

Title Bidding for successful academic enculturation: The story of a home-trained, home-based non-Anglophone scientist
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Bidding for successful academic enculturation:

The story of a home-trained, home-based non-Anglophone scientist

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ABSTRACT

Academic enculturation, or the socialization into a target academic community, is a crucial event in the trajectory development of aspiring scholars. It is a protracted process subject to the interplay of a constellation of factors. With the aim of uncovering potential contributors to positive enculturative outcomes, this paper reports on the case of Wang, a home-trained, home-based Chinese scientist who earned full professorship at the relatively young age of 36. An in-depth, semi-structured interview is conducted in which Wang gives retrospective accounts of significant experiences in his journey. A range of supplementary information, including representative publications, an up-to-date list of scholarly achievements, and his personal webpage at the official institutional website, is also collected to corroborate and add nuance to Wang's self-told story. Data are analyzed using the method of inductive content analysis and discussed within the framework of situated learning theories. Varying extents of mutual engagement with/as the master and mutually facilitative dual engagement in target communities are found to characterize Wang's enculturative success. Implications are drawn on how similarly positioned novice researchers can be supported in their quest for enculturation during and beyond graduate studies.

KEY WORDS

Academic enculturation; situated learning theories; legitimate peripheral participation (LPP); Chinese scientist; case study

INTRODUCTION

For aspiring young scholars of all backgrounds, academic enculturation, i.e., the initiation or socialization into the community of researchers in a particular discipline, is a crucial event in their career development (Florence & Yore, 2004). In view of the high stakes of this process, a good number of studies have been conducted to explore variations in novice scholars' enculturative experiences and outcomes. Previous studies have rightfully spotlighted, and provided useful insights into, either one stage of the enculturation (e.g., graduate studies in Austin, 2002 and Li, 2005), or one aspect of it (e.g., enculturation through scholarly writing and publishing in Flowerdew, 2000 and Li, 2006). However, the enculturation of early-career researchers (ECRs), including both doctoral students and post-PhD university researchers (González-Ocampo & Castelló, 2019; McAlpine et al., 2018), into expert communities is a lengthy process that often extends from and beyond graduate school into the first years of their academic careers (Florence & Yore, 2004). What comes of this process, in turn, is subject to a potentially complex interaction of multiple factors. For a more holistic view of ECRs' experiences as they gain increasing independence and to explore the variables behind different enculturative outcomes, research is needed that examines this process in greater entirety. Designed in response to this research gap, the present study focuses on one Chinese scientist whose academic enculturation is featured by three distinct critical stages, with the aim of unveiling potential contributors to his apparent enculturative success. Findings of this study are expected to be of value to other ECRs, especially those from similar contexts and backgrounds. In the rest of this paper, we review extant scholarship on academic enculturation, describe procedures for participant selection, data collection and data analysis, and present and discuss the main findings. The concluding remarks cover the implications that derive from these findings, an acknowledgement of the limitations of the study, and suggestions for potential directions of future research.

LITERATURE REVIEW

Academic enculturation: The situated learning theoretical perspective

Unlike traditional learning theories, which largely construe learning from a cognitive point of view as the acquisition of knowledge by individuals, situated learning theories account for learning as a socially contextualized activity, a process of increasing participation

within a specific social setting. To acquire the requisite expertise, a learner needs to apprentice with a master, a process termed cognitive apprenticeship in situated learning (Brown et al., 1989). In their seminal work, Lave and Wenger (1991) expanded the notion of situated learning and proposed the construct of legitimate peripheral participation (LPP), which foregrounds the role of participation in learning and equates learning with a newcomer's movement toward increasingly greater involvement in a given community of practice (CoP), which is characterized by mutual engagement, joint enterprise, and shared repertoire (Wenger, 1998). In order to realize learning and progress from the periphery toward fuller participation, novices, or apprentices, need to have legitimate, effective access to what is to be learned, take part in ongoing, prototypical activities of a CoP, and establish relationships with senior members of the CoP who provide varying degrees and qualities of sponsorship (Lave & Wenger, 1991; Wenger, 1998). Factors such as the relationship between the novice and the master, the master's ability and willingness to provide explicit teaching and/or learning resources, and whether the learner actively participates in the community could all have an impact on the learning outcome (Belcher, 1994).

The theoretical perspective of situated learning essentially focuses on an individual's vertical movement in status from that of a novice to that of a master, or their progress from the periphery to a more central position in a given CoP. As such, this perspective is well suited for making sense of academic enculturation/socialization¹, a complex and dynamic process in which ECRs learn to "participate in a competent and appropriate manner" (Morita, 2009, p. 444) and progressively gain acceptance in an academic community (Sala-Bubaré & Castelló, 2017). Two constructs within the framework of situated learning, cognitive apprenticeship and LPP, are particularly useful in interpreting academic enculturation. According to the notion of cognitive apprenticeship, enculturation is realized through collaboration between the master and the novice on an authentic practice of the community, during which the master provides the necessary guidance in situations that require knowledge or skills not held by the novice. Examples of such apprenticeship include a postgraduate student studying with the academic advisor/supervisor or a junior faculty member working

¹ In the context of this paper, *academic enculturation* and *academic socialization* will be used interchangeably.

under the mentorship of a senior colleague. LPP, for its part, conceptualizes academic enculturation as the facilitation of learning for ECRs through opportunities for mutual engagement with more established members of a specific community of practice and for observing and increasingly participating in the joint enterprise, i.e., expected socio-cultural activities, of the target community (Lave & Wenger, 1991; Wenger, 1998). Being a member of a research team, interacting and collaborating with peers, and negotiating knowledge through publication (Florence & Yore, 2004; Flowerdew, 2000) are all practices fostering novice scholars' LPP. Situated learning theories also shed light on the nature of academic enculturation as a bi-directional process where individual ECRs and their target community are mutually transformed: during their mutual engagement with other members of the community, newcomers start by reproducing practices that characterize the community and internalizing its rules (Austin, 2002; Duff, 2010; Sala-Bubaré & Castelló, 2017); as they edge toward fuller participation and gradually establish an insider status, they would also bring to bear their own experiences, perspectives and individual agency and leave a mark on the community (Darvin & Norton, 2019).

