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## Embarking on a doctoral journey: insights from a longitudinal study on decision-making during a PhD

by

**Viviana Meschitti**  
Birkbeck, University of London

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## **I. Introduction**

This paper aims at investigating how the doctoral journey unfolds, by following a small cohort of PhD students from the first to the third year of their doctorate. The focus is especially on individual decision-making processes and identity over the course of the PhD. The broader objective is to understand which processes help PhD students to find their way through the doctoral journey. To achieve this objective, a longitudinal study has been conducted, relying on narratives collected at three different points in time along the PhD.

Representing the doctorate as a journey is a widespread metaphor (Wisker, Morris et al. 2010). It suggests that a doctorate is a complex learning process characterised by many steps and unpredictable events, and that it is mostly an individual challenge. Scholars are worried that completion rates are low, and data on doctoral attrition and completion are not even regularly collected by universities (Elgar and Klein 2004; Green and Powell 2005). A HEFCE (2007) report shows that in the UK the completion rate is higher for full-time when compared to part-time students (76% vs. 48%). Moreover, there are differences between disciplines: in the UK the completion rate goes from 62% in architecture to 85% in biology. Consequently, several scholars and institutions have called for a better structuring of PhD programmes (Kehm 2007; Bitusikova 2009).

In a previous TRIGGER working paper, a number of studies examining the experiences of PhD students and postdoctoral researchers in the UK have been reviewed (Vallentin 2014). The review demonstrated that there is a paucity of literature focused on achieving an in-depth understanding of PhD students' experience from a longitudinal perspective. The studies by McAlpine and Akerlind (2010), McAlpine, Paulson, Gonsalves and Jazvac-Martek (2012), and McAlpine, Amundsen and Turner (2014), constitute an exception: the authors demonstrate that the doctorate is a process of identity construction, in which PhD students are actively shaping their own path. Previous research has underlined that gender impacts on the doctoral experience: in some disciplines especially, such as chemistry, women are more often confronted with a hostile environment (De Welde and Laursen 2011). Furthermore, graduates often view an academic career as not compatible with family life, this causing tensions for women (Canetto, Trott et al. 2017).

This paper builds on this stream and aims to understand how the experience of doctoral students is characterised in disciplines with different profiles in relation to women and men's representation in order to investigate how gender interplays during the doctoral journey. The concept of identity work (Brown 2015) provides the framework to interrogate the data: it underlines how individuals are constantly engaged in a process of interpretation, sensemaking, enactment and change. This concept can inspire the analysis of the complexities of an individual's doctoral journey: this is a process of building one's own identity, and is characterised by continuous movements of interpretation and action. This concept is especially consistent when studying gender from a socio-constructionist perspective, as theorised by Martin (2003) and Gherardi (1994): one's own gender identity is built in social interactions, in a reflexive and performative process that constitutes identity work.

The originality of this study lies in its methodological approach: a longitudinal, in-depth perspective is privileged, so as to have a closer understanding of doctoral students' lived experiences. This should allow better comprehension of both the supporting mechanisms and struggles that PhD students meet along their paths, and the formulation of appropriate recommendations to institutions.

## **II. Background literature**

Literature on PhD students' experiences has developed recently, initially in the US and subsequently in Europe. Traditionally, PhD students in the social sciences are seen as lonely researchers, while in many fields in the natural sciences being part of a team is an integral part of conducting a PhD, and this might have an impact on doctoral trajectories. The PhD experience can vary considerably not only depending on the discipline or country, but also by and even within institutions: not all the institutions (or departments) provide standardized PhD programmes, and the availability and content of specific training initiatives might considerably vary.

Gardner (2008), in her US-based study on how doctoral students become independent researchers, found that students were relying a lot on peers (in chemistry especially), and this enabled them to become more independent researchers when compared to students who were accomplishing their doctorate in isolation. Golde and Dore's (2001) survey on more than 4000 PhD students in the US reveals that there might be a strong discrepancy between what students perceive to be their need, and the type of training or support offered. PhD students might suffer from isolation, poor supervision, and lack of mentoring opportunities.

A considerable portion of the literature studies attrition and completion: the focus is more on how students learn to fit into the new environment, than on how they actively interpret their situation and act on themselves and on others (Boyle and Boice 1998; Austin 2002; Gardner 2010). Typically these studies conceptualise the learning journey as a process of socialisation and assimilation in a group or department (Golde 1998): a successful socialisation trajectory is considered to be the main factor leading to PhD completion. The idea of "learning to fit" has had a strong influence in the literature, across epistemological and methodological perspectives. For example, studies grounded in situated learning theory and communities of practice (Lave and Wenger 1989) conceptualise the doctoral journey as a process of getting socialised into a group or department, that is very close to the idea of fitting into a new environment; in this case the important role of a supportive group for a successful socialisation is underlined (Teeuwssen, Ratković et al. 2012; Meschitti and Carassa 2014).

