Academia A publication of the
Higher Education
Policy Network

# Internationalising doctoral education: International PhD students' experiences of academic mobility in Germany

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**Abstract**

*This article explores the academic journeys of Indian and Chinese doctoral students in Germany, examining their perspectives on adapting to new learning methodologies, academic standards, and socio-cultural norms compared to their home countries. By analysing 10 semi-structured, biographical narrative interviews, the study highlights the challenges faced and strategies developed by these students during their transition to the German higher education system. Key themes, such as increased autonomy, independent decision-making, and potential psychological distress, highlight the importance of effective adaptation strategies and strong support systems for these students. This study contributes to understanding the experiences of Asian doctoral students, a growing demographic in German and international universities, and can inform universities in developing targeted support programmes to enhance international students' academic success in Germany.*

**Keywords**

*German higher education institutions; international doctoral students; internationalisation; academic mobility; academic adaptation; autonomy.*

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## Introduction

In a knowledge-driven society, higher education is crucial to addressing pressing issues such as innovative advancements in science and technology, labour shortages, economic pressures, demographic shifts, climate change, and the global competition for talent. As a key contributor to the development of knowledge-based economies, higher education has become a focal point of government spending and public interest. In 2022, Germany invested a total of 176.3 billion euros, with 35.4 billion - or 20.1% - allocated to the tertiary sector (Destatis, 2023). Public spending on education as a percentage of gross domestic product (GDP) reached 4.6%, surpassing the OECD average.

Numerous studies have highlighted the importance of foreign researchers and internationally mobile academics, particularly in STEM fields, and their impact on Germany's higher education institutions (HEIs) (Teichler, 2015; Goel & Göktepe-Hultén, 2021). In response, HEIs have adopted more flexible structures and collaborative approaches, particularly in STEM disciplines, leading to innovative courses and programmes taught in English at both undergraduate and graduate levels. The German government has also developed strategies, such as the Strategy for Research and Innovation, to enhance the research and innovation framework (Bundesministerium für Bildung und Forschung, 2024). By focusing on international education and talent mobility, Germany aims to maintain its competitive edge and contribute to a knowledge-based economy.

HEIs in Germany have recently become particularly attractive to doctoral students from the Global South, especially the emerging Asian knowledge economies (Statistisches Bundesamt, 2020). The German Academic Exchange Service (DAAD) has played a significant role in promoting internationalisation in these countries, providing generously funded mobility scholarship programmes for students and academic staff, opening representative offices, participating in international education fairs, and advertising higher education degrees at German institutions. According to DAAD (2024), during the 2023/2024 winter semester, German universities, Universities of Applied Sciences, and Non-University Research Institutes, including the Max Planck, Fraunhofer, Leibniz, and Helmholtz Institutes, offered a total of 814 Bachelor's, Master's, and PhD degrees in Mathematics and the Natural Sciences. Additionally, 697 degrees were offered in Law, Economics, and Social Sciences, along with 8 degrees in Veterinary Medicine and 18 in Sports. A total of 149 international PhD programmes were also identified, all

conducted in English, with a focus on Mathematics and Natural Sciences, Medicine, Law, Economics, and Social Sciences (DAAD, 2024).

Despite the growing interest in international doctoral students in Germany, few studies have explored the internationalisation of German higher education system and the impact of international doctoral students on German higher education (Zhu, 2012; Lihe, 2015). Against this background, the aim of this article is addressing this gap by exploring the experiences and perceptions of international PhD students who have moved to German HEIs. The following research questions have thus been defined:

1. How do international doctoral candidates perceive and navigate the differences in learning methodologies and academic expectations between their home countries and the German higher education system?

2. What specific challenges do international doctoral candidates encounter in adapting to the German culture of debate at universities, particularly during the initial stages of their studies?

3. How do the cultural backgrounds and prior educational experiences of international doctoral candidates influence their learning habits and strategies when faced with the institutionalised learning structures of the German higher education system?

To answer these questions, this article is structured as follows. First, a literature review section gives an overview of international academic mobility and the factors influencing the mobility of international doctoral students in Germany. Afterwards, the methods for data collection and analysis are presented, followed by a detailed description of the study's results. A discussion and conclusion section then interprets the findings, answering the research questions, and considering the implications and limitations of the study.

## 1. The context of international academic mobility in Germany

International academic mobility reflects the political, social, and economic priorities of knowledge-based societies in the 21$^{st}$ century, under the influence of global dynamics and the interplay between global factors and national settings (Shen et al., 2022). The Bologna Process, an intergovernmental initiative to coordinate higher education policies in order "to bring more coherence to higher education systems across Europe" (European Commission, 2024), has changed doctoral education in Europe over the past two decades.

