

Article

Two Chinese Medical Master's Students Aspiring to Publish Internationally: A Longitudinal Study of Legitimate Peripheral Participation in Their Communities of Practice

Na Luo

Wuhan University of Science and Technology, Wuhan 430081, China; E-Mail: lauraluo1@hku.hk

Academic Editor: Yongyan Li

Received: 28 December 2014 / Accepted: 16 April 2015 / Published: 21 April 2015

Abstract: This paper explores how two Chinese medical Master's students' international publication success/failure and their academic English learning outcomes were related to their agency and the social context in which they were embedded by using the notions of legitimate peripheral participation (LPP) and community of practice (CoP). While both students were highly motivated and similarly limited in English proficiency, their publication and academic English literacy learning outcomes vastly differed. Analysis via the lenses of LPP and CoP reveals that their differences in scholarly achievement in terms of international publication success and academic English learning outcomes can be convincingly explained by variation in the structure of the CoPs to which they belonged. Their respective CoPs determine their amount and quality of co-participation or mutual engagement with old-timers, particularly the master, which ultimately led to markedly different publication and academic English learning outcomes. Accordingly, I argue that institutions must consider the amount of mutual engagement senior researchers can afford to their research students when allocating advising responsibilities to professors.

Keywords: Master's students; legitimate peripheral participation; community of practice; co-participation; international publication

1. Introduction

As English becomes the *lingua franca* in academia, research graduate students at many EFL (English as a Foreign Language) settings, including China, mostly those at the doctoral level in natural

sciences, have been increasingly under pressure to publish in international peer-reviewed journals to qualify for graduation [1,2]. In more recent years, even Master's students are reported to publish in such high profile outlets [3,4]. Although adequate English academic writing instruction aiming at international publication hardly exists in many EFL settings ([2]), research graduate students have become the main cohort to publish internationally in some universities in China (e.g. [5]).

High stakes knowledge transformation writing activities like writing for publication internationally demands sophisticated advanced academic literacy including both linguistic ability and “rhetorical insight into the disciplinary community’s ways of building and disseminating knowledge” ([6], p. 326). Accordingly, success in high stakes publication-oriented academic writing in both L1 and L2 has been shown to be beyond the ability of many individual authors, particularly novice and EAL (English as an Additional Language) ones, and needs mediation from resources available in the social context in which they are embedded (e.g. [2,7–11]). On the other hand, authors’ agency undeniably plays an important role in publication success. The need to address the dynamics between social context and individual agency directs many researchers of academic writing toward notions of legitimate peripheral participation (LPP) and community of practice (CoP) which highlights ‘the relational interdependence of agent and world, activity, meaning, cognition, learning and knowing’ ([12], p. 50).

Legitimate peripheral participation, a social theory of learning which integrates the individuals into the social context in which they are embedded, is proposed to describe individuals’ “engagement in social practice that entails learning” ([12], p. 35). Legitimacy, the state belonging to a particular CoP, is a prerequisite for learning; peripherality suggests participants’ peripheral rather than central location in the social world; participation, “based on situated negotiation and renegotiation of meaning in the world” and being both personal and social, suggests mutual constitution of experience and learning ([12], p. 51; [13]). A CoP does not refer to a static group of people but “a set of relations among persons, activity and world, over time and in relation with other tangential and overlapping communities of practice” ([12], p. 98).

Key in LPP is “access to practice” in CoPs ([12], p. 85) and “mutual engagement” ([13], p. 73) with more adept old-timers and masters. To move increasingly toward fuller participation, a learner/newcomer needs adequate access to both a variety of activities in these CoPs and sustaining mutual engagement with a wide range of old-timers [12,13]. By observing the more adept co-participants and being observed, apprentices expand their own capacity [12]. Thus, deprivation of their access to co-participation with more adept old-timers denies newcomers opportunities of learning.