The main issue with studies relying on the concept of socialisation is that they tend to assume that "fitting in" is the key for success, and that PhD students tend to conform to that. Some scholars are critical of this standpoint: the contributions by McAlpine and Akerlind (2010), McAlpine, Paulson, Gonsalves and Jazvac-Martek (2012) and McAlpine, Amundsen and Turner (2014), are exemplar. They undertake a longitudinal and biographical approach to study the experiences of PhD students, post-docs, and junior lecturers, in the UK and Canada, across social science disciplines. They stress the active role played by individuals in designing their own path, and underline that the doctoral journey is more a process of identity construction than of socialisation or assimilation. McAlpine and colleagues (2012) focus on students that encountered problems during the doctorate (i.e. issues with the supervisor), and stress that these students were often able to draw on important sources of support from their own personal network; often institutions were not helpful and transparent policies on how to

deal with any problematic issues were absent. McAlpine and Emmioğlu (2015) stress the impact of personal circumstances in career choices, especially after the PhD, but they do not provide insight into gender differences.

Considerable research shows that academia is not a friendly place for women (Bagilhole and Goode 2001). Women are underrepresented in some disciplinary areas (the STEMM subjects in particular, i.e. science, technology, engineering, mathematics, and medicine) and across areas at senior levels (EC 2016). It is well-documented that women might experience more troubles along their career path: from overt sexism (Savigny 2014; Howe-Walsh and Turnbull 2016), to subtle dynamics of indirect discrimination and exclusion from important decision making processes and networks (Etzkowitz, Kemelgor et al. 2000; Rosser 2004; van den Brink and Benschop 2014). As a consequence, women are more likely to leave academia, this being exemplified by the well-known concept of the “leaky pipeline”.

Research conducted in the US demonstrates that women might encounter these barriers at a very early career stage, when working on their doctorate. De Welde and Laursen (2011) focus on STEM disciplines and show that women PhD students are confronted with unanticipated and often implicit obstacles, among them: old boys networks, overt sexism and sexual harassment, lack of women role models, and conflict between having a science career and taking care of a family. Gardner’s (2008) study of PhD students in chemistry and history revealed that gender has an impact on the doctoral experience, and this emerged spontaneously from the interviewees: the author reports that in one of the studied departments, women had fewer troubles, but also, the department chair was a woman. Also, the author underlines that women PhD students said that they worried for their future since they could notice how senior women were subject to discrimination in their department.

Beddoes and Pawley’s (2014) research is very original in contributing to illuminating the complex dynamics underlying gender inequality. They focus on how academics explain the lack of women in STEM: they find this is usually explained through the work-life balance issue, which is framed as an issue of choice. However, research suggests that women encounter structural barriers. As a consequence, the authors suggest that this perception and framing of the problem contribute to perpetuate gender discrimination. These findings parallel Canneto and colleagues’ (2017) research on women graduates’ view of an academic career: having an academic career is often considered incompatible with having a family, since women are expected to take full responsibility of their children; this leads to the view that women should make a choice.

Many of the barriers experienced by women in academia can be found across countries and disciplines. However, some mechanisms might be disciplinary-specific. For example, in the UK, a study conducted by the Royal Society of Chemistry found that the proportion of women planning a career as a research chemist fell from 72 % in the first year of the doctorate to 37% in the third year (RSC 2008). Further research found that women PhD students in chemistry were affected by supervision issues, such as poor guidance; they experienced isolation and exclusion, partly caused by the culture of their research group; and had greater concerns about perceived poor experimental success rates (Lober Newsome 2008). Interestingly, an additional study aimed at comparing the career intentions of chemistry PhD students with those in molecular bioscience found that a larger proportion of women in bioscience were considering staying in academia after finishing their PhD, when compared to those in chemistry (RSC 2008). The existence of disciplinary-specific barriers for women in chemistry in the UK is confirmed by Dyer and McWhinnie’s (2011) survey on

the experiences and career intentions of 776 post-doctoral researchers in physics and chemistry.

Other than gender, there might be other personal characteristics or situations that impact on the doctoral experience: ethnicity, class, being a local or a foreign student, but also, having the status of full-time vs part-time. This last point is especially important, since the institution where we conducted our study is well-known for offering part-time programmes. Gardner and Gopaul (2012) argue that there is very limited evidence in relation to part-time doctoral students' experience. They stress that part-time students have specific needs and issues: among them, balance and support, and institutions could be more attentive in engaging with them. Other studies highlight that part-time students might find it more difficult to access their own disciplinary cultures and might feel more isolated (Deem and Brehony 2000); relying on a support group is especially important (Teeuwsen, Ratković et al. 2012; Littlefield, Taddei et al. 2015).