Established in 2005, the Salzburg Principles, as part of the Bologna Process, provided a number of recommendations for doctoral education reforms in the context of the European Research Area and the European Higher Education Area (EHEA). These recommendations promoted originality, innovation, autonomy, and accountability as essential aspects of a standardised procedure that should be taking place across doctoral schools and programmes in Europe (European University Association 2016). As a result of the Bologna Process, and the impact of funding programmes such as the Excellence Strategy (Bundesministerium für Bildung und Forschung, 2024), new forms of doctoral education have emerged in Germany, such as graduate schools (*Graduiertenkollegs*). These graduate schools gather doctoral students from Germany and abroad in a multidisciplinary research environment, where they participate in tailored courses and benefit from innovative supervision methods (Deutsche Forschungsgemeinschaft, 2024).

When opting for a German HEI, international doctoral students are drawn by several factors, including economic prosperity, access to advanced research centres, investment in education policies, continuity of rights to access both academic and industry-oriented doctoral programmes, accumulation of academic capital, career advancement, and attractive employment opportunities post-graduation in various sectors (Ahmad et al., 2017). Furthermore, McAlpine (2020) highlights that career paths extend beyond academia, encompassing public, private, and non-profit sectors. Additional pull factors include secure immigration status, such as the EU Blue Card Directive (2021), the Residence Act (2020), and the German Skilled Immigration Act (2020).

The number of Indian students in Germany, for example, has been growing due to the low cost of education, courses taught in English, the perceived high quality of education, availability of paid part-time job opportunities while studying, the 18-month visa after graduation, and the EU Blue Card programme, which offers good job prospects (Jayadeva, 2016). According to Destatis (2023), there were 48,100 doctoral students (23%) with foreign nationalities at German universities in 2022. The majority of international students were concentrated in three federal states: North Rhine-Westphalia, Bavaria, and Baden-Württemberg. However, Berlin had the highest proportion of international students (19%) compared to the total student population, followed by Brandenburg, Saxony, and Saxony-Anhalt, each with 16% (DAAD, 2024). In terms of the origin of international students, Asia and the Pacific rank first, accounting for 32% of the total, followed by North Africa and the Middle East at 19%. For the first time, India has become the leading country of origin for international students in Germany, with

approximately 42,600 students, making up 12% of the total international student population. China ranks second with around 38,700 students (11%), and Syria holds third place with about 15,600 students (4%). Most international doctoral students focus on STEM disciplines, with others studying law, economics, and social sciences, accounting for 24% of the total (DAAD, 2024). Germany is currently the fourth most popular country for international students (Destatis, 2020), with the United States continuing to hold the top position.

## 2. Factors affecting the mobility of international doctoral students in Germany

International students and their parents often perceive the pursuit of an international academic degree as an opportunity to gain transnational employment and social prestige (Kim, 2016). It is also an opportunity to gain "global cultural capital" (Kim, 2016), namely the knowledge, cosmopolitan attitudes, and lifestyles that students can acquire through the experience of international higher education, making them "positionally competitive". Government policies in students' home countries and the perceived value of international degrees contribute to their decision to study abroad, as it can lead to increased career opportunities, social status, and professional reputation upon their return (Kim, 2016).

      Doctoral trajectories and learning experiences are influenced by three key factors: 1) Institutional, departmental, and disciplinary settings, including the learning environment and interactions with colleagues and peers; 2) Supervisory aspects, namely the frequency and quality of supervision, as well as the relationship with the supervisor and principal researcher; 3) Individual agency and personal characteristics, such as age, racial and ethnic identity, and gender; and psychological and behavioural traits such as self-efficacy, engagement, curiosity, motivation, sense of belonging, and coping mechanisms with regard to stress and pressure (Boutiuc-Kaiser, 2023). Disciplinary structures, academic departments, and project-related environments are key mediators of structural and academic learning within doctoral education in Germany, where a focus on specialised knowledge and skills is crucial, and career advancement is often unregulated (Bloch and Würmann, 2014).

      International academic mobility facilitates the acquisition, retention, and dissemination of knowledge, fostering adaptability and flexibility in diverse academic settings. However, it also entails a process of acculturation, requiring doctoral students to

update their skills to align themselves with new academic structures (Bloch and Würmann, 2014). Equipped with the necessary skills and competences, doctoral graduates have a good chance of finding employment in both academia and industry after completing their doctorate, because "[b]oth corporations and professional service firms, value doctoral graduates for their ability to conceptualize new and complex topics, their ability to independently drive a project forward, and their specialist knowledge" (Leimeister et. al, 2019).