Heeding the alignment between the situated learning theoretical perspective and academic enculturation, previous studies have drawn on concepts of situated learning, LPP in particular, to interpret findings on young researchers' enculturative processes. Some of them that are most relevant to the present study will receive focus in the upcoming section.

Previous studies on academic enculturation

Research that examines the academic enculturation of novice scholars has been growing for the past few decades. Much of this body of research focuses on either graduate students or scholars who have freshly graduated and recently started an academic career.

Postgraduate studies, especially doctoral studies, are widely held to be instrumental for fostering researcher development and inclusion in the research community (Austin, 2002; González-Ocampo & Castelló, 2019). This particular leg of an academic's journey is rewarding for many yet full of tensions and challenges for some (Hemmati & Mahdie, 2020). Understandably, a considerable proportion of previous studies are interested in how enculturation takes place in the graduate school (e.g., Belcher, 1994; Blakeslee, 1997; Cho, 2004; Li, 2005; Luo, 2015; Teeuwsen, Ratković & Tilley, 2014). At this stage, doctoral

students rely on their supervisors to initiate them into research (Hasrati, 2005) and to “give them entry into academic communities” (Wenger, 1998, p. 101). Supervisors contribute to their students’ successful learning outcomes through the provision of necessary guidance with academic matters, such as the choice of research topic and the solution of research problems (Goller & Harteis, 2014), as well as the conferment of credibility for students to be considered as legitimate members of their target communities (Hasrati, 2005). The availability of supervisory guidance and perceptions of supervision therefore constitute a key factor shaping students’ doctoral journeys (McAlpine et al., 2018; Sala-Bubaré & Castelló, 2017). Maintaining a positive supervisory relationship, receiving adequate supervisory support and engaging in close collaboration with the supervisor facilitate students’ development and training as researchers, while poor supervision and negative supervision experience can be a primary source of dissatisfaction, discouragement and even disengagement (Goller & Harteis, 2014; González-Ocampo & Castelló, 2019; Virtanen et al., 2017). Findings in Belcher (1994), for example, suggest that for the students who were less successful in gaining full participation in their communities of practice, there was a mismatch between the students’ conceptualizations of their community and those of their advisors. In Luo (2015), Zhan and Din, two Chinese Master’s students with similarly high levels of motivation and low English proficiency, ended up making markedly different scholarly achievements in terms of international publication and English learning. One plausible explanation offered for this disparity, among others, was that Zhan had sustained engagement with his supervisor, while Din’s supervisor was geographically distant and largely inaccessible. Yet previous findings have also suggested that challenging or negative supervision experiences do not necessarily pose an insurmountable hurdle. ECRs as agentive individuals can co-construct their academic success and facilitate their move from periphery to more central positions through the adoption of such strategies as proactive engagement in activities that define a particular community of practice and deliberate networking with other members of the community (Goller & Harteis, 2014; Sala-Bubaré & Castelló, 2017). In Morita (2009), the Japanese student Kota employed a range of coping strategies to address the language and culture challenges that he encountered during his first year as a doctoral student in Canada. Din, the student in Luo (2015) who had less than optimal chances for

mutual engagement with his supervisor, resorted to other experienced researchers and an English-language expert, whose assistance contributed to his degree completion and research publication, albeit with mixed success.

Other researchers have looked beyond graduate school to the enculturative experiences of post-PhD researchers. Soler (2019), for example, explores how early-stage academics tackle the publishing-in-English enterprise, highlighting access to scholarly networks and quality publication outlets as some of the key facilitators of young scholars' development and enabling opportunities to publish in highly-ranked journals. In particular, non-native-English-speaking (NNES) researchers who return to work in their home countries upon completion of postgraduate studies in Anglophone contexts, have drawn much scholarly attention. These researchers undergo transition from one context to another and need to be socialized into their national research community without foregoing ties with the English-speaking, international academic community. In Casanave (1998), the two bilingual, overseas-educated Japanese scholars who had just taken up faculty positions in a university in their home country, were found to face difficulties in juggling the two sets of values and expectations involved in Japanese and English academic writing activities. Somewhat similarly, in Flowerdew (2000), Oliver also experienced challenges in his apprenticeship into the peer-reviewed international publication practices after returning to Hong Kong from doctoral study in the United States.

Previous studies have provided insights into the academic enculturation of novice scholars in terms of the part played by the supervisor, the influence of individual agency, and the potential challenge posed by having to participate in multiple CoPs at the same time. However, most of these studies focus on either one stage (e.g., doctoral studies) or one aspect (e.g., supervision experience) of the enculturative process. An individual scholar's experiences throughout this enculturative journey, which can be meaningfully examined for a more holistic understanding, remain relatively underexplored. In view of this gap, the present study sets out to investigate the academic enculturation process of a (largely) home-trained, home-based Chinese scientist, extending from postgraduate studies to the first ten years of his career. The following overarching research questions are formulated to guide this study:

- 1) What are the enculturative experiences of a home-trained, home-based EFL Chinese scientist from graduate school to early-career years?
- 2) What factors contribute to his successful academic enculturation into the target research communities?