Zahl's (2015) study at an institution in the US highlights that being part-time negatively impacts on the possibility of cultivating relationships in one's own department; also, part-time students perceive a lot of differences from full-time students, and that full-timers were provided with more opportunities to conduct research with faculty members. Bates and Goff (2012) underline the limited choice of PhD programmes and funding opportunities for part-time PhD students in Canada; also, not being regularly present on the campus means that part-time students suffer from invisibility; finally, the status of being part-time might lead to ambiguous situations, for example in relation to intellectual property.

To sum up, the literature offers a broad understanding of the main issues met by PhD students over the course of their doctorate, such as poor guidance and isolation. However, the literature rarely digs into gender differences and lacks a longitudinal perspective. Considering the length of the doctorate, this means that we are left with a very limited understanding of how the process develops and students change in response to the different challenges they meet. What is more, evidence coming from the UK is still modest when compared to other countries such as the US.

### **III. Research design**

To understand how decision-making unfolds along the doctoral journey, we opted for a longitudinal research design: three rounds of biographical interviews took place between 2015 and 2017 (first round October 2015, second round March 2016, third round January 2017) with a group of 7 PhD students coming from the same College, but from two different disciplinary areas (natural sciences and psychology). The representation of women and men doctoral students, in the considered departments, is balanced in the case of natural sciences, while women outnumber men in the case of psychology. However, the situation is quite different when looking at permanent senior academic roles, with women tending to disappear in the case of the natural sciences. This is exemplified in Table I (numbers represent headcounts in the case of PhD students, and full-time equivalents in the case of the research and academic staff).

**Table I:** Overview of the population at the start of the research project, in the two studied departments (2013/14). Source: Athena SWAN applications and PhD programmes administration.

	PhD students (headcount)		Researchers (FTE)		Lecturers (FTE)		Senior Lecturers (FTE)		Readers (FTE)		Professors (FTE)	
	W	M	W	M	W	M	W	M	W	M	W	M
Natural sciences	23	19	21.8	18.6	2.6	9.3	2.9	4	1.8	0.1	3.5	2.4
Psychology	38	18	19.6	6.4	4.5	2	6.5	2.5	1	2	5	6.7

At the time of recruitment, the PhD students were in their first year (or beginning the second). Among them 2 are part-time mature students, who rely on their own funds. Recruitment occurred through formal channels: the PhD programme administrators have been contacted by the research team and asked to send to PhD students an invitation email together with an information sheet. PhD students who volunteered have been individually contacted by the research team to go further into the research methods and objectives. Initially, 8 students volunteered; one of whom withdrew.

Interviews had a narrative form. The first round of interviews started with open questions related to: personal and professional background; experiences as a PhD student, main activities and daily routines; the actors (internal or external to their institution) who have some influence on the PhD trajectory; the most important steps, decisions and achievements (both in their professional and personal life) and future challenges. The subsequent interviews were focused on developments, recent achievements, new challenges, and changes in the interviewee's life. Interviewees were free to develop these topics. In fact, these interviews resembled an informal conversation. They have always been conducted by the author; they have been recorded and transcribed verbatim. Overall, each interview session took from 45 minutes to 1 hour and a half. The researcher wrote notes after the interview which provided the first step for conducting the analysis. Notes are especially important, considering that important information was often shared off record, before or after the interview. Once all data were collected, the analysis started. As a first, the researcher focused on each individual narrative, to find out the main topics and patterns, and identified differences across the three interviews. Afterwards, the different stories were compared to investigate similarities and differences.

#### **IV. Research findings**

The findings will be grouped into four key areas. First, there are some topics that develop across most of the narratives, and seem to be quite typical of a PhD trajectory. Second, there are some topics that better present themselves in the form of a trade-off between two different options or conditions. Third, there are patterns of change over time. Finally, the main difference that emerges in the data is that between full-time and part-time students, which deserves to be covered in a separate section.

##### *Main issues*

There are a few topics that develop across all of the narratives and seem to characterise the PhD journey. They are the following: Masters studies as a trigger of the decision to do a PhD;

initial high enthusiasm, often accompanied by the expectation that tough times might come; orientation towards an academic career; strong self-discipline and time management; presence of strong support networks beyond the academic world; attachment to one's own research and data.