As reported by the Federal Statistical Office (Destatis, 2023), nearly a quarter (24%) of the 295,000 foreign workers who obtained a Blue Card in Germany by the end of 2021 were academic professionals. The Blue Card, implemented across the EU in 2012, aims to address the shortage of highly qualified professionals (European Commission, 2021). To qualify for the Blue Card, individuals must possess a university degree and secure a job offer with an annual salary of at least 56,400 euros, or a lower threshold of 43,992 euros in fields facing shortages such as IT and medicine. By the end of 2021, almost half (48%) of Blue Card holders were employed in these shortage occupations, with individuals of Indian citizenship constituting the largest group (11%) of foreigners living and working in Germany under a residence permit for employment purposes. Many doctoral graduates opting to stay in Germany after completing their degrees obtain a Blue Card for employment.

## 3. Methods

To delve into the academic experiences of international doctoral students at German HEIs, a biographical-reflexive narrative approach was employed (Sigl, 2016). This methodological approach aligns with the primary goal of qualitative research, which is to gain original, genuine, and reliable insights while prioritising the perspectives of the target group. This approach also emphasises the researcher's choices and their ontological and epistemological beliefs, as well as the importance of considering factors such as who to study, where to conduct the study, what knowledge and research traditions to draw on, what data to include or exclude, and how to address ethical concerns and present the findings. Levinas (1979) emphasises the ethical imperative of accepting the "other" in their uniqueness, which highlights the need to recognise and value "otherness" for the richness and inclusivity of our work. Furthermore, the biographical narrative approach is intrinsically linked to the life course perspective (Elder et al., 2003), as it underscores the

significance of individuals' social contexts and their decision-making processes. By adopting this approach, researchers can gain valuable insights into the experiences of international doctoral students within German HEIs while recognising and appreciating their unique perspectives and contributions to the academic community.

### 3.1 Interview Design and Participants

Data were collected through ten biographical reflexive interviews with international doctoral students pursuing PhDs in STEM subjects at different German HEIs. The sample included 10 international doctoral students from India (N=8) and China (N=2), representing the largest cohorts of foreign students in Germany (Federal Ministry of Education and Research, 2024). The participants were evenly split between five males and five females, aged between 25 and 35 at the time of the interviews. Their PhD statuses varied, with three at the beginning, four in the middle, two nearing completion, and one who had already finished their programme. Eight participants had previous international education experience, having completed their Master's degrees in Germany, Europe, or North America.

The interviews, which took between two and four hours, were conducted in English and took place either in person (six) or online via Zoom (four). The interviews (Sigl, 2016) focused on the participants' retrospective and prospective reflections on their motivation to pursue a doctorate in Germany and how their efforts to achieve academic success influenced their planning and decision-making processes. All interviews were recorded and transcribed in full, with informed consent obtained to ensure voluntary participation and anonymity. To protect the interviewees' identities, specific details like their research field and university were omitted from the empirical sections, and their names are pseudonymised in this article.

### 3.2 Data Analysis

The interview transcripts and field notes were analysed using a grounded theory approach, with the research focus developing throughout the broader investigation of academic mobility in German higher education institutions. The circular approach (Glaser & Strauss, 1967; Glaser, 2014) involved an iterative process of initial coding, focused coding, and constant comparisons within and across the data. This resulted in the identification of 100 distinct categories, which were refined through focused coding, elimination, integration, and clustering of similar categories. Recurring ideas were

identified, leading to the establishment of six overarching themes: different learning traditions, motivation and expectations behind the choice of German higher institutions, support received during the PhD, dealing with uncertainties in a new academic environment, and the influence of social background on PhD progress. Coding was facilitated by MAXQDA qualitative data analysis software.

The next section will present the four main synthesising findings from the six overarching themes. These findings highlight key experiences and challenges in the doctoral journey, reflecting the interplay of personal, academic, and social factors within German HEIs. We will explore each of these findings in more detail, showcasing how they intersect with the overarching themes and offering insights into how these factors collectively shape the doctoral experience.

## 4. Findings

### 4.1 Navigating doctoral studies and autonomy in German universities

The doctoral students interviewed highlighted various aspects of the German university landscape, including its structured and hierarchical nature, as well as differences in social interactions compared to their home countries. Lina, who had studied in India and Canada before coming to Germany, noted the rigid academic environment and potential challenges in forming friendships. She acknowledged the hierarchical nature of higher education in Germany, contrasting it with the more relaxed atmospheres in India and Canada where interactions with professors were less formal. Despite these challenges, Lina also recognised the advantages of pursuing a PhD in Germany, pinpointing the country's reputation for efficiency and the reliability of friends made there. Overall, while acknowledging the differences and challenges in the German academic landscape, Lina expressed excitement about the opportunities and benefits associated with studying in Germany.