In academic writing for publication, the supervisor’s role is found to be critical in deciding the nature of CoP in which research students are situated. S/he can determine whether the CoP in which a novice author is situated fosters or hampers learning. A supervisor, as shown in the studies of Florence and Yore [3], may create an enabling atmosphere in a CoP which offers novice researchers sufficient chance of participation and opportunities to co-participate with him/herself. In contrast, s/he may render a CoP for research students less enabling by reducing chances of participation (e.g. [8]), opportunities to engage with him/herself (e.g. [14]) and explicitness during engagement with learners (e.g. [15]).

On the other hand, the notion of LPP also emphasizes “a rich notion of agency” of learners ([12], p.53). This dimension has also been probed by academic writing researchers. For instance,

Flowerdew [7], by investigating a Hong Kong scholar's socialization into the high stakes peer-reviewed international publication practices, demonstrates how he participated proactively in his CoP; Belcher's [16] study of three EAL (English as an Additional Language) doctoral students' enculturation into their respective disciplinary fields reveals a mismatch between conceptualizations of supervisors and doctoral students; Blakesee [15] finds that 'a newcomer's existing skills for, and approaches to composing' can exert a negative impact on their acquisition of new composing skills (p. 125); Li [2], by displaying the agency a Chinese doctoral student exercised in his effort to get published internationally, calls for more pedagogical support for EAL scholars in non-Anglophone settings.

However, the aforementioned studies have either focused on professional novice scholars or doctoral students, except for one Master's student of the six student participants in Florence and Yore [3]. Although Master's students are more oriented to knowledge consumption than contribution, a few of them have been reported to publish internationally [3,4]. Occupying the lowest ladder of knowledge contribution, this group can differ considerably from both doctoral students and novice professional researchers in terms of research experience and academic background. Therefore, how the dynamics of their agency and social context affect their scholarly achievement and academic English learning outcomes also merits empirical studies. This paper, by using LPP and CoP to investigate the individual agency and the social context of two medical Master's students at a Chinese university aspiring to publish in high-profile international journals, intends to fill the above-mentioned literature gap by addressing the following research questions:

- 1) What agency did the two students exercise en route to fulfilling their publication goals?
- 2) To what extent do they co-participate in scholarly activities with others?
- 3) How do the students' agency and their legitimate participation in their respective CoPs affect their publication and academic English learning outcomes?

2 The Study

2.1. Institutional Context

The university (U1) where this study was carried out is a large public university in mainland China, with the Faculty of Medicine being a marginalized sub-unit compared with engineering faculties. Publishing internationally in peer-reviewed journals was a mission impossible for scholars affiliated to the Faculty before the new millennium. After its initiation of research Master's degree programs in 1999, the Faculty administration began to encourage professors to strive for publishing research results in English. In 2005, the first English paper of the Faculty, first-authored by a Master's student of a professor of physiology, Mark (pseudonym), appeared in a China-based SCI indexed journal. Since then, English papers first-authored by Mark's Master's students and later those of another professor were regularly published in overseas (mainly Europe- and US-based) SCI-indexed journals. Meanwhile, to boost high profile international research at the Faculty of Medicine, Charles (pseudonym), a researcher with an impressive international publication record who had returned from overseas, has been employed as a part-time professor since 2008.

At U1, Master's students have been required to finish all their courses in the first year. Meanwhile, they are supposed to be doing research in their respective laboratories during working hours when

there are no courses. Each Master's student has been required to publish at least one first-authored research article (RA) to qualify for graduation since 2006. While Master's students university-wide had been struggling to meet the institutional publication requirement at average Chinese journals, those publishing internationally became particularly conspicuous. Most surprisingly, Mark's students, regardless of their low English proficiency, mostly published in high profile international journals (see Section 3).

2.2. *My Role in the Study*

With a BA in medical English, I was recruited to teach medical English at the Faculty of Medicine in 1996. Colleagues from different sub-disciplines of medicine have turned to me for subject-specific English difficulties. In 2004, I was invited to edit the first English paper of Mark's group. After its publication, I became the default editor of RA manuscripts produced by his group and occasional editor for other authors.

