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A Systematic Framework for Understanding Doctoral Study Intentions Based on Theory of Planned Behaviour

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Abstract. Research capability and the teaching pipeline are seriously threatened by the global drop in the number of students pursuing PhD degrees. There is still a lack of consensus across disciplines and theoretical stances about the intricate decision-making process that shapes intentions for PhD study. The present systematic review aims to synthesize elements affecting doctorate study palns, focusing on the Theory of Planned Behaviour (TPB) and provide a thorough theoretical lens that allows to analyze this significant educational option. In accordance with PRISMA, 45 research articles that had been released between 2000 and 2023 and were accessible through four databases (Scoups, ERIC, PsycINFO, and Web of Science) were examined. Empirical investigations into factors influencing doctorate study plans among prospective or current master's grads or students were taken into consideration while determining the selection requirements. The results suggest that the most crucial determinant of students' intents to pursue a doctoral degree is their mindset regarding their motifs of pursuing a doctoral at academic institutions (attitudes towards doctorate's studies), particularly their intrinsic desire and love for researching. The next most significant indicators are self-efficacy, money related issues, and a sense of behavioral control. Although subjective norms are important, their impact varies depending on the society. The three TPB constructs work together rather than against each other.

Keywords: Doctoral Study Intention, Theory of Planned Behaviour, Systematic Framework.

1 Introduction

There has never been a greater threat to higher education: a drop in PhD enrollment in many fields and the resulting effect on the supply of young innovators, intellectuals, and researchers. The greatest method to prepare the future generation of academic specialist and educational practitioners is in the STEM and humanities sectors, where the phenomenon is particularly evident. A variety of wider societal issues pertaining to research abilities, scientific advancement, and financial viability in the framework of knowledge-based economic are also affected, in addition to employment possibilities

There isn't much consensus in the field on the choice-making procedure that happens when contemplating doctorate studies, considering the substantial quantity of

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study on doctoral education. Social scientific study tends to focus on isolated variables such as financial incentives, job opportunities, or home conditions and often fails to articulate the dimensions of a theoretical framework for understanding the complexity of the decision. This is a very atomised landscape – there are no clear building blocks to help construct robust interventions informed by an evidence base that could benefit future doctoral students and tackle student recruitment relatively systematically.

Theory of Planned Behavior (TPB) easier to use, instead of just looking at one factor that influences us to do things, TPB shows why people do things by looking at three main things: the way they feel about the behavior, what others think they should do, and how much control they think they have over their behavior[1]. Because doctoral study decisions are such a high-stakes professional, financial, and personal commitment, it is the TPB which provides the most suitable conceptual tool to investigate and explain the factors surrounding doctoral intentions.

The SR's three overarching research questions are: (1) What predicts doctoral study intentions when systematically organised through the TPB model? (2) Which of the TPB constructs best predicts doctoral study intentions? (3) How do these factors operate within the theoretical model to influence intentions? In addressing these questions, we seek to present an integrated theoretical account of doctoral selection, which might inform future policy, practice, and research.

2 Literature Review and Theoretical Framework

2.1 The Theory of Planned Behavior in Education

The Theory of Planned Behavior is an important advancement in behavioral decision-making and is especially relevant to situations involving high levels of commitment and/or potential environmental constraint[1].

The theory suggests that proximal individual level behavioral intentions underlie behavior, and are influenced by three higher level constructs: Attitude towards the behavior includes both cognitive (perceived costs and benefits) and affective (emotional responses) evaluations of the behavior. Career values assessments, the cognitive benefits, and the private costs of doing a PhD: These would be relevant factors in a decision to undertake one. Subjective norm refers to the perceived social pressure exerted on the individual by important others for performing or not performing a behavior. Factors that can affect decisions to pursue PhD studies Some of these are associated with making decisions regarding the pursuit of PhD studies, such as pressure exercised by family, friends, scholarship advisors, and professional contacts. PBC, which is a reflection of the degree to which individuals believe that they can perform a behavior successfully. These consist of efficacy beliefs of the self and beliefs about external circumstances that facilitate or constrain the individual.

Within a doctoral education setting, this would include beliefs about research skills, availability of funding and control over academic demands. TPB has similarly demonstrated good predictive strength in numerous other educational contexts. Meta-analyses have reported intention-behavior correlations of \(r\) =.44-.62 [2]. Topical applications to higher education outcomes have demonstrated strong potential, as the

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model and variational approach have been shown capable of predicting graduate school attendance and academic career choice[3].

