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Chinese Students and the Experience of International Doctoral Study in STEM

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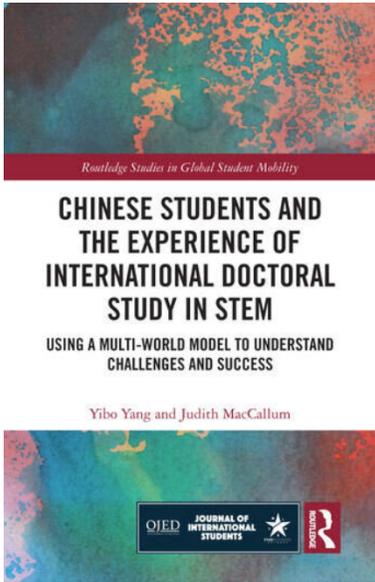
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ABSTRACT

This book contributes to the field of international higher education through a continuous, interactive, and situative approach in its examination of the experience of Chinese international doctoral students in STEM. It offers an original three-dimensional multi-world framework to conceptualize the complexity of cross-cultural doctoral studies and provides engaging narratives of Chinese doctoral students in STEM in Australian universities. The book will be valuable to faculty supervisors of international doctoral students, university administrators, and researchers interested in student experience in international higher education.

With increasing globalization in higher education in the past decade, a great number of Chinese students have been pursuing doctoral degrees overseas in science, technology, engineering, and mathematics (STEM). The book *Chinese Students and the Experience of International Doctoral Study in STEM: Using a Multi-World Model to Understand Challenges and Success*, coauthored by Yibo Yang and Judith MacCallum, explores the experience of Chinese international doctoral students (CIDS) in STEM as well as factors that enhance or constrain those experiences. Based on a three-dimensional multi-world conceptual framework, this volume presents a longitudinal study conducted in the late 2010s that includes rich narratives and stories of STEM CIDS across Australia. It offers a comprehensive view and a continuous, interactive, situative approach to examine the experience of international students.

Part One, which consists of three chapters, starts with the empirical and theoretical landscape of the STEM CIDS project. By reviewing the history and current trends of Chinese students studying abroad, Chapter One reveals the uniqueness of STEM CIDS in the late 2010s. Most of these students grew up in the period of sociocultural and economic transformation of China, majored in hard sciences, and held different values and ideologies



than other international and local students. This chapter also explains how Chinese philosophical values influence the sense of self-discipline, social commitment, and social harmony among STEM CIDS. The chapter builds a path into the ontological world of STEM CIDS and facilitates understanding of their ways of thinking and doing. Subsequently, Chapter Two reviews the literature on overseas doctoral studies. It reveals the need for a holistic understanding of STEM CIDS experience by conceptualizing the dynamic and evolving nature of study abroad, expanding the conceptualization of the complexity of student experiences, and addressing the interactive nature of doctoral study in STEM. Based on the literature review, Chapter Three presents an original three-dimensional multi-world conceptual framework. First, inspired by and adopted from the multiple world model of Phelan et al. (1991), the authors categorize students' experience into research, personal and social worlds

and then tie narratives in different aspects together to form complex pictures of the PhD journeys. Second, the longitudinal design situates students' experiences in specific contexts and tracks their journeys from pre-PhD to post PhD, with particular attention to factors that interact with the successful or challenging moments in their journeys. Finally, the transitions and borders between the multi-world are represented by an examination of the conflicts encountered by students and how they crossed them. Following the framework is the research paradigm shaped by the first author's own acculturation experience and a description of narrative inquiry as their methodology. The research design includes individual cross-sectional interviews and focus group interviews with a total of 38 STEM CIDS across Australia and follow-up interviews with some of them at different stages during their PhD journeys.