Curious about how Master's students like those of Mark, some very limited in English proficiency, could manage to publish in international peer-reviewed journals, I decided to carry out a longitudinal study to investigate the relationship among the Master's students' agency, the social context of their CoP, their international publication success/failure and their academic English learning outcomes. Thus, I followed a total of five students (two supervised by Mark, one by Charles, and two by another professor) at the Faculty of Medicine of U1 from October, 2009 (soon after enrollment) to May, 2012 (near graduation).

2.3. *Student Participants and Their Supervisors*

In the end, the student supervised by Charles, Din (pseudonym), was the only one of the five student participants who failed to publish internationally. Comparing with those who did so, he was considerably lower than three of them but comparable to Zhan (pseudonym, supervised by Mark) in English proficiency. Therefore, in this paper, Din and Zhan were compared to reveal the reasons underlying their scholarly achievement in terms of international publication and academic English learning outcomes. Although I had intended to interview both supervisors, I had to give up on Charles since he was hardly available on campus. Thus information about him was culled from informal chats that I had with staff members at the Faculty of Medicine and Din's interview data.

Zhan, 29 years old at the beginning of the study, obtained his bachelor's degree from a premier research university. Surprisingly, his English level was lower than average university students in terms of CET-4 (college English test band four), a bi-annually held national English examination that many universities including U1 had used as a qualifying condition for bachelor's degrees. Zhan failed to pass it after eight bids. Although he passed the entrance examination for Master's students, Zhan regarded his English proficiency minimal. Even when he read general English materials for average Chinese college students, he had much difficulty understanding many of the sentences, let alone writing, speaking and listening.

Zhan's supervisor, Prof. Mark, was one of the first Master's student supervisors at the Faculty of Medicine. A methodology breakthrough in his laboratory inspired him to seek international outlets for his research. Without experience or guidance from others, Mark decided to have his students write

research results in English anyway. Unable to write in English himself, he invited me to provide editorial assistance when the first paper was criticized for language infelicity. After its publication in a China-based SCI-indexed journal, Mark began to target peer-reviewed journals overseas and succeeded enormously in the following years. Leading his research group to publish 23 papers in prestigious international peer-reviewed articles by 2014, Mark was selected as one of the eight most productive professors in terms of high-profile international publications at U1 with his *magnum opus* being a paper in *Circulation* (impact factor near 15), a top journal in his subdiscipline, cardiology.

Din, 39 in 2009 and holding only a non-degree diploma which he had earned from the Faculty of Medicine in the early 1990s, had been working at a hospital in North China before he was admitted to the program. A caveat is in order here. The fact that Din did not have a bachelor's degree should not be interpreted as being weaker academically than those with one. In the era when Din graduated from high school, it was extremely competitive for students to get into any college program at all (only around 10%). For decades, Chinese universities did not require candidates for Master's programs to hold a bachelor's degree. Many outstanding researchers (e.g., prominent researcher and former minister of the Ministry of Health Zhu Chen) never had any college education at all before their research degree programs [17]. Zhan's supervisor Mark did not have a bachelor's degree either.

As a diploma student, Din did not need to try CET-4 at all. According to him, he had forgotten the little English he had learnt from school before he began to prepare for the entrance exam for Master's students. Although he managed to pass the exam, he also rated his English proficiency as minimal. Like Zhan, Din could read a little but still had great difficulty understanding sentence structures. He could hardly write, speak, or listen either.

In contrast, Din's supervisor Prof. Charles, with a strong educational background and research experience in the US for about five years, was known to be quite proficient in English. He was recruited to U1 in 2008 as a part-time professor soon after his return to China. By then, he had been listed as an author of more than 20 international papers, a prohibitive feat for average professors at U1 several years ago.

To attract Charles to U1, a well-equipped and staffed laboratory was built exclusively for him to start a research group. He worked full time at another university in north China (U2) where he headed another research group. He actually spent most of his time there, and most of his recent international publications were credited to U2 rather than U1. Charles began to supervise Master's students at U1 in 2009 after his laboratory was ready. He was given the privilege of admitting four students at a time while productive domestically-trained professors like Mark were only allowed to take in at most two. Two of his students, in their early 20s, were the most proficient in English among the over 20 Master's students admitted to the Faculty of Medicine that year. The demographic information of the two students and their supervisors is summarized in Table 1.