Raj, who had moderate proficiency in German (A2/B1), remained optimistic about his career, citing a successful Indian professor with limited German. He planned to improve his German (B2/C1) in the interests of maximising his efficiency and success. Nindra, however, was not entertaining the idea of becoming a professor in Germany. She was not deterred by the language barriers alone; the stringent criteria for obtaining a professorship were also problematic: "There is a certain way of doing things, and if you don't do things that way universities think you are not interested or not passionate about

your work" (Nindra). While Nimit emphasised his interest in a professorship in Germany, citing inspiration from his ambitious supervisor, the other interviewees gave diverse reasons for not considering this career path. These included lower interest in teaching, concerns about fluency in German, perceived high workloads, a desire for work-life balance, and a belief that their expertise would be more valued elsewhere.

In Germany and Western culture, the notion of the university as a place of autonomous judgement, with independent scholars, is rooted in Kant's concept of reason and has influenced core curricula in Germany. This philosophy promotes the idea that maturity means having the "courage to use one's own mind" without outside influence (Kant, cited in Johnson et al., 2000). This philosophy underpins traditional supervisory practices characterised by a pedagogy of indifference, where doctoral students are encouraged to work independently with minimal support (Johnson et al., 2000). For international Asian doctoral students like those interviewed, this cultural difference often entails a significant period of adjustment, with initial feelings of challenge, uncertainty, isolation and frustration resulting from the differences in expectations between their home institutions and their new academic environment (Wang et al., 2021; Boutiuc-Kaiser, 2023). The doctoral students interviewed experienced a shift towards greater autonomy, transitioning from structured coursework and assignments to a more self-directed approach where they had the freedom to manage their own time and activities. This could lead to feelings of uncertainty and difficulties in decision-making, as in the cases of Nindra and Tu.

> Because up until now we always had classes we had to do, assignments we had to submit, deadlines. And now with the PhD it's just like you do it when you want to. And you are like no, somebody please tell me when and how and what. I can - like if you leave it up to me, I will spend 20 days just reading one paper and be like, hmm, yeah (Nindra).
>
> I mean first of all PhDs here are different from PhDs in China. I didn´t do a PhD in China, but I know there are PhD courses in China like in the US. You have the course, so you learn the basics. We don´t have a course here. And even though I did some image post processing in China during my Master's in [STEM], it is still different. So that means I have to learn basic stuff about my field here [on] my own. And there's no course and the professor doesn´t teach you the basics, right? You have to read for yourself, learn by yourself. So that´s how I did it. It's difficult. It's really difficult (Tu).

Nindra faced challenges navigating the freedom to delve deeper into her research during her PhD, which led to difficulty in decision-making due to an abundance of options, resulting in feelings of uncertainty and mental strain. She also experienced decreased productivity compared to her Master's studies, highlighting the impact of difficulties with decision-making and over-analysis on her overall well-being during doctoral studies. "But with a PhD you can sit with a topic and think about it and I think that's the upside. Not everybody gets the freedom to sit and think about things the way we do with the PhD, so that's definitely an advantage" (Nindra).

Nindra characterises a PhD as a paradoxical state wherein "there is a certain level of understanding that you develop which allows you to not just be all 'oh this is black, this is white', and then you just function in shades of grey after that. I think that's mostly the difference that I see in the whole thing. Like not functioning so much on the basis of right and wrong but more dealing with this grey thing. And I think that just developed more and more over time" (Nindra). This realisation suggests that academic engagement offers a great opportunity for epistemological growth, where individuals move beyond conventional dichotomies and ambiguities and gain a more nuanced understanding of knowledge. Academia thus becomes characterised by inherent uncertainties, where individuals need to be self-reliant, independent, and introspective.

Conversely, Tu needed to learn self-reliance when navigating the landscape of the German higher education system. His experience highlights a key challenge for international doctoral students: adapting to a self-directed learning environment. Unlike structured courses, this approach requires students to acquire knowledge and resources independently, taking full responsibility for their academic growth. By contrast, Sadhil emphasised the importance of the skills he acquired during his Master's degree in Germany, which boosted his confidence despite initial doubts. He highlighted the challenge of being dependent on others and opted for independence from the beginning, seeking minimal support and setting personal goals to assess his progress.

## 4.2 Learning from interaction with supervisors, research teams, and peers

International doctoral students from Asia studying in Germany have similar experiences with their counterparts in English-speaking countries, the main distinction being the need to adjust to unfamiliar learning practices, habits, and educational environments within the German academic system, as this system is relatively new to internationalisation (Boutiuc-Kaiser, 2023).

