de Boer 2009).

Despite all these factors at different levels of analysis, which may hinder or facilitate the nexus, findings show that it is generally viewed as positive, both for academics and students. As for academics, the reported positive consequences revolve around the determination of their sense of what is effective teaching practice, their identity and motivations for pedagogic improvement (Neuman 1992; Leslie et al. 1998). Regarding the benefits for students, they consist on learning the complexity of knowledge, developing higher order academic and professional skills, as well as the stimulation of critical thinking (Durning and Jenkins 2005;

Visser Wijnveen et al. 2012). In addition, and despite empirical evidence showing that faculty research not always improves undergraduate teaching (Prince, Felder and Brent 2007), academics' often consider that it does (Leslie et al. 1998; Wuetherick & Berry 2008, Santiago et al. 2014).

In sum, many studies have shown that academics' perceptions of the R&T nexus are complex and multi-layered. As a consequence of the different levels (national/international, institutional, departmental, courses and classes) involved in the nexus' implementation, several 'actors' (*e.g.* professors, researchers, heads of departments and R&D units, heads of schools) are also implicated. Nonetheless, most of the conducted studies have been focusing exclusively on one group of 'actors' (*e.g.* chief academic officers: Leslie et al. 1998; professors/lecturers and heads of schools: Smith and Smith 2012) and a limited number of levels of analysis (*e.g.* department: Durning and Jenkins 2005; class: Visser Wijnveen et al. 2012). In order to fill in this gap, and have a broader and integrative understanding of the R&T nexus, we aimed to explore it at different levels of the curricular and organizational structure (*e.g.* ISCTE-IUL/SSSH, Research Centers, Departments, Courses and Classes). At the same time, we wanted to improve what is known about R&T nexus in the Portuguese higher education institution, and aimed to identify SSSH academics' (*e.g.* professors, researchers, heads of departments/research centers and directors of undergraduate/graduate courses) conceptions of the R&T nexus and respective practices and their perceptions regarding its consequences and factors which may facilitate or hinder it.

Methods

We employed a qualitative methodology, and a multi-informant perspective (Jensen et al. 1999), where focus groups were conducted with heads of departments and research centers,

directors of undergraduate/graduate courses, researchers and professors. Focus groups are reported as a collective research method which allows the individual expression of opinions and experiences as well as the collective discussion and emergence of topics. At the same time, unlike group interviewing, focus groups allow the researcher to observe the social processes/interactions, since they rely on the interaction within the group and not on the questions and responses between the researcher and participants (Gaskell 2003).

Participants

The SSSH comprises three departments (Anthropology, Political Economy and Psychology) and the respective research centers (CRIA-IUL, CIS-IUL, DINÂMIA'CET-IUL). A total of 105 members of the school's teaching and/or research staff were invited to participate in this study; 45% accepted, 14.3% declined and the rest did not respond to our invitation. Out of the 46 participants who accepted the invitation, 34 (26 professors and 8 researchers) participated in the focus groups, either due to last minute withdrawals or the necessity to guarantee an equal distribution of teaching and research staff, and their disciplinary backgrounds, per focus group.

Participants' ages ranged from 32 to 64 years (M=46.84; SD=8.82). A brief summary of their main socio-demographic characteristics is provided in Table 1. Most participants were Portuguese (92%), and more than half were Assistant Professors (76.9%). More than 40% were psychologists, 23.1% anthropologists, 19.2% economists, 8.7% sociologists and 8.7% were trained in Law. Most researchers were architects, 37.5% were anthropologists and 25% psychologists.

Participants' teaching experience ranged between 3 and 40 years (M=19.38; SD=8.98) and their research experience ranged between 7 to 35 years (M=19.63; SD=7.27). Professors reported more years of lecturing, t(30)=2.332, p=0.027, and research experience than

researchers, $t(29)= 2.410$ $p= 0.023$. Around 70% of the participants mentioned having current experience in academic management, such as coordinating research centers, departments or graduate/undergraduate courses.

Data Collection Procedures

Six focus groups were conducted. One focus group (A) was composed by the Dean of the SSSH and the Heads of each of the three departments and three research centers (n=7). Two focus groups (B1 & B2) were conducted with directors of undergraduate/graduate courses across the different disciplinary areas (n=12). Finally, three focus groups (C1, C2, C3) were conducted with researchers and professors (n=15) of different disciplinary areas.