2.4. Data Collection and Analysis

Data collected included interview field notes, graduation theses, and published articles of the two focal students, four versions of Zhan's article manuscript, my own diary which selectively recorded my communication with Hua (the lab assistant of Mark's group), Qian (the lab assistant of Charles' group), Zhan and Mark, and several published articles of Charles since 2011 (See Table 2).

Table 1. Demographic information of the student participants and their supervisors.

	Name	Sex	Age	Educational background	Overseas experience	Assessed English literacy	English publication record
Group 1	Zhan	M	29	BS from a premier research university	None	Low Failed CET-4 8 times	1
	Prof. Mark	M	50-60	MS from an average Chinese university	Many short visits, no extended stay	Low	23 RAs in SCI-indexed journals
Group 2	Din	M	39	Diploma from the research site	None	Low Never tried CET-4	0
	Prof. Charles	M	40-50	PhD from a top Research institute in China	>5 years in US as a postdoc fellow	High	>20, journals in SCI-indexed journals

Table 2. Data collection means and products.

		Zhan	Din	Mark	Hua	Qian	Charles
Interview	Number	7	6	2	none	none	none
	Location	Lab	Lab	Office			
	Language	Chinese	Chinese	Chinese			
	Final product	Field notes	Field notes	Field notes			
Other communication	Form, content and frequency	Casual talks & editorial work-related communication	None	Casual talks & editorial work related communication	Very frequent casual talks	Casual talks and inquiry via phone calls	none
	Data	diary	None	diary	diary	diary	none
Texts collected		Master’s thesis, published RA, RA manuscript drafts	Master’s thesis & Published RA	Published articles	none	none	Articles published in international journals after 2011

Interview field notes were collected via semi-structured interviews with but not limited to the following topic guides: 1) Recent effort to improve general English proficiency; 2) Recent effort to improve academic English proficiency; 3) Group activities related to using both general and academic English; 4) Perceived progress and difficulties in English-related activities; 5) Progress about research projects; 6) Interaction with others about the research project. Since the participants did not want to be recorded, field notes were written during the interviews and member-checked immediately after that.

The interview field notes were translated into English and coded manually. I first read the interview notes reiteratively for categories and marked striking features. Constant comparison of categories was

made among codes during the coding process. Codes were then organized into themes. The coding process was informed by the topic guide used in the interviews, my diaries, and the texts collected. My personal knowledge of the Faculty of Medicine and my informal communication with Hua and Qian were drawn upon for information of Din's co-supervisor Fan (pseudonym) whom Din never mentioned in the interviews but listed as co-supervisor in his thesis and published article.

3 Findings

3.1. Agency of the Two Students

3.1.1. Participants' Aspirations to Publish Internationally

Zhan and Din were strikingly alike in English proficiency although they experienced different trajectories of English learning. Notwithstanding their initial low proficiency level, both were highly motivated to use the language for reading and publishing academically. At the beginning, Zhan wondered how students graduating from his group could manage to publish in prestigious international journals while he could hardly understand such articles no matter how hard he tried. In his first casual chat with me, he exclaimed:

If I can ever publish such an article near the end of my program, I will consider myself really achieved something and will be so proud of my master program all my life.

This remark resonates well with Mark's reflection that once the first few students set the high standard, the supervisor did not need to motivate others. In Mark's words:

They will lose face in front of peers if they can't do what others can.

Similar to Zhan, Din also strongly aspired to publish internationally. According to him, the subject with which his research group was dealing, transcription factors (proteins playing an important role in controlling transcription of genetic information), was very new since it did not appear in literature until 2001 and only a few review articles introduced it in Chinese. Thus, he had no choice but to read original English articles for reference. Moreover, he had strong confidence in Prof. Charles' ability to guide him to high profile international publications. Din, sensitive about his initial English proficiency, level and age, reiteratively assured me that he would be able to handle the publication process, telling me that two of his friends, exposed to academic English well after 35, learnt to use English well academically.