THE PRESENT STUDY

The focal participant

Adopting a qualitative, cross-sectional design, this single-case study investigates the enculturative experiences of one focal participant. A long-time acquaintance of the first author, the participant, Wang, came to the attention of the former as a potential research subject around mid-2019, when he secured a promotion to full professorship at the relatively young age of 36. At the time of this study, which took place a few months after his promotion, Wang had been studying and working at X University (XU) in mainland China for almost 20 years, first as an undergraduate, then a postgraduate research student, and eventually a faculty member. XU is a major research-intensive university located in northwestern China, a part of the country that is comparatively less developed economically. According to Essential Science Indicators (ESI), a widely cited analytical tool which helps identify top-performing research in Web of Science Core Collection, XU ranks among the global top 0.1% in Engineering, of which Wang's specialty, electronic engineering, is a sub-discipline. Wang's academic trajectory is characterized by three distinct stages: The first stage consists of his postgraduate studies at XU from September 2004 to December 2008, during which he trained as a novice scientist. The second stage was a six-month academic visit from December 2008 to May 2009 at Y University (YU) in the United States. The third stage is his time on XU faculty since returning from the overseas sojourn, which witnessed his promotions to associate professorship in 2011 and to full professorship in 2019. Two things are worth noting here. First, Wang's undergraduate years from 2000 to 2004 were excluded, as this phase involved mostly learning of foundational knowledge, rather than scientific training *per se*. Second, the decade that Wang spent on XU faculty, i.e., from 2009 to the time of the study in late 2019, was treated as one single phase rather than divided further, because in eight of these ten years, Wang was in the position of an associate professor and most of his academic

development also arguably took place during this time period. Table 1 summarizes basic information about these three stages, including their durations and exact time spans.

Table 1 Three stages of Wang's academic trajectory

Stage	Duration	Location
Postgraduate studies (master's & PhD)	Four and a half years (Sept 2004 – Dec 2008)	XU, China
Short-term academic visit	Six months (Dec 2008 – May 2009)	YU, US
Work and research in home university	Over ten years (Jun 2009 till now)	XU, China

Wang's enculturation into his specialist research community was in general quite smooth, as attested to by his professorial position, the quantity and quality of his research publications, as well as the number and prestige of the research projects that he was involved in. Exploration of his experiences therefore holds the potential of unveiling the key to enculturative success, which in turn could be of reference to novice scholars with similar backgrounds. In consideration of potential ethical issues, including the recognizability of the participant, certain details (e.g., the universities where Wang had studied or done research, titles of his research publications) are not specified in this paper. All the names used in the paper are pseudonyms. Prior to the study, Wang was briefed on the nature and aim of the research, the potential significance of the results, the measures taken to ensure his anonymity and confidentiality, and informed consent was obtained.

Data sources

An in-depth, semi-structured interview constitutes the primary data source of this study. In addition to questions on necessary background information, the interview protocol was designed to capture the most significant experiences of Wang over the three aforementioned stages of his academic trajectory. Three separate interviews were originally planned, each focusing on one of these stages. However, because of Wang's tight schedule and the fact that both authors are inconveniently overseas-based, eventually the interview was completed at one sitting. The first author conducted the interview with Wang in their shared first language,

i.e., Mandarin Chinese. For logistical reasons, the interview took place via the voice call function of WeChat, an instant messaging app ubiquitous in mainland China and popular among overseas Chinese. Besides the pre-designed questions in the interview protocol, questions that arose naturally from Wang's responses were also asked to follow up on issues of potential relevance. The interview, which lasted over 70 minutes, was audio-recorded and transcribed in full in the original interview language. Member checking was carried out both during data collection and after initial data analysis: during the interview, key points made by the respondent were summarized and confirmation sought to ensure an accurate synopsis; following the completion of data collection, WeChat messages were exchanged between the first author and Wang, to seek clarification of specific points and verification of data interpretation (Hamilton & Corbett-Whittier, 2013). All the quotes from the interview and other exchanges were originally in Chinese. The English translation is ours.

Supplementary data of various forms were also collected. Wang was asked to provide: 1) one representative publication arising from his research work at each stage, and 2) an up-to-date list of his scholarly activities, including research publications and research projects in which he was involved as the leader or a key team member. These were intended to serve as artifacts for his academic enculturation. His personal page on XU's official website was also referred to for potentially useful information. The collection of data from multiple sources helps reveal different aspects of the problem under investigation (Gerring, 2017), facilitates data triangulation, and reinforces the legitimacy of the conclusions drawn (Hamilton & Corbett-Whittier, 2013). The entire data collection procedure, including the follow-up exchanges pertaining to verification and interpretation of data, took place from October to November 2019.

Data analysis

For the analysis of the interview, the “bottom-up” method of inductive content analysis was adopted (Elo & Kyngäs, 2008). We read through the interview transcript repeatedly. At each reading, extensive notes were taken, as many descriptors and headings as necessary written down and categories freely generated. These categories were collapsed and grouped according to their similarity to each other to form higher-level themes. Other types of data

were then examined and categorized accordingly. Table 2 summarizes the data collected, the analytical focus for each type of data, as well as the corresponding method of analysis.