For most of the students, Masters studies (and in a minority of cases, previous work experience) served as a trigger to decide to do a PhD. Put simply, often students encountered topics during their Masters that raised their interest, and developed the desire to know more. A minority of them had the chance to do some lab work, and this motivated them to go for a PhD. For a couple of people the experience they had in the business sector was especially important as a trigger, but for different reasons: one of them noticed that many people in senior roles in the business had a PhD, and decided that the PhD was a good career route; while another one initially thought to have a career in the private sector, but, once there, realised this was not the right environment for her and that she could better fit into academic research. This shows that different routes bring one to the decision to do a PhD.

In general the start of the PhD is marked by high enthusiasm, this being reflected by the tendency to attend as many events, seminars, or reading groups as possible. The start of a PhD is a moment of exploration, not only in relation to the discipline, but also, to the network and social contacts. What is remarkable is that most of the students seem to be quite prepared to have to cope with some tough times at some point in their PhD. It seems quite clear to them that the PhD is a long journey, and that it requires motivation and hard work.

The expectation that tough times might come is often influenced by the anecdotes PhD students hear from friends, colleagues, or relatives. Most of them, before starting their PhD, have had discussions with colleagues, fellow students, partners, friends or relatives, and have taken a well-informed choice. Some actively looked for advice, and asked experienced colleagues or senior academics. A couple of them come from academic families, and they are used to discussion with parents and relatives about a PhD. Also, three participants are in a dual-career couple situation, this having an impact on career decisions. In any case, it seems clear that the initial decision to do a PhD is very personal and well thought-through, and everybody is aware of the investment that a doctorate requires. Social networks seem to offer a strong source of support, and it is remarkable how varied they are: they can include former colleagues, senior academics, relatives, and also people with no academic experience at all. They are especially important, since often students feel accountable of their own choices in front of their network. This is well exemplified by a statement from a part-time student, who explained that he would never drop out because he could never tell something like that to his colleagues, who are supporting him so much.

The majority of the students are oriented towards an academic career from the beginning. This is not the case for the part-time ones; they underline they are doing a PhD because of their own desire to learn. However, it is interesting that the underlying assumption seems to be that a PhD is the route for an academic career. A couple of full-time PhD students, who decided during this research not to go for an academic career, seem to perceive their decision as exceptional and felt the need to justify this decision. One explicitly stated that the fact he is keen on applied work does not make him a good fit for academia. An association between PhD and academic jobs, and academic jobs as theoretical work (as opposed to application) seems to hold.

All the students demonstrate a very strong sense of self-discipline and exceptional time management abilities. Many of them stress clearly the need to be self-disciplined, and also, keeping enthusiasm and motivation high. Some have clear daily routines, while others do not; in general the full-time PhD students are used to going to the university every day and work from there. This is different for the part-timers: one of them goes to the lab only a few days per week, given his other job commitments; the other one does not need to go to the lab to work on his dissertation. However, he is used to going to a local library to have his own space for studying. Time management for some of them is related to the worry of running out of funding for the PhD. At times they underline that this is a serious worry, and, to paraphrase one of them, “you always have this clock in the back of your head”. At other times they show a more relaxed attitude, coupled with an awareness that it is not possible to shrink everything into a fixed period, and also, often something unexpected comes up and changes the plans independently of one’s own effort and good willingness. Ability to adapt, revise plans or draw up new ones is paramount.

It is remarkable to notice that all the students have a strong attachment to their research, and some of them in particular with the data they collected: not only is this usually a very time-consuming process, but details of the research design and data collection are often decided by the students even in the case of an already funded project where they are not the principal investigator. This is also related to a potential problematic issue, for the ones working on a funded project, i.e. intellectual property, and especially what will happen to the data once their dissertation is completed. The issue usually is not really clear-cut, and this study did not span enough time to be able to see what happens after the dissertation is over. However, this represents an additional source of worry for some, especially the ones seeking an academic career.

### *Trade-offs*

It is possible to detect some trade-offs among the main topics arising from the narratives. First, a few of the PhD students in the sample enjoy being in an exceptionally supportive environment that provides more opportunities to meet people (regular social events), learn about the discipline (reading groups), and present one’s own work or get to know about others’ work (seminars). This seems to be especially beneficial at the beginning of a PhD, and it greatly helps to avoid isolation, a problem stressed by many. However, some students remark that often these activities require an even stronger effort to manage one’s own time, and it is paramount at some point to focus on the dissertation. Also, students underline that it is important to build one’s own role and learn to work individually, because at the end the dissertation is your original piece of research.