Part Two is the most compelling portion of the book, which unfolds six patterns of students' experiences with rich narratives and absorbing stories. Each chapter starts with a cross-case analysis of one pattern and is then followed by a representative case. The first three patterns (congruent worlds and smooth transitions, different worlds and smooth transitions, congruent worlds and border crossings managed) are all about students who encountered challenges and crossed differences in their research, personal and social worlds. Students in these groups had various academic backgrounds and different challenges, such as the lack of research resources, financial issues, loneliness, unexpected supervisory styles, loss of aim and motivation, etc., but what they had in common were supportive supervisors who had empathy, self-motivation, efforts to adjust and integrate,

and congruent relationships with family and social communities. These factors turned challenges into positive transformations. The three other patterns (different worlds and border crossings managed, different worlds and border crossings difficult, different worlds and border crossings resisted) illustrate students who had much rougher transitions across their research, personal, and social worlds. In their narratives, these CIDS experienced crucial disparities between expectations and realities and communication barriers. Over time, some managed to grow and put conflicts under control thanks to self-efficacy, persistence, resilience, and efforts to expand international academic networks. In contrast, others had their problems unsolved, mainly because of communication obstacles and confrontations with supervisors, which led to negative attitudes toward the research world or even quitting. The cases in Part Two are vivid and rich in details. Readers could relate to the students and be absorbed to their delicate inner worlds as they struggle to achieve their goals. Meanwhile, the stories of STEM CIDS in this section echo the findings of other research (Due et al., 2015; Gao, 2019), which also shows that mutually respectful relationships and timely communication with supervisors are always the main factors elevating doctoral experience.

The last part of the book discusses the findings and implications. Transformation and heterogeneity are identified as two key concepts in student experience. Supervision is recognized as the core that facilitates or undermines STEM PhDs. The authors suggest that agentic communication and multilateral engagement of both students and supervisors are of great significance. Despite the rich accounts of interviews presented in the outcome, it should be noted that these voices are solely from students and present only one side of the story. Some narratives, which sound emotional, could be highly subjective. This gives rise to a potential direction for future research that might include the voice of supervisors so that a triangulation of narratives is possible. In addition, the findings of the book could also generate other interesting topics for future investigation, such as the “third culture” of CIDS who start to study abroad in high schools and the sense of belonging of CIDS.

Overall, this book enriches the field of international education by offering a conceptual lens that comprehensively interprets the complexity and nuances in international doctoral studies. It also adds to the existing empirical literature on Chinese international students by its in-depth analysis of the experience of doctoral students in STEM. With a vivid and telling writing style, this book is both fun and illuminating to read as readers travel between the lines in the ups and downs of STEM CIDS. The frequent translanguaging quoting of Chinese philosophical beliefs and poems in the book adds to the interpretation of cross-cultural experiences. The book would be suitable for faculty supervisors of international doctoral students, university administrators, and researchers interested in student experience in international higher education. As the authors indicate that “the acronym ‘STEM CIDS’ is metaphorically bestowed as stems and seeds yet to grow into shade trees if with appropriate nurturing” (p. 11), findings from this book provide useful guides for host universities and supervisors to better nurture the growth of their international students.

Similar titles in the series are found here <https://www.routledge.com/Routledge-Studies-in-Global-Student-Mobility/book-series/RSGSM>

REFERENCES

- Due, C., Zambrano, S. C., Chur-Hansen, A., Turnbull, D., & Niess, C. (2015). Higher degree by research in a foreign country: A thematic analysis of the experiences of international students and academic supervisors. *Quality in Higher Education, 21*(1), 52–65. doi:10.1080/13538322.2015.1032002
- Gao, Y. (2019). Experiences of Chinese international doctoral students in Canada who withdrew: A narrative inquiry. *International Journal of Doctoral Studies, 14*, 259–276. doi:10.28945/4240
- Phelan, P., Davidson, A. L., & Cao, H. T. (1991). Students' multiple worlds: Negotiating the boundaries of family, peer, and school cultures. *Anthropology & Education Quarterly, 22*(3), 224–250. doi: 10.1525/acq.1991.22.3.05x1051k

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