Table 2 Data collected, analytical focus, and method of analysis

Data type		Analytical focus	Method of analysis
Primary data	Semi-structured interview	Enculturative experiences at each stage	Inductive content analysis
	Select research publications	Non-textual information (e.g., publication outlet, author byline, acknowledgement)	Iterative reading for supporting evidence identified in analysis of interview transcript
Supplementary data	List of main academic achievements	Evidence of engagement in domestic & international communities (e.g., co-authored papers, collaborative research projects)	
	Personal page on XU website		

The categories initially established from the content analysis were validated with an independent coder, a PhD candidate of Applied Linguistics from the authors' institution. The first author briefed the independent coder on the rationale behind the analytical process and shared with her the tentative categories and exemplary text segments. The latter then analyzed the data independently. In cases of disagreement, the two of them exchanged their views and discussed until consensus was reached on the final categorisation.

FINDINGS

In this section, we will first give a summary of Wang's enculturative experiences and then delve into details of the two overarching themes that have been found to characterize his academic enculturation over the three stages. The first main theme is the varying extents of mutual engagement that he had with/as the master at the three phases of his academic career. Under this first theme, three subthemes, each corresponding to one phrase, will be presented following a chronological order. The second theme, also consisting of three subthemes, concerns Wang's dual engagement in the target research communities at the national and international levels. The first two subthemes delineate Wang's engagement in the national research community and international specialist community, respectively, while the third features his perceptions of and reflections on such dual engagement. Each of these themes

and subthemes are substantiated with authentic citations from the data in a way that best represents Wang's perspectives and experiences.

Wang's enculturative experiences: A success story

In 2000, at the age of 17, Wang was admitted into a four-year undergraduate program in electronic engineering at XU. Four years later, following completion of the bachelor's degree, he continued graduate studies in the same department, initially as a master's student but soon converted to a fast-track research degree program that combined the master's and the doctorate. During his postgraduate years from fall 2004 to end of 2008, Wang was a member of the research team in a National Key Laboratory² (henceforth the Lab) headed by his erstwhile supervisor, Professor Zheng. His doctoral research topic was based on one of the group projects undertaken by the Lab. In addition to that, Wang was regularly involved in project-related work that was not research *per se*, such as writing up grant proposals and preparing PPT slides for progress reports. Over these four and a half years, Wang published seven research papers as the lead or corresponding author, two in Chinese-medium journals/conference proceedings and five in English-medium ones, which far exceeded XU's then required number for graduation of three. With his diligent work in the Lab and outstanding academic profile, especially in terms of research publication, Wang gradually excelled himself among Prof. Zheng's many protégés. After obtaining his doctorate in December 2008, Wang opted to pursue an academic career over the popular alternative of working in the industry. Thanks to his academic excellence and arguably also to a glowing recommendation from Prof. Zheng, he secured a position on the faculty of XU. Instead of assuming his new role immediately, though, from December 2008 to May 2009, Wang went on a six-month academic visit at YU in the United States, through the reference of Prof. Zheng, who established connections at the university from the time when Zheng himself was a visiting scholar there from the late 1980s to early 1990s. At YU, one of the highest-ranking universities in Wang's sub-discipline at the time, he worked under the mentorship of Professor Smith, a noted scientist in electronic engineering, on a research team whose members hailed from different countries, including the United States, Spain, India, Thailand

² The National Key Laboratories is a list of prestigious laboratories, either affiliated to universities or in the private sector, that receive funding and administrative support from China's central government.

and China. When the six months were up, Wang returned to his post at XU, which was research-intensive but also required the teaching of undergraduate and postgraduate courses. Two years later, in 2011, he became an associate professor and eligible for taking on research supervision responsibilities. In the 2019 round of promotion exercise where he was awarded full professorship, Wang presented an excellent record of academic career capital, with a tally of 17 papers published in the previous five years in Science Citation Index (SCI)-indexed or Engineering Index (EI)-indexed, English-medium international journals as the first author or corresponding author, nine collaborative research projects where he was the principal investigator and 11 more in which he participated as a key member. Total research funding for these research projects amounted to eight-digit figures in Chinese Yuan (roughly equivalent to several million US dollars). To sum up, over the three phases of his academic trajectory from 2004 to the time of the study in late 2019, Wang completed both master's and doctoral studies at his home university in China, proceeded to beef up his credentials with a much coveted apprenticeship with an established scientist in a prestigious overseas university, and then progressed from a junior faculty member to a full professor within the relatively short time span of ten years. Now an experienced researcher and a full member of the disciplinary community, he still engaged actively in what Flowerdew (2000) calls continual legitimate peripheral participation, through scholarly publications, research projects and research supervision, as the journey of becoming an academic is rarely finished (Teeuwsen et al., 2014). His is a success story somewhat representative of an emerging generation of young Chinese university researchers. In the rest of this section, we present the two themes that have been found to define his success following a descending order of their prominence in the data.

Mutual engagement with/as the master

Over the first two stages of his academic enculturation, Wang experienced varying types of supervisory guidance/mentorship and, by extension, different extents of engagement with more adept peers, which led to the evolution of his conceptualization of the role more established members of a research community should play in young scholars' academic growth and influenced the kind of mutual engagement that he later afforded his own research students.

The chicken-rice analogy

Wang insisted that as a graduate student, he received “very little, almost no” specific instruction from his supervisor. A well-respected scientist in his sub-discipline, Prof. Zheng was already in his sixties, half-retired and less research-active by the time Wang started to study under his supervision. He would prescribe research topics and provide some general guidance for Wang and his peers but was either not immediately available or of limited help when it came to more specific research problems. Wang recalled how Prof. Zheng used to describe his own supervisory style with an analogy of chicken and rice:

My supervisor often said that he was like a farmer raising free-range chickens: he would scatter some rice on the ground and leave it at that. Whether the chickens would peck at the rice or just idle around was entirely up to them.