Doctoral education in Germany relies on students producing a thesis following an extensive period of study, with limited emphasis on coursework. The few seminars on offer are often organised by supervisors, while doctoral candidates are expected to work on research projects. In this context, challenges may arise due to the lack of any predetermined framework including coursework that could help doctoral students improve the competences they need to complete their research. In this context, social support systems including peers and supervisors can play a crucial role in mitigating challenges and facilitating adjustment.

Lina's supervisor, for instance, encouraged her not to work more than 40 hours a week and to take holidays when she felt overworked, implying a supportive and healthy work environment. This contrasts with the common perception of hierarchical and demanding supervisors in academic settings, as seen in the experiences of other participants. Moreover, Lina found the German idea of taking holidays "extremely strange" compared to her experience in Canada or India, where people prioritise work over vacations. This observation challenged her personal work-life expectations and highlights countries' contrasting work cultures, and the impact on international students who are navigating new environments. Despite the emphasis on work-life balance in Germany, Lina noted that the working environment could be conducive to productivity due to reduced distraction. This points to a possible paradox between work-life balance and productivity. Moreover, Lina's experience in Germany differed from her expectations, particularly in terms of social interaction and networking within the academic community. "Interacting, having more friends doing PhDs, and just all of that would just be great, but that's different" (Lina). The contrast between the straightforward communication style in Germany and the supportive environment Lina had expected emphasises the influence of cultural differences on professional interactions. In addition, she noted a distinct lack of interaction with colleagues during working hours and described her working life as predominantly independent. This delineation between work and socialising outside of work underlines both the importance of independence in the workplace and the clear boundary between the professional and private spheres.

Nindra's experience highlights the positive impact of having a supportive and open-minded female supervisor on her doctoral journey. Despite potential challenges that some doctoral students may face due to gender dynamics or traditional expectations in academia, Nindra felt fortunate to have a supervisor who actively promoted a healthy and inclusive work environment. Nindra's comments underline the importance of mentorship

and supportive relationships in the academic environment, especially for marginalised or underrepresented groups.

Raj's supervisor stopped offering one to one support due to time constraints and started to organise weekly task force meetings with several PhD students working in similar research areas. The taskforce meetings served as a versatile platform that facilitated various aspects of the research process. Firstly, they created opportunities for discussion with peers and colleagues and enabled the sharing of ideas, findings, and progress reports. Secondly, the working group meetings provided controlled space that allowed participants to scrutinise their own deadlines and act accordingly. And lastly, these meetings served as a forum for problem-solving, where participants could collectively address challenges and obstacles encountered during the research process.

Tu's experience illustrates the vulnerability of PhD students, as they often have limited power in their academic work. Tu said he had had difficulties with his first supervisor, who assigned him certain tasks, only to find out later that his supervisor intended to take first author credit for the resulting work. This disagreement with his supervisor reflects the power imbalance doctoral students can have to deal with in their relationships with supervisors or mentors. Tu also expressed frustration that after six months on the programme he had not had any substantive learning experiences and felt that he was merely repeating what he had done during his Master's studies. Ultimately, Tu decided it was time to make a change and leave the programme in search of a more fulfilling academic environment. In order to navigate the challenges of independence in his new doctoral position, Tu employed two strategies to boost his confidence during his PhD journey. Firstly, he "bothered" his colleagues and his project manager and secondly, he bought a book containing the last five years of lectures in his field and learned "the basics". He also familiarised himself with current development in the field by reading reviews and a paper authored by his professor, thus crafting his "learning process" at the start of his PhD. Like Tu, Fai, another Chinese doctoral student, also faced challenges with adapting to the German academic environment. It took him three years to become comfortable with "doing a presentation in German". He describes this as a "step by step" learning process, where he would "listen to talks given by others and work out how I could follow them or how to construct a particular sentence, how to introduce myself" (Fai).

## 4.3 Social background and its impact on performance during doctoral studies

Among the interviewees, only two came from families where just one parent held a higher education degree. The rest came from families with academic backgrounds. This difference was reflected in how they coped with failure. Damiri, for example, emphasised the negative impact that failing her first exam had on her and her family. By contrast, Sadhil struggled to find support groups where he could feel less isolated. "It is not that we are not very sociable. My friend and I are both very sociable but at the same time if you are displaced from one country to another country, you go through a very strange feeling of alienation" (Sadhil).

A common experience among international doctoral students, as exemplified by Sadhil, Damiri, Lina, and Tu, was feelings of alienation and isolation. Beginning their studies in a new academic environment presented challenges, as they were navigating unfamiliar social dynamics and the task of building new friendships. The lack of structured courses and classmates, especially for PhD students, could further intensify these feelings of isolation. In Tu's words: "As a PhD student you don't have courses, you don't have classmates and you don't get to know new people".