The semi-structured interview guide of the focus groups had three sections (Krueger and Casey 2000). First, we thanked participants' presence and availability, introduced the moderator(s) and rules for participation, and presented the topic to be discussed. We explained that R&T nexus could be analyzed at different levels, and we clearly stated which one of the levels would be adopted in that particular focus group, namely, at the level of: the School/Departments/Research centers (focus group A); the course (focus groups B) and classes (focus groups C). Before starting the discussion, participants signed a written consent form describing the aims of the focus group and requesting permission to audio and videotape the discussion.

The second section was composed by open questions used to explore:

a) participants' conceptions about the R&T nexus (*e.g.* What does linking R&T at the
     level of a school/department/research center/course/discipline means?)

b) practices used to promote the nexus (*e.g.* What types of practices linking R&T have been part of your school/department/research center/course/classes' strategic orientation?)

c) consequences of the nexus (*e.g.* What are the consequences of liking R&T at the level of your school/department/research center/course/classes?)

d) barriers and facilitators of the nexus (*e.g.* What kind of factors help or hinder the R&T nexus at the level of your school/department/research center/course/classes?)

The third section focused on closing up the focus group, by checking if anything was missed in the discussion and asking participants to fill out a socio-demographic questionnaire.

All focus groups took place in a room specially designed for conducting group interviews at the Psychology Lab. All focus groups were conducted between November and December 2014 and their average duration was approximately two hours and fifteen minutes.

Data Analysis

The focus groups were verbatim transcribed and analyzed using content analysis (Flick 2002). We developed the system of categories and sub-categories using an interactive and phased bottom-up procedure. First, we selected the text units, relevant excerpts (phrases or paragraphs). Each one of these text units was associated to a key concept/code which better described the underlining idea. In total, 423 codes were identified. Codes or categories were mutually exclusive; hence one text unit belonged only to one of the defined categories/sub-categories.

Afterwards, the emerging codes were redefined and progressively grouped into more abstract and embracing categories and subcategories (n=94). Ultimately, these were included in four overarching themes (see Tables 2 to 5).

Data Analysis Quality Criteria. To guarantee the credibility of the results, we took in consideration the following criteria (Guba and Lincoln 1982):

1. *Referential adequacy*: all focus groups were audio/video taped and transcribed by an independent research assistant.

2. *Analyst triangulation:* data was analyzed by the first and second authors of the present paper, who resolved any discrepancies in the interpretation of the data by consensus.

3. *Triangulation of sources:* participants were heterogeneous in terms of their experiences with the RT nexus.

4. *Member checks:* the system of (sub)categories as well as their definitions were discussed and readjusted with the help provided by an independent researcher experienced in conducting qualitative data analysis (third author).

Afterwards, *inter-coder reliability* of the system of categories was assessed (Cohen 1968) and with the help of four independent researchers. The reliability indices (Cohen's K) corresponding to each of the four themes were above 0.82 and of 1 for the overall system of categories, suggesting high internal reliability.

Finally, a detailed description of the sampling, data collection and analysis procedures is provided to contribute to findings *transferability*. Nevertheless, the authors of this article can be contacted in order to obtain more detailed information.

Results

Four themes emerged from the analysis: 1) practices linking R&T (Table 2); 2) barriers (Table 3); 3) facilitators (Table 4); and 4) consequences of the nexus (Table 5). Within each

theme, different levels of analysis were identified, namely the level of ISCTE-IUL/SSSH, Research Centers, Departments, Courses and Classes.

Practices Linking R&T

General Characteristics of the Practices. As Table 2 shows, many participants described these practices as bidirectional, i.e., teaching can be informed by research or vice-versa. Moreover, the R&T link was perceived as spontaneous and inseparable:

"Integrate research and teaching, I do it spontaneously and I think this is the natural order of things" (Focus Group A)

Also, participants considered that training researchers should not be the nexus main aim, but instead it should contribute to train better professionals. A few participants also mention that these practices are creative and innovative teaching resources and a way of availing the knowledge produced by researchers and lecturers.

Types of Practices at ISCTE-IUL. In total, 18 types of practices were identified, which were implemented at the level of ISCTE-IUL/SSSH (n=1), Research Centers (n=3), Departments (n=3), Courses (n=7) and Classes (n=4).

Practices at ISCTE-IUL/SSSH. The practice at this level was related to the development of interdisciplinary projects/events, like INTEGRA I&E, aimed at promoting the R&T relationship.