Second, some students prioritise a clear career plan, this being influenced by the fact that they have limited time and funding for their dissertation; others stress they prioritise a step-by-step process, and take decisions depending on how things go. They stress that often unexpected events happen, for example, something going wrong with experiments or data collection, and it takes longer to sort out any issues; while at other times things go unexpectedly very well and they might be very productive. A few underline that future career steps after their PhD will also depend on which opportunities arise and they will consider their partner’s or family’s needs as well, so they adopt a flexible approach. In fact it looks like most of the people prefer to be flexible in their longer term plans.

Some of the students over the course of their career path are quite determined – especially once they learn more about academia – to decide how to shape their dissertation (e.g. research design) and related experiences (conferences, publications, summer schools as an example). In a few cases this had a serious impact on the relationship with the supervisor, who might not agree with the student's priorities. This might lead to tiring and emotionally charged discussions, so that sometimes the conclusion is that it is just better to take a more passive stance.

A tension that clearly emerges in most of the accounts is that between being fully devoted to academia and research, and having one's own family (or taking especial care of the family of origin, or of the partner's career). It looks like the two are incompatible. In fact, most of the PhD students seem to conduct a very intense life, very much focused on the dissertation work; however, most of them, when talking about their life and possible future plans, always mention their families or partners as important supporters and people to talk to when taking important decisions. Children seem especially incompatible with a career in academia. None of the participants has children.

One of them, who became a mother around the end of the data collection, underlined her worry about not being able to devote enough time to her work after having her baby. At the same time, she underlined that she feels reassured when she considers that in her department there are several mothers with small kids. It is worth stressing in this case the importance of role models: at a delicate time for her career, having positive role models make this participant feel more confident on her ability to pursue her academic career. Also, we could speculate that the presence of many young mothers in her department is a sign of an environment supportive of families.

At the opposite end, another participant reported the experience of a colleague who left her academic career because she had a baby during her post doc and her contract was not extended. This meant that it was impossible for her to accomplish her project within schedule, and she did not have the time to build a strong publication portfolio or secure another grant. This second participant is especially aware of the challenges faced by women over the course of an academic career, and this makes her feel disheartened; at some points she states that she prefers to have her own family instead of a career in academia. The fact that family and career are perceived as mutually exclusive by several participants, and by women especially, is worrying.

Last, another trade-off experienced by the PhD students is that of being in an exceptional place to live, offering many opportunities in terms of spending one's own leisure time, but not themselves having the time, energy or resources to enjoy it. As mentioned beforehand, their lives are quite focused on the dissertation work. Part-time students especially struggle with time management. A couple of students noticed that the town is always too busy, crowded and loud; one of them, who moved there when starting the PhD, said that he liked it a lot initially, but then he started to get annoyed by its fast pace. Also, one of the students remarked that there are constraints in terms in money. It seems there is a relationship of love and hate towards the town, and that it might not be the best place to be for everyone.

### *Changes over time*

When looking at the narratives from a chronological perspective, it was possible to observe some changes that happened as PhD students better engaged with their PhD projects and

learned about the academic environment. A first relevant change is represented by the increased awareness about how academia works. All the students reflect on the more general features of the academic environment and of an academic career. Interestingly, the impression of some is to develop a more disenchanting view. Others underline that research is a very lonely job, one of them stressed that she would have never expected that and this is the biggest problem for her. Some compare an ideal vision of science as the space for engaging in thinking and contributing to ameliorate the world, which they had at the beginning, with the idea of universities as places of politics and competition. A couple of them underline how academia today is driven by rankings and a rush towards publication, and time for reflection does not seem to exist. More of them feel the pressure for getting published: one states explicitly he is putting a lot of pressure on himself, and another that she is in a constant sense of anxiety in relation to publications.

After the initial enthusiasm, all the PhD students experience different phases, some of these characterised by low mood. This might be caused by tiredness and fatigue, but also by unexpected circumstances making data collection more challenging than expected. Designing experiments that, for some reason, do not work or do not bring the expected results might be disheartening, and very often phases of low mood are caused exactly by issues in the process of collecting data and generating findings. Often the awareness that this is only a phase helps. Colleagues are another source of help. Most of the students seem to have matured the awareness that at some point things might not work when it comes to data collection and analysis, but then, at some point, thanks to hard work or to somebody's support, things will get solved. One of them stresses the relevance of being able to manage one's own expectations as a way to cope better with any problems.

All the PhD students participating in this research, as they progress along their PhD, start to become more and more focused on the choice of activities. In particular the ones affiliated to a very active department state that after a while they started to select better which activities to undertake. For all of them, towards the end of the first year in particular, it becomes important to focus on their dissertation and data collection. It is possible to state that this might be considered as a physiological route along a PhD trajectory, and a sign of increased awareness about one's own role and learning.

