



# Knowledge junkies or careerbuilders? A mixed-methods approach to exploring the determinants of students' intention to earn a PhD

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## ABSTRACT

What are the determinants of students' interest in earning a PhD? In this study, we use a mixed-methods approach to pursue this question. Based on qualitative interview data, we develop a model in which academic motivation and academic achievement interact with contextual factors such as working conditions to influence career intentions. We then test this model using a sample of 229 students currently enrolled in master-level courses of study at a German university. Our results speak to the role of intrinsic versus extrinsic motivations in the context of PhD intentions. In contrast to our expectations, results suggest that while intrinsic life aspirations and the intellectual challenge of gaining a PhD play a significant role for students' intention to pursue a PhD, extrinsic life aspirations and contextual determinants seem to be less influential. Furthermore, results highlight the importance of gaining familiarity and experience with academic work for students' career decisions.

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## 1. Introduction

Studies on career decisions of university students that explicitly include the option of an academic career are sparse. While a few previous studies have focused on the scarcity of academic positions (Hakala, 2009; Labini & Zinovyeva, 2011) or on a lack of role models and familiarity with what a PhD student does (Ehrenberg, 2005) as factors that influence the decision of students to pursue a PhD, prior literature has not studied this choice in the context of career theories encompassing a larger spectrum of drivers and influence factors. Consequently, our knowledge of the determinants of students' interest in pursuing a PhD is limited to a number of singular aspects. However, we lack an overview of these aspects and their interplay as well as an understanding of students' decision to pursue a PhD in a wider career-theoretical context.

We believe that it is important to fill this void since universities need young academic talents to maintain and improve the quality of research and teaching. At the same time, they compete with private firms for highly talented graduates, a competition exacerbated in many Western countries by demographic change and a shortage of skilled labor (e.g., Mayrhofer et al., 2005). On the one hand, universities are at a competitive disadvantage in this war for talents: Private firms can implement complex and expensive programs to attract and retain talented students or use their larger financial scope to offer attractive contractual conditions (e.g., Roach & Sauermann, 2010). Universities, due to their limited funds, are hardly ever able to offer competitive payment packages (Ehrenberg, 2005). At the same time however, studies analyzing students' vocational interests have suggested career goals to be related to

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personality types (Glidden-Tracey & Parraga, 1996; Schaub & Tokar, 2005; Sheu et al., 2010). Against this background, academic institutions may have an advantage over private firms – regardless of material resources – when investigative personality types (“thinkers”) prefer intellectually demanding science-oriented jobs in research facilities.

The above observations suggest that for a deeper analysis of the competitive position of universities in the war for talent, a deeper understanding of students' motivation to pursue a PhD is required. However, there is no unequivocal picture of what the decisive drivers with regard to this decision are. This research lacuna is exacerbated by studies showing that interest in an academic career is related to what students know or respectively do not know about this profession. For American economics students for example, declining interest in pursuing a PhD has been attributed to students lacking familiarity with what a PhD student does, lacking role models, and lacking knowledge on how to structure one's (under-)graduate studies in order to fulfill the PhD requirements (Ehrenberg, 2005). Therefore, not only do we know very little about what the determinants of students' interest in pursuing a PhD are, it is also unclear how these determinants are influenced by students' understanding of what it means to be a PhD student.

This question is particularly interesting considering that within the German context of our study, extrinsic incentives of earning a PhD include higher salaries in non-academic jobs (e.g., Fabian, Rehn, Brandt, & Briedis, 2013; Falk & Küpper, 2013) and that the doctoral degree serves as an elite education credential, is of high social status, and becomes part of one's name as stated in official documents and ID cards. In the German context, a PhD is not as directly associated with entering an academic career as is the case for many professions in other national contexts, such as the U.S. for example. Many students exit academia after having completed their PhD and join private companies which value the filtering service provided by the doctoral degree when filling top management positions (Franck & Opitz, 2004, 2007). One study on the careers of German university graduates shows that one third of a cohort decides to pursue a PhD, but only slightly more than ten per cent of the PhD holders are in a postdoctoral or a professorship position ten years after completing their master degree (Fabian et al., 2013). In our study we do not argue for raising these proportions; rather, our aim is to seek a more profound understanding of what drives students' PhD intention in order to better address the most talented students, who can pick from a large variety of career opportunities.

In a two-step approach combining a qualitative and a quantitative study conducted in 2013 and 2014, we first develop a model of the determinants of students' interest in earning a PhD based on results from the qualitative interview study with 39 master-level and PhD students. This analysis is guided by career theories, in particular social cognitive career theory (SCCT) (Lent & Brown, 1996; Lent, Brown, & Hackett, 1994). In a subsequent quantitative study, we investigate the interplay of academic motivation, academic achievement, and contextual factors influencing students' intention to earn a PhD, using a sample of 229 students currently enrolled in master-level courses of study at a German university.

This study contributes to insights on students' career decisions in two ways. First, our research uses career theoretical reflections to explore the phenomena related to students' PhD intentions and analyze the thus emerging propositions based on a sample of students at a German university. This is one of the few studies to investigate students' intention to earn a PhD, and its explorative nature therefore opens avenues for future research, for instance on how the decision to pursue a PhD may differ from other career-related decisions. Second, our study delivers important insights for universities on how to develop effective measures for attracting young academic talents. We show that working conditions as part of the contextual determinants of making career choices do not seem to be as influential as expected. By contrast, intrinsic academic motivation and academic achievement, relating to intrinsic life aspirations like the pleasure of learning and testing personal cognitive abilities by earning a PhD, apparently have the potential to influence students' intention to earn a PhD.

## 2. Study 1

### 2.1. Sample and methods

We carried out a qualitative study designed to gain insights into the cognitive processes underlying career choices of students in general and their PhD intention in particular (Eisenhardt, 1989; Miles & Huberman, 1994). This approach allows for a richer description of the students' motives to pursue a PhD and allows taking account of the specific context of career decisions related to earning a PhD. The qualitative study enables us to develop specific and testable hypotheses on the determinants of students' PhD intention.

In order to provide structure and ground our analysis in prior career-theoretical insights (e.g., Brown et al., 2008; Byars-Winston, Estrada, Howard, Davis, & Zalapa, 2010; Diegelman & Subich, 2001; Lent, Lopez, & Bieschke, 1993; Lent, Lopez, Lopez, & Sheu, 2008; Robbins et al., 2004), we use insights from social cognitive career theory developed by Lent et al. (1994) and Lent and Brown (1996) to guide our interviews. In addition to questioning students on personality-related and behavioral factors – which Lent et al. (1994) suggest to be influential on career decisions – we were particularly interested in the interaction between these factors and what authors of SCCT have described as environmental factors (Lent & Brown, 1996; Lent et al., 1994). According to SCCT theorists, environmental factors are perceived as either enhancing or restricting personal agency and therefore the context of decision-making is determined by supporting systems or limitative barriers (Swanson & Woitke, 1997). Examples of environmental factors in the SCCT context are job availability, economic conditions, financial and instrumental support, perceived and actual barriers to occupational entry, and so forth (Lent et al., 1994). Lent et al. (1994) argue that environmental factors can have a direct effect on the career choice as well as exert a moderating influence by strengthening or weakening the effect of personality-related or behavioral variables.

We conducted semi-structured, guideline-based interviews with 28 master-level and 11 PhD students from a German university. We included interviewees that were both pre and post the decision to pursue a PhD in order to gain a richer understanding of the

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