2.2 Doctoral Decision-Making: An Elaborate Act of Behavior

Becoming a doctor is a very hard decision to make A very hard decision to take on A lot of risk, a lot of money, a lot of uncertainty, and it tempers the passion of an altruistic do-gooder. The decision to be a doctor is a very complicated one. While undergraduate decisions seem minor in comparison, doctoral decisions make the decision of a research "track" that potentially defines professional identity for many years. These complexities would require a theory that can flexibly incorporate multiple sources of influences on the decision process. Previous studies have discovered numerous predictors affecting doctoral intent such as career goals[4], financial support [5] , parental pressure [6], and the role of mentorship[7]. They are generally explored separately, without consideration of their respective importance or of the relationship they have with each other in a more general theoretical model.

2.3 Research Gaps and Study Rationale

We only reviewed studies that: (1) examined the motivations for pursuing graduate school; (2) included master's students or master's graduates (with master's students as the target population for the studies); (3) were published in peer-reviewed journals in English; (4) used a quantitative, qualitative, or mixed-methods design; and (5) provided enough information about the factors being examined.

Reviews were not included if they were: (1) concerned specifically with doctoral completion or attrition without reference to initial intentions; (2) centered exclusively on demographic variables without the recognition of the influence or consequence of psychological or social causes; (3) theoretical reviews devoid of empirical evidence; and (4) focusing on program-specific professional doctorates (e.g.Shuler et al., 2011; Clayton, 2006) without a focus on research doctorates.

3 Method

3.1 Study Design and Protocol

The present review was made in accordance with the PRISMA guideline ensuring that the methodology was sound and that everything was clear. The protocol was submitted in PROSPERO before the start of the study.

3.2 Search Strategy and Data Sources

Scopus, Web of Science, ERIC, and PsycINFO were the four key databases for electronic search. These databases comprised publications between January 2000 and December 2023. Our broad search strategy included the following terms and Boolean operators:

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Further searches were carried out from the reference lists of the included studies and also through citation tracking of key studies in the area.

3.3 Inclusion and Exclusion Criteria

Inclusion criteria for the studies were: (1) being empirical studies examining factors affecting the intentions to pursue doctoral studies, (2) including sample from prospective or current master students or graduates, (3) being published in peer-reviewed English language journals, (4) having used quantitative, qualitative, or mixed methods approach, and (5) providing sufficient information to describe the factors examined.

Studies were not included if they (1) focused on doctoral completion or attrition without consideration of initial intentions, (2) examined demographic characteristics only and not psychological and/or social, (3) were purely theoretical with no empirical support, or (4) focused on specific professional doctorate programs (e.g., EdD, PsyD) to the exclusion of PhD programs.

3.4 Data Extraction and Quality Assessment

Two reviewers independently extracted data using a predesigned form, including study characteristics (country, sample size, methods), participants′profiles, risk factors studied, main results and quality indicators. Disagreements were resolved through discussion and, where necessary, by seeking the opinion of a third reviewer. The Newcastle-Ottawa Scale for cross-sectional studies, Critical Appraisal Skills Programme (CASP), checklist for qualitative studies, and a modified Mixed Methods Appraisal Tool (MMAT) for mixed-methods research were utilised to condense the quality of the studies.

3.5 Data Analysis and Synthesis

Thematic synthesis was adopted for analysis and synthesis of included studies. Factors that were identified as impacting upon aspirations to doctoral studies were systematically coded and categorized within the three TPB constructs. To identify sub-themes within constructs we employed iterative analysis and discussion within the research team. Data from studies using the statistical method were summarised narratively due to differences in measurement methods and outcomes. Effect sizes and significance levels were provided where possible for ease in comparing relative importances in the discussions.

4 Results

4.1 Study Selection and Characteristics

The initial search retrieved 3,247 records. 156 full-text articles were screened for eligibility and 45 studies met the inclusion criteria from a reading of the titles and abstracts. The included studies originated from different parts of the world (North

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America: n=20, Europe: n=15, Asia: n=7, Australia: n=3), used different methods (quantitative: n=28, qualitative: n=12, mixed-methods: n=5) and involved different numbers of participants (between 18 and 2,847 with a median of 284).

4.2 Thematic Synthesis: TPB Framework Application

Attitudes Toward Doctoral Studies

Intrinsic Motivation and Research Passion emerge as the most frequently referenced attitudinal categories in the included studies that were referred to in 89% of the studies. Participants who expressed strong desire to pursue doctoral education were also uniformly passionate about research, deeply inquisitive and committed to the production of knowledge. Effect sizes for intrinsic motivation ranged from moderate to large (r = 0.34–0.67) in quantitative studies. Another key attitudinal construct was Career Development and Professional Goals, which appeared in 76% of studies. This included beliefs concerning potential for advancement in one's career, the status associated with a doctorate and compatibility with long-term career goals.