In parallel to the process of getting more selective and focused on one's own dissertation, PhD students actively look for opportunities to build their own profile. This might mean submitting conference contributions, applying to attend summer schools or trying to gain teaching experience. They are more and more aware of what they need: often they build this awareness by comparing themselves to other students, and usually they are the ones proposing to the PhD supervisor that they be allowed to engage in activities such as attending conferences. For some of the PhD students the first conference, the attendance of a prestigious summer school, and the first teaching experiences are especially rewarding, and they signify very important steps in the learning process. Building one's own profile is a process where a lot of identity work is involved: for most of them, this seems to take the form of a gradual progression into academia, increasing their own participation in academic activities and shaping their own research portfolio.

It is worth stating that building one's own profile might not be an easy endeavour, and it might cause tensions with colleagues or with the supervisor. In a couple of these cases, the PhD student increased awareness and independence caused problems in the supervisory relationship. Sometimes PhD student and supervisor might have quite different views in

relation to the project on which the student is working, especially if it is a funded project where the supervisor is the principal investigator. In the two cases here mentioned, the priority of the student was to collect the appropriate amount of data for their dissertation, being able to submit to conferences and possibly get publications, while the supervisors did not have publications as a priority. This caused tensions; compromises were found, but clearly the PhD students were in a disadvantaged power position and had to put a lot of energy into getting the problem sorted. However, the process of learning and growth may be enhanced by the experience of conflict.

### *Part-time VS full-time*

The status of being a part-time student might be considered the discriminating factor in the sample of this study. Only two of the PhD students were part-time, and one of them went full-time during the research; one is in psychology, the other in biology, but the differences with the other students were striking. These differences were caused both by the status of being part-time, and being mature students, since both the part-timers were people with a wide professional experience, who decided to return to higher education to get a Masters, and, having enjoyed their Masters, to then go for a PhD. Both of them rely on their own funding, and one of them has an especially demanding job alongside.

When going through their accounts, it is remarkable how the part-timers are focused on their dissertation, how important it is for them, and how exceptional their time management skills are. They have clear plans: not to go into academia, but, in one case, continue with the present job, and in the other, apply for another job in the private sector or do consultancy. In both cases, there is a relation between the student's professional life and their PhD. In one case the two are strongly related (professional life experiences served as a trigger for the PhD topic), in the other, initially the relation was loose, but at some point, some of his findings turned out to be especially relevant for his profession, so he could present them to colleagues and this was a great source of reward. Therefore on the one hand, accomplishing the PhD is especially important for them, but on the other they show awareness that a PhD is not the only source of satisfaction in your life. One of them emphasises that for this reason he is not getting especially worried if his experiments do not work.

The issue of being different not only because of status, but also because of age, emerges explicitly from the part-timers' accounts. Both the students underline that they are different because of this: they are not part of the group, but also they are not necessarily interested in being part of the group. It seems that both of them have what they need: a strong professional background providing them with more coping strategies, personal resources to engage in a PhD, and their own sources of support outside academia. They underline the sense of isolation that they perceive sometimes, and it is interesting to see how the accounts of both the part-timers are ambiguous in relation to that: on the one hand, they strongly highlight this is not a problem, and in fact they can proceed in their PhD without any impediment; on the other, the topic of isolation comes up often during the interviews, and seems something they both regularly think about. They are not very motivated to attend social events: they say they already have their life and also, they feel different. Also, they could have the opportunity to have their own desk at the university, but they say they do not need it since they have their own routines. It is clear that when they come to the university it is to meet with their supervisor or to conduct experiments. On the one hand, the two part-timers build their own differences around their status, profession, and age, and seem to be comfortable with that, but on the other have strong awareness of this difference. Thus the ambiguous accounts given

when talking about isolation might mean they are very much engaged in delicate identity work, where drawing clear borders between them and the others is the easiest strategy to manage all the different aspects of their life.

### *Leaving academia: a defeat?*

Over the course of the study, one of the participants decided to abandon their plan to go for an academic career, while another one decided to discontinue the PhD. In both cases, this came after many struggles and, in one case especially, a quite difficult doctoral path marked by problems with the supervisor.

In the case of the PhD student who left his doctorate in his second year, he lists several reasons for this: the sense of isolation (i.e. not having that many opportunities to discuss his research in the department), but also, the lack of structure, which sometimes is disarming, since the PhD is quite a long path. Interestingly, he stated that he has always been oriented towards applications, and this made him feel not fit for academia. The decision to discontinue the PhD was quite painful, and to some extent perceived as a defeat.