Nimit had a supportive environment and access to educational opportunities through his family background, which included family members who were engineers and academics. His experiences at a prestigious private university in India, where he was exposed to cutting-edge research, laid the foundations of his academic interests and aspirations. Taking the initiative and applying for a DAAD scholarship, and completing a summer internship in Germany was a transformative experience that exposed him to European academic culture and research practices for the first time. This experience broadened his perspective and strengthened his enthusiasm for pursuing doctoral studies abroad.

> At the end of the third year, I became aware of this opportunity called a DAAD scholarship. I applied for that and in the process I contacted some professors in Germany and one of them was happy to have me live here. Although I didn't get the scholarship, my parents were kind enough to fund my travels. And that is how I familiarised myself with European universities. Until that time, I had literally zero idea about European universities, and some time later I was in a university in Germany, and it was a completely different experience. You learn about what teaching is like in Europe, what education is like in Europe, how research happens in Europe and all of that. It was really eye opening. (Nimit)

Namit's privileged position, free from financial worries, allowed him to seek out a supervisor who was ambitious and accessible. By contrast, Sadhil's experiences illustrate the challenges faced by doctoral students from rural backgrounds with family responsibilities. Balancing his PhD workload with family commitments posed a significant challenge for him. However, by employing a strategy of careful planning and setting boundaries, he managed to avoid entering what he referred to as "war mode" (Sadhil). Making a positive impression on his professors was a motivator for him, although he raised some worries regarding the expectations of his supervisor that he would finish the PhD on time. He had his very first experience of "sleep problems" and in the morning "suddenly my mind is full of thoughts of work like what are the things I have to do? And I am really afraid in the mornings" (Sadhil). Sadhil's narrative highlights the complex intersection of family commitments, academic endeavours and personal wellbeing. This complexity extended to his doctoral journey, as evidenced by the fact that he was in the fifth year of his PhD at the time of the interview.

Compared to the experiences and expectations of the Indian doctoral students, the Chinese doctoral students barely mentioned their families. Tu, for example, referred to the differences between Chinese and Western culture and the importance of family in Chinese culture: "Family is very important to Chinese people, and we have the one-child policy, right? I mean, if you don't take care of your parents, who will?" (Tu).

Overall, the narratives of these doctoral students underscore the diverse challenges and opportunities arising from their social backgrounds, family support systems, and personal aspirations.

## 4.4 Coping with uncertainty and adjusting to a new learning environment

International students are not simply passive recipients of education in a new country. They are active participants, navigating an unfamiliar academic and social landscape. As Marginson (2016, p. 8) suggests, they are "self-forming individuals" who navigate their learning journey through this period of cultural disequilibrium. This journey is not static, since identities and approaches to learning are constantly evolving (Bilecen, 2013; Boutiuc-Kaiser, 2023). International students construct, reconstruct and adapt their strategies as they adjust to the new educational environment. This adjustment includes overcoming language barriers, dealing with differences in the learning environment and confronting stereotypes, all of which are integral aspects of the transition to new higher education institutions (Hunter-Johnson, 2022; Boutiuc-Kaiser, 2023).

As Nindra noticed at the beginning of her studies in Germany, teaching and learning was not a one-dimensional process. She valued the willingness of the professors to engage with their international students and the cultural sensitivity in their academic interactions. She appreciated the German professors' recognition of her diverse background and experiences, which contributed to a positive learning environment for international students.

Nindra compared the teaching styles in her home country and in Germany. She emphasised that the professors in her home country had a rather strict and authoritarian approach, and noted that in Germany a more interactive and engaging style prevailed. Nindra also appreciated the interactive teaching approach in Germany, describing it as unexpected but welcome. She appreciated her professors' openness to dialogue and to learning from their students, and this contributed to her overall satisfaction with her learning experience in Germany.

Nindra also noted the contrast between formal norms, such as punctuality and formality, and the more relaxed atmosphere of seminars in German universities. This juxtaposition can create confusion and anxiety for students. Nindra emphasised the importance of developing strategies to manage cultural differences, including rules about how to interact and punctuality. International students need an adjustment period to adapt to the differences between academic customs, like the concept of the academic quarter, and behavioural norms in the classroom. Despite initial difficulties, Nindra was confident that familiarity with these differences would lead to a sense of comfort and help her adjust.

> And then they told us about this thing called the academic quarter. So, they were like 'you cannot be later than 15 minutes'. And we were like 'wow, you can be late? We did not know that was an option'. That was really interesting and also I think there is a lot more freedom in classes here. For example, if you want a coffee here, you can go get a coffee, you sit there in front of the professor eating your breakfast while he teaches the class. And that is not normal for us at all. So those kinds of tiny things make you weirdly comfortable once you get used to it.
> (Nindra)

On the other hand, the transition to a new academic environment and unfamiliarity with differences in exam format, study methods and sources of information can cause stress, as in Damiri's case.