This supervisory style placed the onus on the students themselves, whose learning outcomes would be contingent on their individual academic caliber and proactive efforts. Moreover, it resulted in a loose learning environment un conducive to fostering cooperation amongst students and might incur missed learning opportunities. As Wang testified, members of his research team mostly worked on their own and exchanges were largely spontaneous and sporadic, presumably due to a shortage of supervisor-coordinated occasions such as regular group meetings for peer communication to take place in a systematic and sustained manner. Clearly unimpressed, Wang voiced ruefully the what-if question that he admitted to sometimes ask himself:

Honestly, I do have some regrets about the selection of supervisor. Perhaps I should have chosen a younger professor. Professors over 50 years of age tend to offer less supervision to their students. At this stage in life, many of them have either shifted their work focus elsewhere, for example, by taking up an administrative position, or have simply become less passionate about doing research.

The overly generalizing conclusion that older professors tended to be less helpful was certainly biased by Wang’s misgivings about the perceived lack of sufficient supervisory guidance that he deemed desirable in hindsight. Yet he did spare a word of praise for the

learning resources and enculturative opportunities that Prof. Zheng made available to his students:

My supervisor's greatest help was that he gave us a platform for such things as conducting experiments and going on overseas exchanges. For example, if not for him, I wouldn't have had the opportunity to study in the US.

In fact, apart from the overseas academic visit that Wang singled out as attributable to Prof. Zheng, the very facts that he had access to the Lab and its equipment, was involved in group research projects and could base his doctoral dissertation on one of these projects should all count as the “rice”, i.e., opportunities and resources for learning, that was available to him thanks to Prof. Zheng.

The reconceptualization

During his time at YU, Wang experienced an entirely different type of mentorship and mode of peer collaboration, which contributed to a reconceptualization of how established members of a community, especially the master, can best facilitate a young scholar's academic development.

Wang's mentor at YU, Prof. Smith, was a Fellow of the Institute of Electrical and Electronics Engineers (IEEE)³. In Wang's sub-discipline, the opportunity to work with an IEEE Fellow was highly prized:

In my field, when choosing which overseas university to study at, one important consideration is whether they have any IEEE Fellow. If you get to study with a Fellow, you can be sure you'll learn a great deal academically.

He went on to explain that at that time, there was not a single IEEE Fellow in mainland China in his sub-discipline while YU alone had four. Besides, back then opportunities and funding for overseas academic trips were scarcer than they are today. It is therefore fair to say that this visit gave Wang access to developed world resources that he would otherwise have missed. Apart from the Fellow status, what influenced Wang more profoundly about Prof.

³ IEEE is the world's largest and most widely recognized professional association for electronic engineering and electrical engineering and associated disciplines. According to the organization's official website, IEEE only awards Fellowship to an elite few of its members “whose extraordinary accomplishments in any of the IEEE fields of interest are deemed fitting of this prestigious grade elevation”, which makes the distinction a high ideal for many in the field.

Smith was his approach to research supervision. Detail-oriented and attentive to learning processes, Prof. Smith adopted a work style that stood in stark contrast with that of Prof. Zheng and struck Wang as effective and beneficial:

We had group meetings every week. At these meetings, Prof. Smith would ask each and every one of us to give a report on our research progress and then offer his feedback. He was so thorough and meticulous, to the point that he would walk us through the derivation of every single equation. Compared with the “free-range” style of my former supervisor, I found this mode more helpful, as all my problems could get solved in time and I had more chances to communicate with other group members.

Notably, Wang remarked that such sustained, regular mutual engagement with Prof. Smith also facilitated his communication and collaboration with other members of the research team, which again contrasted with his experiences under Prof. Zheng, that is, the relative shortage of chances for co-participation with both the master and more established peers. He generalized the diverging coaching styles of his two successive mentors to differences between the supervisory foci of professors in China and those in overseas universities:

In overseas universities, supervisors are more concerned about providing students with academic guidance. But in China, many supervisors are more results-oriented. They want their students to have research output as soon as possible, yet they do not necessarily provide the requisite guidance. In fact, I know of several professors who would say to their students: ‘whatever you do, you must get one or two papers published this year’.

Far-fetched as it was to make such an extrapolation based solely on personal experiences with two supervisors that he had crossed paths with, Wang’s remark reflected his espoused belief about what support research supervisors should provide to students striving to become functioning members of their academic communities:

One important lesson I learned from my US visit was about the management and supervision of research students. Good supervision should be specific; you cannot

just provide some general guidance and leave them be. Without sufficient supervisory support, students will be under a lot of pressure, or even feel at loss.

Formation of own supervisory style

Wang's conclusion about effective guidance to young researchers subsequently fed into the formation of his own approach as a research supervisor. Back in XU, he not only replicated Prof. Smith' practice of weekly group meetings but went an extra mile: he held the meetings with not just his own supervisees, but also colleagues with whom he collaborated on research projects, and their research students as well. These meetings, which would each last several hours, served as a regular channel for exchanging information and sharing research resources between masters and apprentices and among apprentices themselves. In addition, Wang would reserve the mornings of workdays for individual discussions and consultations, at which he checked each student's research progress, addressed the questions they had, and provided instructions for next steps. Moreover, through assigning his students roles on research projects and providing sufficient funding for conference attendance and academic exchanges, he ensured them access to ample learning opportunities and resources. Sustained mutual engagement with his students also allowed Wang to develop a better understanding of their individual personality and learning habits, variations in which he was mindful of and willing to accommodate:

Generally speaking, I encourage all my students to have more communication with others in the discipline, as this can foster innovative thinking. But I don't impose the requirement on them. Some students enjoy peer communication and can benefit from it; others prefer working on their own behind closed doors.

