

# Leaving academia: Why doctoral students take non-academic jobs and how they are prepared

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## Abstract

It is a world trend that an increasing number of doctoral graduates are seeking non-academic employments although most of them have been trained as academic workers. While there are statistics regarding doctorate holders' employment situation in non-academic fields, what has led them to decide to leave academia and to what extent they are prepared for non-academic jobs have rarely been documented. Drawing mostly on the qualitative interviews collected for a larger mixed-method study that looks at doctoral students' career preparations, this paper reports on how five doctoral graduates reflected on their decisions of leaving academia. It applies a conceptual framework developed from protean career and boundaryless career theories, and focuses on the participants' agency in managing career choices and their meaning making of the shift from working in academia to working outside of it. The findings might shed some light on how doctoral programs should respond to students' diverse career choices.

## Introduction

Doctoral education is expanding worldwide and the number of doctoral graduates is increasing. The employment of doctorate holders is attracting more attention of researchers in doctoral education as well as research agencies and governments. The Organization for Economic Co-operation and Development (OECD), for example, initiated a *Careers of Doctorate Holders* database in 2005 and has been collecting information regarding doctorate holders' job positions, salaries and mobility; there are government databases such as Great Britain's *Where do researchers go?* Project, the U.S.'s *Survey of Earned Doctorates*, Germany's ProFile, and China's *Quality of Doctoral Education Survey* in 2007, in which doctoral graduates' employment is an important section (Cai & Fan, 2011).

The traditional goal of doctoral education is to produce academic researchers. However, an increased number of doctoral graduates have begun to look somewhere else for employment opportunities than the academia. Research has revealed that, although the majority of doctoral students still intend to become academics, only around 50% of them actually end up in universities (Castelló, McAlpine, & Pyhäältö, 2015; Neumann & Tan, 2011; Luo & Gu, 2015). And in some disciplines non-academic career tracks are becoming part of the disciplinary norms (Schwabe, 2011; Gu & Luo, 2013) (Rudd & Nerad, 2015). Diversity in doctorate holders' careers has led some scholars to attend to developing doctoral students' skills needed for non-academic positions (Kyvik & Olsen, 2012) and adapt doctoral programs to address this call (Porter & Phelps, 2014).

While there is research and statistics about doctorate holders' employment in non-academic sectors, little documentation can be found about how those leaving academia experience the shift. Drawing on the data, mostly interviews, from a larger mixed-method study that looks at doctoral students' career preparations, this papers focuses on two questions:

- What has led some doctoral students to decide to leave academia?
- To what extent are they prepared for non-academic careers?