In the other case, that of the PhD student deciding to go for a career in the private sector, several factors concurred. First, the relationship with the supervisor did not work out well. The dissertation chair was a great source of support in helping to cope with this; however, it is clear that this had a negative impact throughout her career. The PhD student admits having thought many times about leaving the PhD, but also, because of all the time she put into it, she decided to carry on. She thinks that academia is not that friendly to women, and research in academia is much more difficult to reconcile with a family than a job in the private sector. When comparing her story with those of the other PhD students, it is clear she suffered from isolation, she had few role models and her department was not supportive.

### *Identity work*

The findings demonstrate that the PhD students participating in this study are actively engaged in shaping their career and personal trajectory and looking for opportunities. Over the course of the research, it emerged that they considerably reflect on their role inside and outside academia and how to position themselves with respect to the people in their network. They actively engage in change and think about possible different futures. The way they see themselves and their own identity is influenced by both past trajectory and possible futures, and their identity is not only limited to what they are doing in academia. Several of them see themselves as future academics, while others (the part-timers especially) seem to retain the identity they built outside academia, but reshape it in light of the new learning process in which they are engaging. The type of identity work they do is a process of building, moving, and reshaping boundaries between self and others.

Building boundaries is a basic process in doing identity work. In this study it is clearly visible in several circumstances. For example, deciding not to participate in some activities because of a perceived age difference is a possible way of mobilising one's own identity: a factual condition (i.e. age) is used to draw a boundary between different groups and shape one's own identity as different. This kind of identity work is expressed in a very concrete action (i.e. not taking part in a social gathering) and has then an influence on other's expectations and perceptions. In this way, the process of building boundaries can be complete (but this does not mean that the boundary cannot change). Similarly, deciding not to

participate in a stream of activities (i.e. reading groups) because “it’s time for me to focus on my dissertation”, means to move a boundary and redefine one’s own identity from the beginner to the more experienced PhD student. It also has an impact on people’s perceptions and expectations. Deciding to go for a job in the private sector after having accomplished the PhD (instead of going for an academic job as initially planned), means to reshape the boundaries: people can still see themselves as researchers but in a different context. Becoming a parent can be considered an especially complex type of identity work, and it is deeply gendered: this is a life change that causes also a major change in other people’s perceptions and expectations, and might bring parents to work on their identity depending on such expectations. In this study there are not enough data to make conclusions on this point; however, it is important to notice that the participant who became a mother did a lot of reflective work on how to position herself as a researcher and a future parent.

Identity work is a step-by-step process, it makes constant change but abrupt changes are rarer and can be painful. This is exemplified by the two students leaving academia, and especially by the one deciding to leave the PhD. Such decisions come after deeply reflecting and questioning one’s own identity. Also, because identity work implies a work of repositioning one’s self in front of others, abrupt changes are more difficult to manage.

The learning trajectory in which PhD students are engaged seems to go hand-in-hand with identity work. This looks especially clear when focusing on the process by which the students get more independent and actively look for opportunities to build their research portfolio: they learn more about academia and about their discipline, and they start to see themselves as independent researchers. As seen beforehand, this might even mean conflict with the supervisor: the process of reshaping one’s own borders, and ultimately, identity, is not a social one, this meaning that people can address it in different ways.

To underline, identity work is a material process as well: it might unfold through engagement with space, for example. We argued before that deciding to attend or not attend an event might signify a process of building boundaries. Also, the habit of going to a specific place to work, even if not necessary, can be seen as a way to manage one’s own identity, and facilitate the transition between different aspects of one’s own busy life.

## **V. Summary of results and discussion**

The findings show that PhD students are very active in shaping their own paths: they look for information beforehand, have clear expectations, cultivate their network and discuss with several people about their experiences, prepare themselves to deal with the unexpected and to engage in hard work. The PhD can be seen as one of the multiple experiences in their life: it was possible in the data to notice a continuum between different experiences; in many cases, working experiences were a trigger for deciding to go into postgraduate studies. The idea that a PhD student should “learn to fit” seems at odd with our data, and we agree with the arguments of McAlpine and Akerlind (2010), McAlpine and colleagues (2014), and of McAlpine and Emmioğlu (2015) that PhD students actively shape their pathway.

The students in psychology seem to have the opportunity to rely on a more favourable and supportive environment when compared to the students in natural sciences, and they seem to struggle less. However, our sample is too small to be able to argue for disciplinary-specific differences. All the PhD students tend to share a series of concerns, isolation being the most serious. Most of them find individual ways to cope with that. Their support network is very

large and goes beyond academia. Over the course of their PhD, they demonstrate engagement in a learning trajectory, where they become more aware of how academia works and find a position within it.