My exam had one question and then a two-line space to answer it. So I didn't have to write a long story about everything. I just had to write the right answer. And this was really different for me, so initially it was kind of difficult for me because I had no idea what exams would be like and I didn't know what to study. Then I asked the people ahead of me, and they said 'just read the lecture slides and the questions will be taken from those'. And I was surprised. I am used to reading the whole textbook. At home, I had textbooks, and here it was just slides. They did refer to textbooks and so on. But I didn't know I had to go and find those textbooks, look at what they said, see what was happening, I didn't know that. (Damiri)

Coping with educational uncertainty involves not only preventing failure but also developing strategies to minimise risk. For Damiri, failing an exam triggered a deep sense of shame and embarrassment as she felt her failures reflected on her family.

Yeah, I just went through the slides, and it was really difficult for me. I think I took three exams; I had registered for six. I did not continue after three because I was scared I would fail. And I didn't want to take any chances because I felt very underprepared for the exams for these courses. And it was like okay and out of the three, I passed two and failed one of the subjects. And I was so depressed. I thought I had let down my whole family and I wasn't fit to be in Germany. That's how it was in the first semester because when you fail a subject back in India it is a huge thing. It is not a simple thing. You don't fail. You have to pass. (Damiri)

Her experience aligns with research by Potkar (2013) on the experiences of Indian international students, which revealed that they often feel disconnected from their families and communities, leading to a sense of isolation. As a coping mechanism, they seek out connections with other Indian students to navigate the challenges of adjustment.

Sadhil's journey to his doctorate reflected the immense pressure he was under to complete his doctorate within a tight timeframe, with uncertainty about his future career prospects and the impending expiration of his lab access due to the end of his employment contract. Balancing different commitments, including writing his dissertation and working on two projects, increased his stress. To cope, he went into "war mode", sacrificing weekends and intensifying his attempts to write. Sadhil admitted he was suffering under the burden of these challenges and recognised the difficulty of the situation, but he was keen to finish his PhD. His experience underscores the profound

impact of social isolation and high workload on mental health, often manifesting in depressive symptoms, sleep disturbances, and metabolic issues (Cacioppo & Cacioppo, 2014). Moreover, Yang et al. (2018) suggest that intrinsic motivation may serve as a mediator, linking the learning experience to academic performance.

Another aspect frequently discussed among Chinese doctoral students is the difference in approaches to learning between Germany and China. In Germany, learning is more communication-focused, whereas in China it is predominantly teaching-centered, with oral examinations being uncommon. Consequently, his first oral examination during his Master's degree was challenging, resulting in a low grade that prompted him to dedicate his entire summer vacation to studying the material. It also took him three years during to develop effective presentation skills, particularly as presentations were conducted in German. His experience aligns with findings from studies by Choi et al. (2012), Ye & Edwards (2017), and Zhou (2015), which have highlighted that Chinese international students often encounter language and communication barriers in academic environments. According to the results of another study, socialisation involves more than just adapting to new learning practices (Óhidy, 2008, p. 25). It also includes the acquisition of academic skills through observation and engagement with peers and mentors (Lave & Wenger, 2002).

## 5. Discussion and concluding remarks

The purpose of this study was to explore the academic experiences of international doctoral candidates in Germany, with a focus on understanding how they perceive and adapt to differences in learning methodologies, academic expectations, and socio-cultural norms compared to their home countries. Initially, the doctoral programme participants struggled with insecurities with regard to academic expectations. Over the course of their studies, however, they developed greater self-assurance and self- efficacy and were better able to accept that they would make mistakes. This newfound confidence eventually empowered them to articulate their thoughts and requirements with more ease.

Regarding the first research question on how international doctoral students perceive and handle differences in learning methods and academic expectations between their home countries and the German higher education system, the study uncovered tensions stemming from a shift from teacher-centred approaches towards independent, autonomous learning. This transition presents challenges as students navigate the

structured academic environment in Germany compared to more relaxed atmospheres in their home countries, as highlighted by Lina's observations. Additionally, the concept of autonomy at German universities poses significant challenges for international doctoral students, as seen from Nindra's experience, highlighting the need for support with decision-making and the management of psychological distress. Similarly, Tu's experience underscores challenges associated with adapting to a self-directed learning environment, contrasting with his previous experiences in structured courses. Sadhil's narrative emphasises the necessity of resilience and resourcefulness in doctoral studies, demonstrating growth despite initial uncertainties.