However, solely instrumental motives showed significantly weaker association with intentions compared with internal motives. Personal Fulfillment and Achievement There were 62% studies whereby the attitudinal factor of personal fulfillment and achievement such as personal satisfaction, feeling of achievement and self-actualization through advanced learning was regarded as an important antecedent. Qualitative research stressed that doctoral studies was both a personal challenge and an opportunity for intellectual growth. Economic Analysis were found in 58%, including systematic examination of time resources, opportunity to invest, resource cost on finances, and expected returns. Studies consistently found that positive benefit-cost analysis was positively associated with doctoral aspirations and that cost-related concerns about the financial burden of education were negative factors on those aspirations.

Subjective Norms and Social Influences

Academic Mentor Influence was the most frequent subjective norm factor, reported in 84% of the studies. Thesis advisor, research mentor, and respected faculty as sources of support were consistently supported predictors of intentions for doctoral study. Several studies showed that mentee encouragement might help to overcome initial reluctance in the pursuit of a PhD.

Effects of Family Support and Expectations showed differentiated effects across cultures (reported in 69% of the research). Familial influence on intentions was more pronounced in collectivist cultures, where as heritages originated from individualist cultures had weaker effects of familism. Financial and emotional support from family members tended to strengthen intentions, regardless of culture they were in.

Peer Influence and Social Modeling was identified as an important construct in 53% of studies. They saw successful doctoral students and graduates who provided them with role models, making doctoral study an attractive option. Peer networks often provided both informational and emotional support for doctoral decision-making.

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Professional Network and Industry Expectations were found in 44% of articles and had different effect in different career fields. Professional fields (i.e., academic disciplines) had strong lobbying networks supporting the PhD, while industry-facing fields either had mixed or negative influence.

Perceived Behavioral Contro

The ability to raise funds, access to capital and financial resources was the most critical PBC factor referred to in 91% of studies. Perceived inability to finance doctoral pursuits, to acquire debt, and to lose income were consistently a greatest barrier to doctoral goals. Conversely, availability of scholarships, assistantships, or external funding played an important role on how much stronger the intentions were.

78% of papers reported that Academic Self-Efficacy and Research Confidence were very important. High confidence in one's research skills, writing ability, and ability to do academic work independently were among the strongest predictors of plans to earn a doctorate. Previous research experience often reinforced self-efficacy beliefs.

Both Time Management and Life Balance were noted as significant in 67% of studies. Their plans were influenced by people's ideas around how they would be able to manage the demands of a doctoral program with family, work, and personal lives. People tended to feel as if they had more control when the structure and timing of programs were more flexible.

Supportive Environment and Quality were selected in 56% of studies. The quality of supervision, research infrastructure and institutional supports influenced how confident people felt that they would complete the program.

4.3 Relative Importance of TPB Constructs

In quantitative studies that investigated multiple TPB variables simultaneously, attitudes were the strongest predictor of doctoral intentions across studies (mean standardized beta = 0.45, range = 0.28–0.67). Perceived behavioral control showed the second strongest correlation (mean standardized beta = 0.38, range = 0.19-0.58), and subjective norms had weaker, but still significant, relationships with the intentions (mean standardized beta = 0.24, range = 0.12-0.41).

4.4 Interaction Effects and Construct Interdependencies

Several studies have demonstrated significant correlations across TPB constructs. Mentor support (subjective norm) often increased both research self-efficacy (PBC) and positive attitudes to research careers. PBC appeared to enhance the impact of the effects of intrinsic motivation on intentions. Cultural differences This reflects a stronger moderation effect of collectivism on subjective norms within the prediction of intentions.

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4.5 Cross-Cultural and Contextual Variations

There was also great variation between different situations. In Western/Individualist settings, attitudes and personal factors were more salient, and in Asian/Collectivist settings subjective norms and family expectations showed a greater influence. There was disparity between the disciplines as well. For instance, we see that STEM fields rely more on funding and research infrastructure and that humanities fields rely more on intrinsic motivation and mentor relationships.

5 Disscusion

5.1 Principal Findings and Theoretical Contributions

For the initial time, the Theory of Planned Behavior has been utilized for doctorate research plans across diverse demographics and conditions in this thorough study. The results illustrate the usefulness of the Theory of Planned Behavior to nuanced educational choices while also shedding light on substantial differences in how the three components function in today's setting. According to Ryand & Deci [8], self-determination theory's emphasis on intrinsic motivation in the context of education is also congruent with the most significant attitudes that predict doctorate ambitions, namely intrinsic motivation and research enthusiasm.