Another contributing factor to Wang's supervisory style was a keen awareness of the level of competition that today's young researchers are facing, which necessitated greater support and more guidance from the supervisor:

In my day, there were far fewer students pursuing postgraduate studies. Getting into a doctoral programme alone would guarantee you decent career prospects. Nowadays, however, students are competing with more peers and are under a lot more stress to get published, graduate on time and land a good job. For example, although my university's publication requirement for graduation has remained

unchanged (*three first-authored papers for doctoral students – note by authors*), yet with the improvement of overall research performance in Chinese universities, many students are publishing more and in higher-ranking journals too. As a result, only meeting the minimum requirement no longer seems good enough.

Dual engagement in target CoPs

The other prominent feature of Wang's enculturative experiences was the way he balanced simultaneous engagement in two target communities at the national and international levels: he sustained his position in the former through undertaking a series of national research projects and building a network with fellow Chinese scientists, and realized participation in the latter mostly through publication in English-medium, high-profile outlets and, to a lesser extent, contacts with overseas-based international colleagues.

Establishing a network of domestic researchers

Wang's involvement in the domestic research community was largely project-driven. Since the time when he was a doctoral student, he and his team at XU conducted research that revolved around projects funded by the government or the private sector, which necessarily engaged him in a domestic network of researchers. As a member of the research group working in the Lab led by his supervisor, Wang had convenient access to more adept academic peers, i.e., fellow supervisees of Prof. Zheng who had enrolled in the program before him and would refer to them for advice and ideas when he encountered research problems that needed immediate solution. In the acknowledgement section of the paper that Wang provided as representative of his research during postgraduate studies, he named three fellow research students and thanked them "for helpful discussions", which was testament to the usefulness of such peer communication. He also had exchanges with disciplinary colleagues at academic conferences and would occasionally email his inquiries to professors at other Chinese universities for issues that could not be solved through peer discussion.

Yet at this stage, such involvement was limited in two senses. First, as previously mentioned, partly due to the lack of supervisor coordination, engagement with peers was, in most cases, spontaneous and piecemeal. Second, the main scientific community that Wang engaged in was, to a great extent, confined within Wang's local ambient research context at XU: his research group comprised of supervisees of the same professor; they worked on

research projects undertaken by their team alone; and his communication with experienced researchers other than his supervisor was lacking in both scope and depth. Moreover, since funding and opportunities for academic seminars and conferences were relatively limited, his participation in the scholarly community was marginal and infrequent. This created a kind of intellectual isolation which in turn obstructed his scholarly identity development. Accordingly, at this stage Wang saw himself as “merely a student”, rather than a proper researcher. It was not until a few years after Wang had started working as a faculty member of XU that the welcome turning point presented itself in the form of two long-term, collaborative research projects:

In around 2012, my research group launched two large-scale, long-term research projects in collaboration with research teams at several other universities. We worked together for five years. Before that, we had conducted research on an independent basis only and had not had much in-depth collaboration with others. Although reading research literature and talking to others at academic conferences could also provide a general idea of who was doing what in our field, that was only superficial. You know in the research fund application forms there is always one section asking you to summarize the current domestic and international research situation. The collaboration with these other research teams gave me more confidence about filling out this section.

In addition to deepening Wang’s understanding of the research field, this experience also enhanced his sense of belonging to the target community:

It was through this close collaboration that I developed a keener understanding of the work done by other research teams and a better knowledge of our team’s comparative advantages and disadvantages. Most importantly, it made me feel that I had gained a firmer foothold in the research field.

Seeking international collaboration and publication

In graduate school, Wang’s involvement in the international specialist research community was realized only through publishing research papers in English-medium, refereed journals that were widely circulated among international peers. Thanks to the US academic visit, he had the opportunity to work alongside researchers from various countries

and backgrounds and experience a different intellectual culture, which made the notion of participation in the international community more palpable. Wang marveled at the YU team members' open-mindedness and willingness to share:

Back in my research group in China, when someone wrote a computer program for research, they would usually prefer to keep it for their own use rather than share with others. At YU, the young researchers and faculty members that I came across all seemed quite willing to share research resources with each other.

Witnessing the solidarity among fellow researchers and engaging in close and meaningful collaboration with them helped Wang acquire a new perception of his role in the community:

Although I still didn't think of myself as somebody in the field, I really learned a lot during that time and started to feel more like a member of this community.

Carrying on the rapport established during those six months, since his return from YU, Wang had invited Prof. Smith to visit XU and give lectures and workshops and had continued to co-author a few research papers with certain members of the YU research team.

Working with an established scientist and a world-class team in a top-ranking university also encouraged and enabled Wang to seek more prestigious publication outlets for his research. Although he had published in SCI-indexed journals prior to his US visit, all these journals belonged to the third or fourth quartile, i.e., the lower rungs of the SCI hierarchy. On the basis of his research during those six months, Wang led the publication of a paper in a highly reputable, IEEE-affiliated and second-quartile SCI-indexed journal, together with Prof. Smith, two fellow researchers on the YU research team, Prof. Zheng, and Prof. Zheng's other former supervisee who had apprenticed with Prof. Smith. He regarded this paper as a milestone in his academic profile, as it marked his maintenance of similarly high standards for research publication ever since.