Concerning the second research question, relating to the particular challenges of adapting to the German culture of debate, international doctoral candidates face specific challenges, especially during the initial stages of their studies. While supervisors are often portrayed as distant, participants in our study described them as supportive figures offering guidance and emotional support. Challenges with adapting to the German academic environment include the focus on dissertation writing rather than coursework, cultural differences in work-life balance and social interaction, and varying levels of support and mentoring from superiors. Additionally, language barriers, as illustrated by Fai's journey, pose significant adjustment challenges. These findings align with prior research by Kim (2012) and Rice et al. (2012), who observed that Chinese international graduate students in the US encountered heightened levels of acculturation stress compared to their Indian counterparts. This discrepancy was attributed to Indian students' greater familiarity with Western cultural norms and proficiency in English, which serve to protect them against transition-related stressors.

Regarding the third research question, this study highlights how socio-cultural backgrounds and prior educational experiences shape international doctoral candidates' learning habits and strategies in the German higher education system. Candidates who completed their Master's degrees in Western educational systems typically adapt more easily to the learning environment than those who did not. Familial and socioeconomic backgrounds also have an impact on ability to integrate, with students from academic or privileged backgrounds showing better adjustment. Nimit's privileged background and attendance at prestigious institutions in India empowered him to explore academic opportunities abroad. By contrast, Sadhil's story underscores the challenges faced by doctoral students from rural areas who are also burdened with family responsibilities. The

contrast between Indian and Chinese doctoral students' perspectives on family emphasises cultural differences levels of familial support.

Wang et al. (2015) identify key challenges faced by international students in Australian universities, including adapting to a self-directed learning style and classroom discussions, and lacking confidence in passing exams. This study's findings confirm that international doctoral candidates in Germany also encounter similar issues. However, it is crucial to consider alternative perspectives: Deuchar (2022) and Heng (2020) suggest that focusing solely on the experiences of international students may present a deficiency-based perspective, overlooking their active role in shaping institutions. In contrast, the study by Lee, McMahon, and Watson (2018) emphasises the proactive role of international Chinese PhD students in understanding their inherent characteristics, such as personality, interests, aptitudes, and attitudes, which motivate their doctoral journey, including working independently and pursuing research interests.

In conclusion, this study offers valuable insights into the experiences of international doctoral students in German universities. The shift from teacher-centred approaches to independent learning presents significant challenges, as students navigate the structured academic environment in Germany. The concept of autonomy requires support for decision-making and managing psychological distress, and adapting to a self-directed learning environment can be difficult for those accustomed to structured courses. Socio-cultural backgrounds and prior educational experiences shape learning habits and strategies in the German higher education system, with students from Western educational systems adapting more easily. Language barriers and cultural differences in work-life balance and social interaction also pose challenges. By understanding and addressing these issues, universities can provide resources and strategies to support international doctoral students, ensuring their academic success and well-being. Finally, it is essential to recognise the active role of international students in shaping institutions and consider alternative perspectives that emphasise their inherent traits and motivations throughout their doctoral journey.

## 5.1 Limitations of the study

This study faces some limitations, including potential biases and preconceptions of the non-native English-speaking authors, which may have influenced their interpretation of responses, as well as language barriers from the respondents. Additionally, the first author's status as a doctoral student might have affected her understanding of the

interviews. Nevertheless, this limitation could also contribute to a deeper comprehension of the participants' experiences.

Cultural differences and the norm of saving face could have led participants to withhold negative academic adjustment experiences, potentially affecting data accuracy. To minimise these barriers, the study assured participants of confidentiality measures. Due to the narrow focus of the qualitative research, its generalisability may be limited to the specific context and participant demographics. Future studies could overcome these limitations by exploring Asian international doctoral students' academic adjustment experiences in greater depth, targeting a larger and more diverse group.

## 5.2 Implications for future research

This study provides valuable insights into the challenges and expectations faced by international doctoral students in the German higher education system and highlights the process of internationalisation in German academia. The introduction of training programmes for supervisors, focusing on personal well-being and cultural sensitivity, could enhance support for international students, fostering a more inclusive academic environment. Educators need to acknowledge cultural differences between coping mechanisms and responses to failure, offering targeted support such as mentoring programmes and academic coaching to build resilience. Institutions also need to prioritise efforts to promote diversity and inclusivity, integrating diverse perspectives into curriculum design and fostering cultural competency among faculty and students.

By addressing these challenges and supporting international students, universities can create a more inclusive and supportive academic environment that fosters personal and academic growth. Future research should explore the long-term impact of these strategies on international students' academic success, well-being, and integration within the German higher education system. This will contribute to a better understanding of the needs and experiences of international students and inform evidence-based policies and practices that promote a diverse and inclusive academic community.

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