Two issues are especially striking, and they are related to the assumptions that: (1) doing a PhD means going for an academic career; (2) an academic career is not compatible with family life, and this seems to represent an issue for women especially. Both arguments can be seen as the sign of a quite conservative academic culture, which would need to change. In fact, the number of PhD positions tends to be greater than that of available academic jobs after the PhD (Weijden et al. 2016); on the other hand, there are fields requiring highly skilled professionals.

One possible solution could be for universities to train PhD students for the different range of careers that they might have in front of them. Opting for a job outside academia should not automatically be seen as a second choice, or even worse, a defeat. The presumed trade-off between family and academic career will not help to increase diversity; more importantly, this is not necessarily justified by the features of academic work, where available flexibility might even better fit with the needs of people with caring duties.

A more general issue to consider, that has implications for literature on identity work, is that the work of building, moving, and reshaping boundaries is inherently social and as such is not a stranger to disagreement and conflict, as shown by the cases of students experiencing problems with their supervisors because their priorities and visions of the specific research project did not match. This calls for further research focused on understanding how the process of identity work operates socially.

### *Good practices*

One of the main issues listed by most of the participants was the feeling of isolation, the fact that research is a lonely job, and the willingness to have more opportunities to talk about one's own research. To some extent this is unavoidable; as some of the students remarked; doing a PhD is your own job. Nevertheless, it was possible to notice how three of the students who could rely on an especially supportive group, providing many opportunities to meet with other people and discuss research, had a much smoother start and did not experience that feeling as strongly as the others.

We could detect some practices that clearly help PhD students in their path: regular meetings with the supervisor are paramount; the presence of a dissertation chair looks to be very important, and especially so in case of disagreements with the supervisor; having the opportunity to present a research proposal early in the doctoral path; participating in reading groups, where it is possible to discuss research and meet potential role models; participating in seminars; having the opportunity to submit to conferences (and related to that, having the possibility of obtaining conference funding), or to do some teaching; public engagement projects might be especially rewarding as well, even if time consuming, as reported by one of the students.

Taken together, all these practices help first of all to reduce the sense of isolation, but also, to experiment, learn from others, meet colleagues, and become more familiar with the discipline and one's own community. Many of these practices are better suited to the profile of a full-time PhD student, who is regularly going to the university, and not to part-timers or people

working at a distance. However, it should be possible for departments to find regular time slots on the same weekday for these kind of activities, so that it is easier to attend, even for part-timers.

### *Researcher positioning*

This study, due to its longitudinal and explorative nature, has been characterised by a deep engagement of the researcher with the participants. It was not uncommon, during the second and third round of interviews especially, that participants asked the researcher for her opinion, especially in relation to problematic issues, or made questions about her own doctoral experience; questions and opinions could also relate to more personal matters (e.g. issues related to family). The researcher is experienced in qualitative and ethnographic methods, and her ethos is to be open in disclosing her opinions and past anecdotes; at the same time, she is careful in not making her opinions look prescriptive. She often stressed that any experience is different, and also, conditions might change from one field to another, consequently, ‘one-fits-all’ recipes do not exist. In the third round of interviews several participants asked if it was possible to know more about the experiences of the other participants, and especially if they were experiencing difficulties (as well). The researcher has been concerned about keeping confidentiality, and is aware that disclosing some details might allow identification of some research participants given that they were from small departments. As a consequence, the researcher preferred giving general answers that did not put anonymity at stake.

The way the relationship between researcher and participants developed might be a sign of the participants’ willingness to understand their experiences by comparing them with those of others, or of their need to receive informed advice. Also, it could be a sign of the open interview atmosphere, which should have allowed the collection of rich accounts.

## **VI. Conclusions**

This study, by relying on a longitudinal research design and on narrative interviews, helps to shed light on the experiences of PhD students throughout their trajectory. It reveals how active PhD students are in shaping their own pathway, and the intense identity work in which they are immersed. PhD students demonstrated strong coping strategies and rely on broad support networks. The main problem which students are confronted by seems to be represented by isolation; this can partly be overcome by institutions by building a supportive environment where students have the opportunity to meet with colleagues at different levels and discuss research and everyday issues. Institutions should also work on promoting a different vision of the career after the PhD, and, more generally, a different vision of the academic career.

We are aware that these findings stem from a very small sample. It will be important that future research further investigates possible disciplinary-specific issues, and augments our comprehension of the practices supporting doctoral students, but also, how doctoral students are able to successfully manage problems. Following a cohort of students over the course of their career until they achieve a permanent job might also better help to understand the impact of the PhD experience.

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