Practices at Research Centers. Integrating (under)graduate students in the research centers' projects and activities was the most mentioned practice. Their integration could occur through the provision of research fellowships, remuneration of work hours dedicated to research activities and/or research internships:

""But this is something like hourly based. (…) up to x hours, they can collaborate on a project and are obviously rewarded for it. But it is not something long-term" (Focus Group A)

"(…) students who choose to do this research internship usually have an active participation in CIS-IUL working groups and, therefore, go through a whole process of connection to other research skills, in addition to research, organizing events and other activities that are relevant to the investigation. They participate in several projects, where the PI supervises them." (Focus Group B1)

Another practice is the development of thematic research groups, where professors, researchers and students form groups focused on developing specific research lines.

A third, but less mentioned, type of practice, is the development of a research topic specifically focused on the R&T nexus:

"We have a thematic line at DINAMIA , which is the working group 'Government , societies and economies ' , whose general theme is how can we encourage social change, the overall theme of DINAMIA, in a more proactive way. And of course, the university itself is part of the tools, which in a more or less controllable way, can lead to change. So, we have a research line that investigates the university itself, and specifically how it links research and teaching; and this project about competence is an example of this, to reinvest our own practice in this broader reflection on social change." (Focus Group A)

Practices at the level of Departments. Taking in consideration professors' expertise when assigning teaching workloads, is one of the most mentioned practices. Another practice is to allow researchers and/or professionals outside the academia to carry out lecturing activities, such as talking about a specific topic or giving feedback on students' assignments.

Besides this, in some situations, PhD candidates are also involved in lecturing activities. This way, they acquire academic competences which are important for their academic and professional preparation, and at the same time lecture some classes, present their PhD and/or have an active role as tutors:

"Other opportunities we have are related to the involvement of researchers in tutorials at different levels. Some doctoral students are involved in the supervision of master thesis, other doctoral students are involved in tutoring groups, which are teams of students formed in the class of Advanced Research Methods (...) This is a class which gives students the opportunity to do a study, to do an investigation; they work in teams and each team has a researcher as tutor. These tutors can be more experienced researchers, or may also be doctoral students (...)." (Focus Group B2)

Practices at the level of Courses. Seven practices were pointed out. One of them focuses on the promotion of progressive acquirement of research skills:

"(...) since the beginning of first year, we promote academic skills, among which are the skills related to the research process, linked to the communication of research; and they become increasingly more sophisticated until they start the master's degree." (Focus Group A)

The second type of practice focuses on the promotion of students' collaboration in the research developed by teachers.

The third practice refers to the development of new forms and educational products (*e.g.* brief courses, post-graduations, summer schools) emerging from the research conducted by researchers who want to have a more permanent affiliation with ISCTE-IUL.

Other practices involve making students aware of their professors' research and strengthening their relation with students, by reinforcing a more direct monitoring of students' work, which can take place in a tutoring or supervision format.

Besides this, participants highlighted the creation of an alternative route for master students with a low scientific literacy, by providing them with the possibility of choosing optional classes which may help them improve and deepen their research knowledge. Finally, participants highlight the practice of making students' research outputs visible:

"I encourage students to publish, when there are works, in some classes there were some very good assignments, so I reinforce them and they publish papers, participate in conferences (...)" (Focus Group C3)

Practices at the level of Classes. These practices pertain to the teaching and learning methodologies, the learning objectives, the evaluation methodologies and the planning of students' autonomous working hours.

More specifically, the teaching and learning methodologies which promote the R&T integration are: i) lectures presenting research results, whose content is based on specific examples of the professors' or other published research; ii) students' involvement in research as participants or observers; and iii) lab-practice classes which enable students' training of some research methods.

Participants identified another practice which consisted of defining learning objectives regarding the acquisition of research-related academic competences, namely, reading, analyzing and writing scientific material, developing research from an idea, acquiring research methods, presenting and discussing the developed research, replicating and improving scientific studies.

Regarding the evaluation methods, participants identified the elaboration of small research assignments instead of taking a test/exam.

Finally, some participants acknowledged the importance of planning students' autonomous workload, i.e., providing students with specific tasks which will help them gain autonomy and carry out the research using a step by step approach.