Perception of the dual engagement

Wang's academic background forged his balanced view of the dual engagement in the national and international research communities. He believed that having had postgraduate training in China worked to his advantage, as it allowed him to access and develop a

familiarity with domestic, group-based research from the outset, which in turn constituted a competitive edge in the bid for research grants:

Since I was mostly trained at home and started working on research projects in graduate school, my strength is in conducting practically-oriented, project-based research. This gives me an advantage, especially now that the national government attaches great importance to scientific research projects and offers generous grants. Suppose my team is competing for the same research grant with a team led by a newly returned, overseas-trained scientist, I am confident that we will be considered more favorably, because we have accumulated more experience working on national projects and have more research resources at our disposal.

Accordingly, he concluded that overseas studying or training experiences, though no doubt a bonus, were by no means a prerequisite for academic success:

It is certainly a good thing if you have had overseas experiences. But it's not a must. What matters more is your research skills. Some of my colleagues have never studied abroad, and this did not stop them from performing strongly academically.

On the other hand, though, with none of the Chinese-medium journals in Wang's sub-discipline being internationally indexed, he felt compelled to publish the research done on domestic projects in English-medium scholarly journals with high impact factors, so as to gain international visibility:

People in this field pay close attention to the top few high-impact-factor journals, which are all published in English. In order to gain the recognition of international colleagues, you have to publish in these journals, so that they can see your research, recognize your contribution, and cite your work. This is important especially since in my field, the number of citations is widely held to be a more reliable indicator of research quality than the number of papers published.

To wrap up this section, Wang's engagement in the national and international research communities could be seen as parallel to and mutually facilitative of each other: his research

on the domestic projects provided data for him to write and publish on, and the international publications thus generated then boosted his academic profile and increased his chances of success in applications for research grants.

DISCUSSION

In this study, we have examined the academic socialization of a young Chinese scientist. Analysis of Wang's experiences over three critical stages identified two themes characterizing his enculturative journey: first, varying degrees of mutual engagement that he had with the master and more adept peers, which shaped Wang's conceptualization of and approach to research supervision; second, his dual engagement in two CoPs at the international and domestic levels, which progressed in an interdependent and complementary manner.

In the framework of situated learning theories, novices achieve increasing enculturation, or fuller participation in the target CoP, under an apprenticeship model of learning where old timers support newcomers in their trajectory to mastery (Lave & Wenger, 1991). Deprival of chances to observe more adept co-participants and be observed would deny newcomers of opportunities for learning (Luo, 2015). This speaks to the central part played by old timers, the master in particular, in newcomers' productive achievements and learning outcomes. In this study, Wang had had to deal with a scarcity of sustained, optimal mutual engagement with the supervisor as well as the attendant limit to coordinated and systematic peer collaboration. Yet this less than desirable condition for the realization of LPP did not seem to have hindered his academic enculturation during postgraduate studies. This finding does not resonate well with those in previous studies (e.g., Belcher, 1994; Luo, 2015) which suggest the importance of supervisory and community support for researchers in advancing their careers (McAlpine et al., 2018). Two explanations may be offered for this divergence. First, although Prof. Zheng's hands-off approach to supervision reduced opportunities for mutual engagement with him, this otherwise unenviable condition was largely offset by the legitimacy that he conferred Wang, which translated into access to resources, information and enculturative opportunities for participating in a wide range of ongoing activities (Florence & Fore, 2004; Lave & Wenger, 1991; Wenger, 1998). Particular to Wang's case, these included the prescription of a research topic to work on, the assignment of a legitimate role on the Lab's research projects, and the allocation of less demanding tasks on the projects, all of

which formed the basis for his fuller participation (Hasrati, 2005). Second, considering Wang's clear liking for the meticulous, detailed-oriented supervisory style of Prof. Smith, the expressed frustration about his supervision experience with Prof. Zheng may have been the result of a mismatch between his personal preference and Zheng's laid-back approach and is not to be simply taken as an indication that he was denied the necessary supervisory support to develop academically. Additionally, yet another plausible explanation lies in the changes that academe has undergone since Wang's postgraduate studies 10 to 15 years ago: while most doctoral researchers nowadays face the pressing need to publish in highly-ranked scientific journals and excel themselves among peers, as Wang himself pointed out, in his days, the exclusivity and selectivity of doctoral programmes meant that most of those who could get in were guaranteed satisfactory career prospects. Accordingly, one could argue that Wang was under less pressure during graduate school. The hands-off coaching style of his supervisor, therefore, was less consequential than would have been today.

The ease with which Wang seemed to juggle the dual engagement in two CoPs, i.e., the domestic and the international, contrasted with the dilemma reported by similarly linguistically and geographically removed NNES novice scholars (i.e., Casanave, 1998; Flowerdew, 2000). This divergence could be attributed to differences in personal backgrounds between Wang and these scholars and along disciplinary lines. Compared with the two early-career Japanese scholars in Casanave (1998), both of whom returned to work in Japan after completing doctoral studies in the US and hence had to (re)adjust to the Japanese context, the short duration of Wang's overseas stay and his long-term engagement in national research projects spared him the necessity for such transition. Moreover, while the two Japanese scholars, who worked in communication and cognitive psychology, respectively, had to balance academic writing and publishing in Japanese and in English, the far greater value that the hard sciences traditionally place in English-medium publication over that in other national languages largely diminished the need to publish in Chinese. That Wang appeared to have encountered little linguistic challenge in the quest for international publication despite his relatively limited exposure to English, while Oliver in Flowerdew (2000), who considered English one of his native languages, experienced difficulties in getting his paper published in an English-medium, refereed journal, could also be attributed

to disciplinary differences: while Oliver's field, mass communication, is likely to hold higher standards for the language in published texts, electronic engineering, which is more about facts and data, is presumably less stringent with linguistic sophistication. Moreover, the trend in the sciences and engineering fields for multi-authored papers, as were most of Wang's publications, meant that any linguistic burden was shared among co-authors. The access to and collaboration with native-English-speaking co-authors after his US stint could also have helped ease potential language barrier.