## Theoretical Perspective

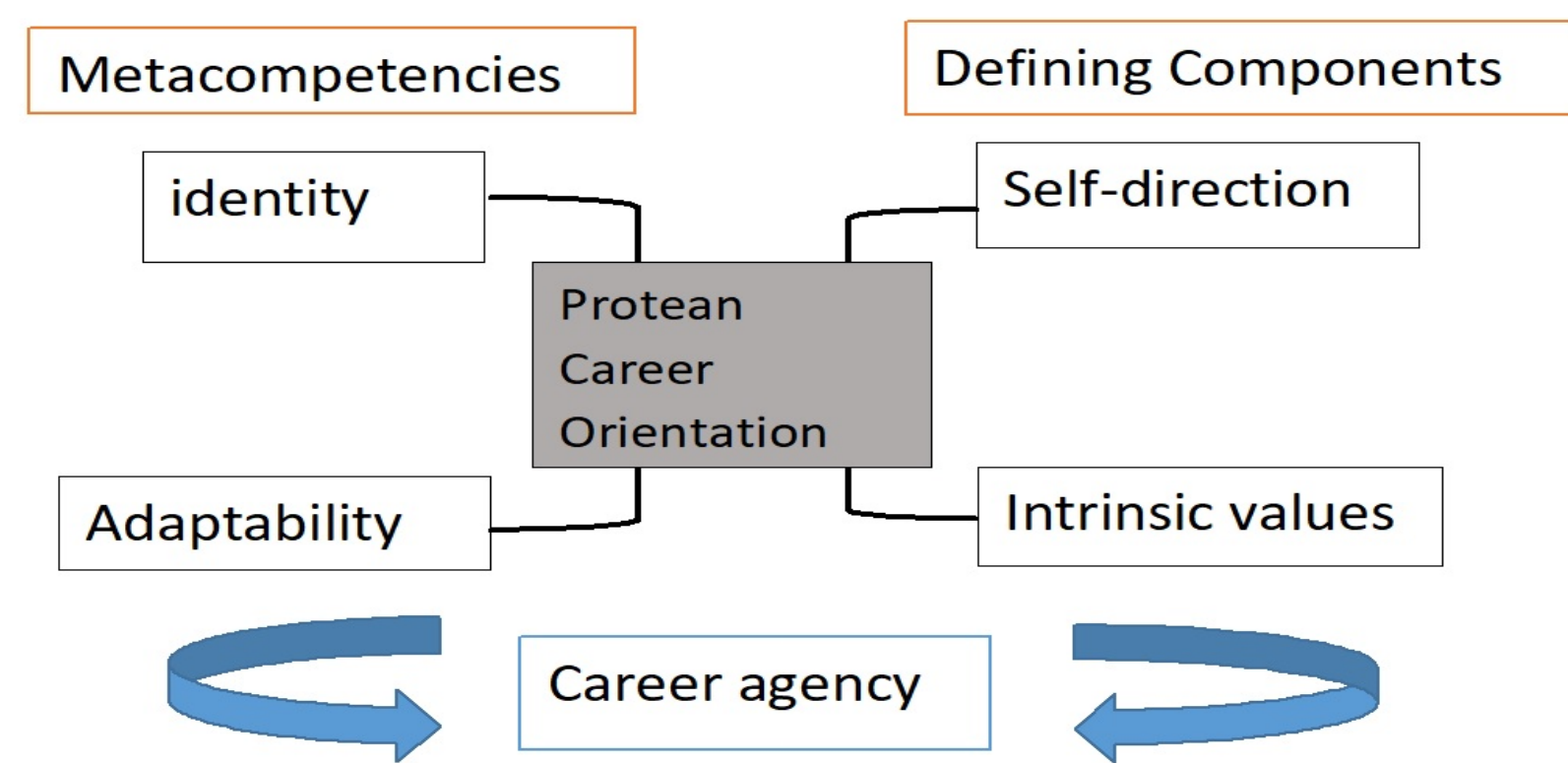


Figure 1. A Theoretical Perspective on Doctoral Students' Shift in Career Choices

The conceptual framework of this study draws from protean and boundaryless career theories. The core concept is protean career orientation in the center of Figure 1. Protean career refers to “a career in which the person is (1) *values driven* in the sense that the person's internal values provide the guidance and measure of success for the individual's career; and (2) *self-directed* in personal career management—having the ability to be adaptive in terms of performance and learning demands” (Briscoe and Hall, 2006, p.8). As doctoral students are beginning a career, PCO, meaning “the attitude or mindset of the person with agentic, protean inclinations” (Hall, Yip, & Doiron, 2018, p. 132), is more relevant. Given its defining components, identity and adaptability are embedded in PCO.

I have borrowed career agency (Tams & Arthur, 2010) from the boundaryless career theory, which refers to “a process of work-related social engagement, informed by past experiences and future possibilities, through which an individual invests in his or her career” (Tams & Arthur, 2010, p.630). This notion recognizes individuals' effort to learn from their own experience as well as the context in order to advance their careers and career thinking, and thus is highly relevant to doctoral students' career preparation.

## Data Collection

The larger project was a mixed-method study conducted at a large research intensive university in China. A short survey was administered every three months to all doctoral graduates (over 1,000) from June 2018 to July 2019. Interviewees were chosen mostly based on changes in career intentions/job positions with balanced disciplinary areas and types of careers. This paper reports on findings from in-depth interviews with five participants, who all self-identified as changing career intentions from academic work to non-academic work. Table 1 shows the basic demographic information of the interviewees.

Table 1. Demographic Information of the Participants

INT No.	Sex	Age	PhD Field	Job Position
INT2	F	25-30	STEM	R & D, company
INT3	M	25-30	STEM	Government
INT7	F	25-30	Life Sciences	R & D, company
			/Medicine	
INT14	M	31-35	STEM	R & D, company
INT20	F	31-35	Life sciences	Government

## Findings

### What has led them to decide to leave academia?

Each of the participants mentioned multiple factors that led to their decision to leave academia. Four mentioned their not-very-strong motivation for working in academia or in a particular field at the very beginning when admitted into the doctoral programs. Not surprisingly, a few pointed to the lack of academic positions in the labor market and the difficulty in publishing during the doctoral study. Interestingly, only female graduates regarded pressure related to academic work (for example, publications) as a driving factor.