Barriers to the R&T Nexus

Internal Barriers. The internal barriers are situated at the level of ISCTE-IUL (n=1), Research Centers (n=1), Departments (n=2), Courses (n=1) and Classes (n=4). As shown in Table 3, at the level of ISCTE-IUL, the factor which hampers the nexus is the evaluation system which does not value R&T integration practices. In addition, the multidisciplinary of some Research Centers is pointed out to block the R&T link:

""Another feature that complicates this, is the relatively recent fusion between DINAMIA and the CET, which increased even more the disciplinary range, which can be considered productive and interesting, but for us it means that, regarding this question of teaching relations, we have to find a place for us and create new practices." (Focus Group A)

At the Departmental level, the difficulty in human resource management seems to hamper the nexus, namely, when there are few professors available or when these are asked to lecture classes which are not directly related with their expertise. At the same time, the little collaboration between colleagues of the same department, due to time constrains, has also been highlighted as a barrier.

At the Courses' level, students' heterogeneity of interests, motivations and scientific literacy was considered to be another barrier. Besides this, at the Classes' level, the following barriers were also mentioned: few hours of contact with students, teaching mainly theoretical

classes, the time and freedom that is constrained by the requirement of inserting all class-related information on a digital platform (called Fenix) or using SafeAssign, a plagiarism detection software, in the evaluation processes.

External Barriers. According to some academics, the pressure for international publications (often in English and using complex jargon) makes research less understandable by students. In addition, the impositions made by the accreditation agencies for predefined curricula along with policies that favor fewer contact hours do not promote professors' creativity and pro-activity into linking R&T.

Facilitators of the R&T Nexus

Internal Facilitators. The internal facilitators (Table 4) are situated at the level of ISCTE-IUL (n=3), Departments (n=3) and Classes (n=1).

The current organic structure of ISCTE-IUL, by integrating Departments and Research Centers within Schools, facilitates the R&T link. The creation of different career profiles and the recognition of a profile more focused on research is also a facilitator; it allows professors to dedicate more time to their own research and transferring it to teaching practices. In addition, the recent changes made to the digital platform where professors have to report their teaching activities (Fenix) have allowed them to be more flexible in the type of classes their give (e.g., outdoors classes), and this was seen as a nexus' facilitator.

The facilitating factors situated at the Department level, focus on the PhD students' involvement in classes based on the post-graduate grants provided annually by ISCTE-IUL:

"The integration of doctoral students under these new grants, I think are extremely important and is also a facilitator, especially because of the tutorial support they can give (…)." (Focus Group C1)

Professors' career management strategies could also be facilitators due to: 1) the presence of an extended number of professors/researchers and their diverse interests and competences, which assist in covering different research areas; 2) providing researchers the possibility in carrying out teaching activities, which enable them to bring first hand research into the class context; and 3) the growing importance of research in professors' careers, which encourages them to carry out their research activities and share them with their students. In addition, some professors' and researchers' characteristics were also considered to facilitate the R&T link, namely, their autonomy in terms of R&T, their resilience as well as having previous experiences with the nexus when they were students. In addition, professors'/researchers' ability to perform the double role of teacher-researcher was also considered to facilitate the R&T nexus. Besides this, to a lesser extent, participants identified the scientific productivity as another facilitating factor, because professors/researchers with a high scientific productivity have more materials to share with the students.

Lastly, having many contact hours was also pointed out to facilitate the R&T link at the Classes' level:

"The class that I have now in 3rd year, we have 9 hours of classes per week, which is a long time, it is a privilege. That's why you can do all this. Because, I mean, otherwise it's all very superficial and I could not delve into anything." (Focus Group C2)

External Facilitators. Recent higher education policies that promote the association of accredited post-graduate courses to the research centers and the students' collaboration in research projects were considered to facilitate the R&T nexus at ISCTE-IUL.

Consequences of the Nexus

Consequences for the Teaching-learning Process. Participants mentioned seven positive and one negative consequence for the teaching/learning process (Table 5). The positive consequences benefit students and professors, but there was a greater emphasis given to the implications for students. In fact, the only positive consequence for professors was related with the additional motivation to teach and research:

"(...) there is also an additional motivation for the teachers, right? Because if you are teaching cutting-edge research, the most current research, your own research, this also brings an extra motivation to investigate and teach." (Focus Group B1)

Regarding the consequences for students' learning process, the most mentioned one was the development of competences useful for the academic and/or professional field. A better understanding of the research process was also pointed out, since students are able to closely monitor and participate in all its steps. Besides this, the R&T nexus was considered to arouse students' scientific curiosity to explore other areas, and deepen their scientific knowledge. In addition, students learned more contents in a stimulating way, obtained better academic results and a better academic training.