Wang's experiences also lend credence to the importance of newcomers' individual agency to their academic success. That is, the extent to which they proactively participate in the learning community can be a decisive factor in their enculturative outcomes. Individual agency may be demonstrated through dealing with supervisors, establishing and maintaining relations to other researchers, research dissemination and self-management (Goller & Harteis, 2014). For all his retrospective gripes about Prof. Zheng's supervisory style, Wang always maintained a positive relationship with him, which was most notably evidenced by Zheng granting him the much-prized opportunity to visit YU and recommending him for a faculty position at XU. He also actively sought connections with other researchers in both the domestic and international communities, collaboration and networking with whom contributed to the greater visibility and prominence of his research work (Cho, 2004; Li, 2006a; Peng & Gao, 2019). Wang's agentive efforts are also reflected in his sustained diligence to maintain membership in the research community through engaging in the never-ceasing process of learning that continues throughout the life of a scholar (Flowerdew, 2000), even after he had reached the apex of his career.

CONCLUSION

The present study contributes to the current line of research on academic enculturation by closely examining a Chinese scientist's reported experiences in being socialized into his target research community. It intends to capture the defining characteristics of the focal participant's academic becoming over a significant time span. A detailed investigation of such a successful case is insightful for several reasons. It demonstrates how variation in the degree and type of supervisory support and peer collaboration may influence a newcomer's enculturative experiences and outcomes, and how learners' individual agency co-constructs

their socialization. It also sheds light on how, for NNES scholars, participation in the domestic and international research communities is not necessarily a trade-off. Its findings are expected to be a reference to early-career researchers from diverse contexts, especially those of similar backgrounds.

Several limitations with this study should be noted. First, consistent with the goal of qualitative inquiries and as a case study with one focal participant, focusing on one single successful socialization process and outcome, generalizability or representativeness is not a strong suit of the present research. Second, the unfavorable circumstances of the study due to logistic constraints, i.e., interviews intended as separate having to be carried out at once and conducted online as opposed to face-to-face, might have limited the “thickness” of the data gleaned. Third, although the study is interested in development over a considerable time span, we did not collect longitudinal data of the evolution of the experience but instead relied on the respondent’s retrospective accounts of his journey. On the one hand, the passing of time between then and now potentially allows the participant to re-interpret past experiences from a more objective point of view. On the other, it could also give rise to problems with the recall of past experiences, such as memory change or defects. Moreover, with the changes that academe has gone through over the past 15 years, the success factors at that time probably differ from the factors that could promote successful enculturation in the present. Finally, the study focuses only on the perspective of Wang and does not tap into that of other members in his community, such as the supervisor and his fellow researchers. Future research with similar interests should aim for more optimal logistical conditions and a truly longitudinal research design. Corroborating the one-sided story with different perspectives can also add nuance to the data. Another worthy line of inquiry is to further probe into how certain traits of individual scholars, such as personality and learning habits, interact with other contributing factors to affect their academic enculturation, especially those that have already been found to be related to academic performance (see Moren et al., 2020).

Limitations notwithstanding, findings of this study yield several noteworthy educational implications. The first of them concerns institutional administrators, academic advisors and research students. With graduate education being the facilitation of legitimate peripheral participation for young scholars (Flowerdew, 2000), and given the pivotal role of masters in

newcomers' enculturative outcomes, institution administrators responsible for allocating research student advising responsibilities should take into account not only the professors' research prowess but also the amount of mutual engagement they can and are willing to afford to their research students (Luo, 2015). Students, for their part, should be more involved in selecting which professors to work with, as deeper involvement in this process could contribute to their development and training as researchers (González-Ocampo & Castelló, 2019). In doing so, they need at least some basic knowledge of the professors' working and supervisory styles and gauge the extent to which these align with their own expectations and preferences. Likewise, professors should weigh the match between their approaches to supervision and prospective students' conceptualization of the supervisor's role before deciding which students to take on. To ensure the quality of students' learning experiences, the institution may consider offering in-service training for supervisors about supervising strategies, such as providing constructive feedback, encouraging active participation in scientific events, enhancing students' sense of agency and creating an enriching learning environment (Hemmati & Mahdie, 2020). Explicit negotiation between the interested parties of the expectations, roles and responsibilities can help pre-empt and solve some of the challenges involved (Sala-Bubaré & Castelló, 2017). Second, since even successful cases like Wang are not immune from experiencing frustrations and challenges in their trajectory development, it is necessary for students to develop sustained commitment and emotional resilience as active agents through learning to anticipate and cope with perceived problematic situations (McAlpine et al., 2018; Sala-Bubaré & Castelló, 2017). Third, in view of the potentially transformative significance of transnational academic experience, even that of a brief duration, institutions, supervisors and research groups should provide early-career researchers, postgraduate research students and young faculty members alike, with resources and opportunities for establishing and maintaining relationships with international researchers in their field of study through overseas study trips or other forms of academic exchanges, and offer the necessary training and support to boost their motivation and increase their likelihood to truly benefit from international mobility (Pawlak et al., 2020). On the other hand, for non-Anglophone scholars, especially those whose research is grounded in their national contexts, actively seeking to participate in and expand a durable national network with

domestic researchers by means of attending conferences, becoming members of professional associations and collaborating on research projects (Sala-Bubaré & Castelló, 2017) is equally important, if not more so, than courting international visibility.

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