These doctoral graduates were agentic in making career decisions. They were **self-directed** and were guided by their **intrinsic values**. Interviewee 20 was typical, who left his excellent academic record behind and became an official in a county in the north-east area of China.

*I wanted to become a scientist when entering the program. And I won the Government Fellowship twice both in my master's and doctoral studies. I have an excellent research record and was expecting a lot in my scientist career. I was accepted to be a visiting student at Harvard. It was my dream to become a scientist. Then in the summer of 2017, I was participating in a practicum in [place name] and it was one of the “poverty-alleviation” events. We visited three counties there, whose national resources, basic situations, and geographical conditions and so on are pretty much the same, yet one of them was doing way better than the other. ... I chatted with each of the officials responsible for the poverty-reduction projects and found out that the one whose county was developing the best was daring and enthusiastic, and had a billion ideas about the local development. So the shift began at that moment. I was thinking that probably I could do something for the people in those areas.*

[INT20, life sciences, translated from Chinese]

Interestingly, while INT 20 gave up his scientist dream completely, INT 14 believed that working outside of academia did not necessarily conflict with his identity as a researcher.

*...I always want to be a researcher. You do not have to work in a university or a research academy to conduct research. You could be on the practitioner side, doing the real job, and getting yourself familiar with efficiency or cost reduction. This is a great thing to do.*

[INT14, STEM]

### To what extent are they prepared for non-academic careers?

Were the five doctoral graduates ready for non-academic careers, in terms of knowledge, skills, roles and identities? During their doctoral studies, did they intentionally develop those knowledge and skills required for their desired types of non-academic jobs? What about institutional support?

### Frustrations in finding a job

All the five graduates were holding non-academic positions at the time of interviewing and seem to be satisfied with them. Yet some experienced frustrations in job searching, including gender discrimination, over- and under-qualifications.

*PhD holders are not competitive in the [non-academic] labor market...either over-qualified or under-qualified.... There are not enough positions for PhDs. There are a little more positions in the AI area, but they want master's. PhDs are in an embarrassing situation. ...For a few positions that do require a PhD, my background does not meet their expectations...this is normal as I was looking for a job outside of my field.*

[INT7, life sciences/medicine]

### Agentic learning during PhD

All the participants began to consider career issues in the middle or late stage in their study. Only one agentially participated in non-academic job related activities. He attended several internships in non-academic fields when realized in the middle of his PhD that he did not want to stay in academia.

*At that time, I felt I wanted to know more about non-academic careers, as the university is so different from the real world. The school life is so narrow that what you only know is your research. The relationships between people and your network are limited too. ... in the 4<sup>th</sup> year, I began to do internships in companies, companies doing technology, finance and so on, and I was doing statistics related jobs. I was thinking that doing statistics would be good for my professional development. I knew at that time that I was not going to continue [in academia] and I wanted to work in a company. I heard people say internships would help in finding a job—I was naïve—so I went to find internships.*

[INT14, STEM]

### PhD project and non-academic career

Except INT 14, the other participants did not seem to intentionally prepare for non-academic careers mostly due to lack of time, lack of institutional or supervisor support. Some believed PhD provided transferrable skills needed in non-academic work; a few had a more flexible attitude towards job seeking and sought employment opportunities that matched their knowledge and skills. So while **adaptability** in the protean career theory is highly related to career agency, which evolves one's investment in his/her career, this study seems to show a somewhat passive color of the concept.

*PhD is helpful as it is a preparation for your vocational skills, which you gradually developed through doing [industry] projects. This is probably disciplinary. We are involved in [industrial] projects in the whole process, and we thus accumulate vocational skills ... it is a long and implicit process embedded in PhD. It is important. These skills are highly valued in job interviews.*

[INT2, STEM]

### Institutional support

Institutional support refers to institutional career services – including university, departmental and program levels, and supervisors. Generally speaking, it seems that doctoral graduates do not benefit much for career services, although some did mention job affairs at which they sent out CVs. Two indicated that their supervisors were not supportive about their career decisions and three mentioned they did not have time and opportunities to prepare for non-academic jobs. On the other hand, one supervisor did encourage one of the participants to work in industry. For the two working as government officials, one collected lots of helpful information from the university's career services as regards the special program for hiring graduate students to work in poverty areas.

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