In terms of the negative consequences, participants pointed out the risk of the curricula being dominated by contents related with professors' interests and areas of research, disregarding other areas of students' interests:

"What is happening, in my perspective is that research is brutally ravishing teaching. In other words, the research objectives, students may be pushed into doing things that they probably did not choose. I think that this commitment must exist, and it's obviously very important to have outputs of students' research, but I think it's starting to work the other way around. There are

classes targeted in teachers' areas of interest and the structure of the courses (…)" (Focus Group C1)

Consequences for Research. Participants identified three positive consequences for research (Table 5). First, new inputs (ideas/data) can be obtained from the interaction with students and incorporated into research. Second, the R&T nexus can encourage students' participation in research. Third, the training of future researchers was pointed out:

"(…) there are some cases when students who were already involved in research during their bachelor and master's degree, are now in their doctoral and post –doc studies here, in our research center, or in other parts of the world. We have these success stories and students who are autonomous from the beginning, or engaged in research, learn and afterwards develop their research career. Of course, this is related with students' motivation and ability, but I also think that, at least, we are not blocking this path." (Focus Group C3)

Consequences for the Society. Producing social change was the only identified consequence for the society, which focuses on the impact of the academic assignments and their contribution for social alterations. In other words, dissertations and thesis can research current phenomena and identify innovative results which, to some extent, can impact the society in the future.

Disciplinary Differences

As previously mentioned, the sample of this study was composed by participants from six disciplinary backgrounds: Psychology, Anthropology, Political Economics, Sociology, Architecture and Law. Due to the limited number of participants in the last three disciplines, we will only highlight some disciplinary differences found in the discourses of psychologists, anthropologists and political economists.

Regarding the conceptions about the R&T nexus, participants from the three disciplinary areas perceived the R&T link as bidirectional and inseparable. However, only psychologists (n=5) and anthropologists (n=2) referred that the nexus' main aim was not the training of researchers but also to provide future professional with relevant skills. This may suggest that in Political Economics, there is a larger gap between the researcher and a non-academic professional profile, as opposed to the other two disciplinary areas.

In addition, we determined that psychologists were the ones who mentioned most of the practices (n=22), followed by the anthropologists (n=17) and political economists (n=12). This may suggest that in Psychology, the R&T link was promoted using a more diversified range of practices, than in the other two disciplinary areas.

As for the internal barriers to the nexus, Political Economy and Psychology are two disciplinary areas that are influenced by specific contextual factors. The Political Economy research center, DINÂMIA' CET-IUL, had recently undergone through an organic restructuring, which joined two research centers, which increased the disciplinary range. As a result new R&T strategies were being developed. However, this process and the resulting multidisciplinary were considered to hinder the R&T link. In Psychology, and despite the wide range of mentioned practices, the few human resources available, which did not allow a full coverage of the areas lectured, was pointed out as a barrier. Interestingly, while disciplinary-specific barriers were attributed to the context, facilitators were attributed to professors'/researchers' characteristics; Psychologists were the only ones highlighting previous experiences with the nexus when they were students, while researchers'/professors' resilience (n=1) and autonomy in terms of teaching and research (n=2) were highlighted by anthropologists and political economists.

Finally, while most participants highlighted the positive consequences of the nexus, only psychologists pointed out the danger of the curricula being solely focused on contents related with professors' as opposed to students' interests (n=2).

Discussion

This study aimed to: 1) identify academic staff's conceptions about R&T nexus and respective practices; 2) explore their perceptions regarding the factors which facilitate or hinder the R&T nexus; and 3) explore their perceptions about the nexus' consequences.

In line with Neuman's (1992) study, all academics were convinced that there was an actual R&T link. More specifically, following Griffiths' (2004) dimensions of the R&T nexus, participants considered that R&T were spontaneously and mutually informed (bidireccional); professors were able to include their own research in their lectures (specific) and research was used in shaping learning activities carried out by students (strongly embedded).

Also, participants reported a large number of R&T practices at different levels of analysis, which highlights the relevance of an integrative approach when promoting R&T nexus in a university. Some were mentioned at the broader institutional level (*e.g.* development of projects promoting the R&T nexus) and its organic structure components, namely, research centers (*e.g.* integrating students in research centers) and departments (*e.g.* human resources management strategies). However, most practices were reported at the level of the courses' curricular structure and pedagogical practices (*e.g.* creating an alternative route for students with low scientific literacy or elaborating educational contents from research lines) and at the level of the classes. At this latter level, and based on Healey's (2005) conceptual model of integrating research in curricula, although some participants mentioned research-based practices (*e.g.* problem-based learning activities), most of the mentioned practices were research-lead (*e.g.*

lectures presenting research results) or research-tutored (*e.g.* reading, analyzing and writing scientific material). In other words, and like other studies' findings (*e.g.* Brew 2008; Wuetherick and Berry 2008), academics more often reported using R&T practices that did not give students an active role in their learning process. Indeed, the perceptions of a strong, bidirectional and spontaneous link between R&T were mainly associated with research-led practices. This finding may partially account for the identified gap between R&T discourses and practices at ISCTE-IUL.