This data calls into question purely ideological strategies to doctorate training and implies that efficient methods for hiring will bring out the inherent value of study and scholarship. The noticeable consequence of perceived behavioral control highlights the practical limitations faced by prospective PhD students, particularly with regard to financial considerations. This has important policy ramifications since a shortage of funding may discourage otherwise driven and almost competent individuals from pursuing doctoral degrees [9].

5.2 Practical Implications for Stakeholders

For decision-makers and academic institutions: The finding suggest that a two pronged approach is required to boost participation in PhD programs : 1) Research's inherent benefits (expanding knowledge, intellectual satisfaction) should be emphasized in marketing and recruitment messages. Second, we must begin investing heavily in funding initiatives that eliminate the primary barrier to earn a doctorate: scholarship, assistantships, and fellowships [10].

Jared Ochawangi *et al.* [7] explained that for academic mentors and faculty, the importance that coaches attach to students' advancement serves as more evidence that faculty members have a duty to help students fulfill their PhD goals. Mentors should learn how to spot exceptional students, help them along the way, and then walk them through the application process for PhD schools. Programs for organized training could assist with it.

As learners proceed with PhD candidature, the TPB model offers a framework for structuring your self-assessment and choice-making. Learners can more systematically assess their perceptions of investigation, the social support system that exists, and

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the perceived obstacles, which can help them decide whether or not they should continue PhD studies [11].

5.3 Cultural and Contextual Considerations

This review's focus on cross-cultural differences highlights the significance of context-sensitive methods for comprehending PhD objectives. The stronger influence and pressure of the family and social norms in collectivist populations suggest the need for cultural-adapted recruitment strategies. Similarly, differences in disciplinary practices highlight the need for disciplinary-specific interventions to promote the aspiration for a Ph.D[6].

5.4 Limitations and Future Research Directions

There are multiple limitations to note. First, cross-sectional data is unable to infer the causal relationships between determinants and intensions. Longitudinal research is needed to understand the development and change of intentions across time. Second, the intention-behavior gap (i.e., the distance between the desire to obtain a doctorate study and the implementation of the doctoral application or enrolment) has not been adequately investigated. Future studies should address the facilitators and barriers to the translation of intentions into behavior. Third, despite the efforts to include diverse contexts, the literature remains predominantly dominated by Western, English-speaking countries. Further studies of non-Western contexts are needed in order to increase our understanding of how culturall ybased differences influence decisi on-making of doctoral students. Finally, the rapid transformation occurring in higher education, such as technology, new career opportunities and the economic uncertainty, may determine to what extent the factors identified in this review remain relevant. Continued research is needed to track shifts in doctoral aspirations.

5.5 Methodological Recommendations

Future research needs to employ different methodological techniques to increase the understanding of doctoral intentions. Longitudinal studies would allow us to determine how intentions develop and in what amount trajectory of intentions predicts behaviour. Cross-cultural comparative research could test the TPB model and its invariance as well over different cultural contexts. Multimethod designs may provide greater depth to the understanding of the processes behind statistical associations. Lastly, the efficacy of theory-based strategies in encouraging PhD aspirations may be evaluated through intervention trials

6 Conclusion

The current systematic review demonstrates the effectiveness of the Theory of Planned Behavior as an unified model for comprehending the aims of doctorate studies. According to the produced model, the primary predictor of doctoral intents is

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still attitudinal characteristics, notably inner study drive. Perceived behavioral control, specifically influenced by the monetary control dimension, comes in second. Despite their importance, subjective norms seem to have a more culturally unique effect on action.

The results have significant ramifications for anyone involved in higher education. Institutions ought to spend equally in the systems that can help control such supply-side challenges as they do in the weighting of incentives in terms of research. Academic mentors have a significant impact on people's thoughts and self-beliefs. Funding arrangements and social standards are two examples of the bigger systemic elements that policymakers should take into account while making decisions regarding doctorate education.

Recognizing the complex ways of thinking that influence reasons to seek a doctorate is becoming more and more crucial as the environment for higher education changes. This notion is well-founded in the TPB framework, which emphasizes the significance of context-sensitive methods that consider personal, academic, and ethnic variation when making doctoral decisions.

The problem of fewer PhD students merits fact-based and journalistically sound reports that discuss the background and driving forces behind the decisions that students are making. To assist with such attempts, this assessment offers a theoretical framework and real-world lessons acquired. This will enhance the long-term viability of doctoral study and its significant contribution to societal creativity and scientific progress.

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