It should be noted that, just as Jenkins and collaborators (2007) pointed out, some disciplinary differences were identified. Most practices were mentioned by psychologists and anthropologists, who considered that the link between R&T was not implemented with the aim of training new researchers, but instead training future professionals. In these two disciplinary areas, the profile of a researcher seemed to partially overlap with the profile of a good professional working in the field. As such, the R&T integration would contribute to students' development of academic and research skills, which would be useful in their future careers as psychologists or anthropologists. In contrast, in Political Economics, there was a larger gap between the profile of a researcher and a non-academic professional, in part, because a "trading view" of research (Brew 2003) focused on the production of outputs reflecting "groundbreaking discoveries" was more salient. This may have accounted for the fact that participants with this disciplinary background reported a less variety of practices.

As for the factors that facilitate or hinder the R&T nexus, they can be external or internal to the university, also being situated at different levels of its organic and curricular structure. In line with previous findings (Lucas et al. 2007; Ramsden, Margetson, Martin and Clarke 1995), our results suggested that the institutional context is highly relevant for implementing the nexus.

Indeed, at the level of ISCTE-IUL, the main factor hindering the R&T nexus was the staff performance evaluation system that, by reinforcing national policies focused on research productivity (e.g., number of publications), was not perceived to value nexus practices. However, the creation of different career profiles seemed to partially buffer the hindering effect of the performance evaluation system by allowing some professors to dedicate more time to their own research and, consequently, to its integration in their teaching.

At the departmental level, the small faculty size was one of the most mentioned internal factors which hindered the R&T relationship. Conversely, and in line with previous findings (Lucas et al. 2007), a larger number of professors/researchers with diverse interests/competences was considered one major facilitator of the nexus. Several individual characteristics of the academic staff of the departments (*e.g.* resilience, autonomy, scientific productivity) were also presented as facilitators.

In addition, following Durning and Jenkins' (2005) findings at the class level, having a limited amount of contact hours per class and the heterogeneity of students' interests, motivations and scientific literacy were pointed out as barriers of the R&T nexus.

Participants also highlighted external factors, at national level, which limited the R&T relationship. First, some participants felt that the A3Es, by often predefining curricula contents, constrained their chances of integrating their own research into teaching, namely through problem-based learning activities, especially in undergraduate courses. So, even though the R&T integration has been defined as a quality standard for the evaluation of higher education courses (Rosa et al. 2015), some academics perceived that the excessive focus on curricula contents hampered the R&T nexus. Second, although FCT's policies promoting the integration of students in R&D units was perceived as a facilitator, it is not enough to buffer the detrimental effects of

the increasing pressure for scientific productivity. Scientific productivity (number of papers published in high impact journals) is the main determinant factor for higher education institutions to achieve the status of research-oriented universities, hence, accessing the elite of a stratified system and reducing the dependency on external funding (Santiago et al. 2014). Such pressure, however, is perceived by some academics to reinforce policies of separation between R&T, challenging academics' efforts to achieve synergies between these activities (During and Jenkins 2005).

The nexus was considered a valuable asset by several previously conducted studies (*e.g.* Durning and Jenkins 2005; Leslie et al. 1998; Visser-Wijnveen et al. 2012) and this study is not an exception. Several positive consequences of the nexus were identified for the teaching-learning process for research and for society. It is important to mention that at an experiential level (Jenkins et al. 2007) the consequences for the teaching-learning process focused on both professors (*e.g.* increased motivation to research and lecture) and students (*e.g.* better understanding of the research process). In addition, at a conceptual level (Jenkins et al. 2007) the R&T nexus, by promoting the development of useful academic and professional skills, was perceived as enabling students to have an active role in society, by critically analyzing and contributing to the produced knowledge.

Despite all these positive consequences, some participants warned against the dangers of the curricula being overly focused on professors' research interests, especially at the master level courses. This negative aspect was also found in other studies which focused on students' perspectives of the nexus (Jenkins et al. 1998; Lindsay et al. 2002; Zamorski 2002). Indeed, conducted literature review on the effectiveness of R&T nexus on students' learning (Prince et al.,2007) highlighted this danger and pointed out that not all R&T practices have been proven to

improve students' learning. In conclusion, the R&T nexus was perceived to have several advantages for students and professors but its effective management seems to be important in order to make sure that its beneficiaries enjoyed them fully.

Limitations and Contributions

Every study has its limitations and this qualitative study is not an exception. First, it was not possible to obtain an equitable representation of every disciplinary area of the SSSH in our sample. This was due to invitation refusals and last minute withdrawals, which may have hampered the interpretation of the results in terms of their disciplinary specificities.

Second, six out of eight researchers who participated in this study were professors at other universities or schools at ISCTE-IUL. Although they were invited to share their experience as researchers at the SSSH of the ISCTE-IUL, we should be aware that their discourse might have been influenced by their lecturing experience. Therefore, the encountered results might not portray a full representation of the full-time researchers' conceptions and practices about the R&T nexus.

Third, some participants refused to participate because they did not value the R&T nexus; hence the positive attitudes towards the nexus might have been influenced by a selection bias.

Also, although participants mentioned a wide range of R&T practices implemented at different organizational and curricular levels, our data did not allow us to evaluate how often they are actually used by the academic staff; hence a future survey study would be useful to overcome this limitation.

Despite all limitations, it is important to mention that this qualitative study has some valuable contributions, not only in terms of its relevance as a needs assessment procedure that preempts any action towards promoting the R&T link at the SSSH/ISCTE-IUL, but also to the

Portuguese higher education studies and R&T nexus' literature. First, at the level of SSS/ISCTE-IUL, our findings suggest that several barriers, including academics' conceptions of the nexus, should be tackled to bridge the gap between R&T integration discourses and practices. Results also highlight the relevance of putting forth integrative intervention programs to promote the link that take into account all stakeholders' perspectives and levels of analysis. Moreover, this study provides some results from an underexplored context: a Portuguese research-oriented university. It replies to Santiago and collaborators' (2014) call for more qualitative studies in Portugal capturing academics' substantive R&T experiences. Indeed, to the best of our knowledge, this study is one of the first that, besides tapping into Portuguese academics' discourses on the R&T link, describes a specific and varied set of practices at different organizational/curricular levels of ISCTE-IUL. This may contribute to a broader implementation of such practices not only within the institution but also across other Portuguese universities.

Finally, this study contributes to Brew and Bound's (1995) call for more fine grained studies, by focusing its analysis on different levels of the university's organic and curricular structure. It used a multi-informant perspective, by involving all the main stakeholders in the R&T nexus' implementation, and provided and integrative perspective of it.

In sum, this study provides an in-depth, multi-informant and multi-level perspective of Portuguese academics' conceptions of the R&T nexus, which may shed some more light to the complex but potentially fruitful relationship between research and teaching.

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Table 1. *Socio-demographic characteristics of the sample*

Variables	Professors (N=26)	Researchers (N=8)
Mean age (standard deviation)	48.17 (9.11)	42.87(6.92)
Nationality		
Portuguese	24	8
French	1	
German	1	
Professional Category		
Researcher		2
(Invited) Assistant Professor	20	6
Associate Professor	3	
Full Professor	3	
Disciplinary training area		
Psychology	11	2
Anthropology	6	3
Political Economics	5	
Sociology	2	
Architecture		3
Law	2	
Academic management experience		
Head of Research Center	3	
Head of Department	3	
Dean of School	1	
Head of Course		
Undergraduate	3	
Graduate	7	
Post-graduate	2	
Mean lecturing experience (standard deviation)	21.38 (9.06)	13.38 (5.73)
Mean research experience (standard deviation)	21.26 (7.18)	14.50 (5.61)

Table 2. Practices linking R&T

Categories/subcategories	Text units
General characteristics of the practices	
1. Bidirectional relationship between R&T	13
2. Spontaneous and inseparable relationship between R&T	13
3. Main aim is not the training researchers	9
4. Avail of produced knowledge	1
5. Innovative pedagogy	1
Types of practices	
1. Practices at the level of ISCTE-IUL/SSSH	
1.1 Development of interdisciplinary projects/events promoting the R&T nexus	2
2. Practices at the level of Research Centers	
2.1 Integrating students in the research centers	10
2.1.1 Fellowships	4
2.1.2 Remuneration of work hours dedicated to research activities	4
2.1.3 Research internships	2
2.2 Development of thematic research groups	3
2.3 Development of a research topic about the R&T nexus	1
3. Practices at the level of the Departments	
3.1 Assign classes based on professors' expertise	11
3.2 Assign lecturing activities to researchers and/or professionals outside the academia	7
3.3 Assign lecturing activities to PhD students	7
4. Practices at the level of the Courses	
4.1 Promote progressive acquirement of research related academic skills	8
4.2 Promote students' collaboration in the research developed by teachers	8
4.3 Enhance visibility of students' work	7
4.4 Elaborate educational products/contents from research lines	5
4.5 Make students aware of their professors' research	5
4.6 Strengthen the relation between professors and students	3
4.7 Create an alternative route for students with low scientific literacy	3
5. Practices at the level of the Classes	
5.1 Use teaching and learning methodologies which promote the R&T nexus	
5.1.1 Lectures presenting research results	13
5.1.2 Students' involvement in research as participants or observers	6
5.1.3 Lab-practices classes	1
5.2 Define learning objectives for research related academic competences	
5.2.1 Reading, analyzing and writing of scientific material	4
5.2.2 Development of research from an idea	4
5.2.3 Acquiring research methods	4
5.2.4 Presenting and discussing the developed research	3
5.2.5 Replication and improvement of studies	1

Table 3. Barriers of the R&T nexus

Categories/subcategories	Text units
Internal barriers	
1. At the level of ISCTE-IUL	
1.1 Evaluation system does not value practices involving the R&T nexus	8
2. At the level of the Research Centers	
2.1 Multidisciplinary Research Center	3
3. At the level of the Departments	
3.1 Difficulty in Human Resource Management	
3.1.1 Researchers/professors lecture classes outside their expertise areas	5
3.1.2 Limited number of professors	3
3.2 Lack of collaboration between professors	3
4. At the level of the Courses	
4.1 Students' heterogeneity in terms of interests, motivations and scientific literacy	14
5. At the level of the Classes	
5.1 Characteristics of the Classes	2
5.1.1 Few contact hours	19
5.1.2 Fenix takes time/freedom	5
5.1.3 Predominant theoretical typology	4
5.1.4 Use of SafeAssign in the evaluation process	1
External barriers	
1. Pressure for international publications which makes research less accessible	10
2. Impositions made by higher education accreditation agencies	6
2.1 Contradictory pressures	5
2.2 Predefined curricula	4
2.3 Public/economic and political factors in favor of few contact hours	2

Table 4. Facilitators of the R&T nexus

Categories/subcategories	Text units
Internal facilitators	
1. At the level of ISCTE-IUL	
1.1 Organic restructuring of ISCTE-IUL	3
1.2 Creation of different career profiles enhancing the importance of research	2
1.3 Adaptations made to Fenix' functioning	1
2. At the level of the Departments	
2.1 Management of professors/researchers' career	
2.1.1 Extended number of professors/researchers and theirs diverse interests and competences	7
2.1.2 Allow researchers to carry out teaching activities	1
2.1.3 Growing importance of research in professors' careers	1
2.2 Characteristics of researchers/professors	4
2.2.1 Autonomy in terms of teaching and research	6
2.2.2 Resilience	4
2.2.3 Previous nexus experience exposed to as a student	4
2.2.4 Ability to effectively perform the teacher-researcher role	3
2.2.5 Scientific productivity	1
2.3 PhD students' involvement in class activities, based on the post-graduate grants	2
3. At the level of the Classes	
3.1 Many contact hours	2
External facilitators	
1. Recent legislative policies	
1.1 Policies promoting the association of courses to research centers	2
1.2 Policies promoting students' collaboration in research projects	1

Table 5. Consequences of the R&T nexus

Categories/subcategories	Text units
1. Consequences for the teaching-learning process	
1.1 Development of competences useful for the academic and/or professional field	28
1.2 Comprehension of the research process	4
1.3 Arousal of students' scientific curiosity	4
1.4 Learn more contents in a stimulating way	4
+ 1.5 Better academic results	1
1.6 Better academic training	1
1.7 Additional motivation to teach and research	1
1.8 Curricula subjected to contents related with professors' research interests	5
2. Consequences for the research	
2.1 Obtain new research inputs	6
2.2 Encourage students' participation in research	5
2.3 Train future researchers	3
3. Consequences for the society	
3.1 Produce social change	1