3.1.2. Investment in Improving English Proficiency

Personal Investment in General English

To fulfill their ambitious goals, both Din and Zhan made extra efforts to improve their English proficiency in addition to attending compulsory general English courses aiming to train the students in the four skills of reading, writing, speaking, and listening. Din reported that he spared more than two hours daily to memorize words and read materials in English in the first and second semesters, hoping that this would boost his English proficiency. But his zeal faded at the end of the second semester when he excused himself for being too busy to spare time for English. In contrast, Zhan personally persisted for two years in improving his English proficiency. Although the daily amount of time he

spent on English was less than that of Din at the beginning, one to two hours in the first semester and a little less than one hour in the second and third semesters, his English learning efforts lasted well into the fourth semester, when he was found reciting essay templates from English composition books to prepare for his journal article writing in English.

Engagement with Disciplinary Literature in English

Apart from their personal investment in general English literacy, they began to touch on disciplinary literature in English from the second semester. Early in the semester, Zhan was given two English papers by a senior student. For the first one, he had a very hard time, not finishing reading it until after about 12 days, at least one hour each day. But to his great relief, he found reading the second one much faster (about 8 hours) since he developed some familiarity with the genre and terminology. Zhan also had to repeatedly read the bilingual theses of former student graduates from his group. Although he could rely on Chinese for the article *per se*, he was forced to read the captions in English since no Chinese version was available.

Around the same time, Din read the first English article, which was about 9-10 pages in length. He recalled spending the spare time of a whole week, estimably over 15 hours, on it. To make matters worse, he did not think he grasped its main content. Occasionally, he also searched English articles himself by heavily relying on an online English-Chinese medical dictionary while reading the abstracts. Meanwhile, Charles, although mostly absent from the laboratory, introduced a 'journal club' activity to his research group, popular among health-related research groups in the West (see [18]). Every two weeks, either a research student or a staff member, would present an English article s/he had read to the group in Chinese. After the presentation, other group members would ask questions. To participate in this activity, the presenter must have a very good understanding of the article. By the time he was interviewed in the fourth semester, Din had already given three presentations. He always consulted faculty members or doctoral students in related areas for help.

3.2. The Students' Chance of Co-Participating with Others in Scholarly Activities

3.2.1. Coparticipation with the Supervisor

Zhan's supervisor, Mark, mostly worked on another campus from Monday to Friday since he was vice-president of the university during the study and had to work there full-time during weekdays. He came to the laboratory during Friday evenings and stayed there on most weekends. According to Hua, he enjoyed watching students doing experiments and would offer a hand whenever necessary. Even during weekdays, he might come to the rescue when experiments went awry repeatedly. For example, Mark recalled an instance that Hua called him one day when he was having a meeting to tell him that they failed to separate heart cells repeatedly. He rushed to the laboratory immediately after the meeting. After briefing Hua, he asked whether they had reduced the amount of calcium injected. Hua was very surprised. They did but never thought it would cause the failure.

To keep abreast of progress in his area, Mark kept reading the latest literature and provided ideas for his students to do experiments. After raw data was produced, he would conference with them to interpret it before he prescribed writing procedures for students. For students whose English

proficiency he considered inadequate to write in English directly, he required them to draft first in Chinese. He would then comment on several drafts of the Chinese version. Only when he regarded the Chinese version as rhetorically ripe enough to be publishable in a Western journal pending translation would he allow the student to start translating. When the English draft was finished, he would watch over whether the sentences transmitted what they meant. As a scholar raised during the chaotic Cultural Revolution period when China was isolated from the West, it was beyond his ability to comment much at the linguistic level in English, but he could comment insightfully on the content and the rhetorical structure.

Mark hardly revised manuscripts directly for his students. According to him, it would only exhaust him and deny his students chances of learning:

If I supervise students like that, I would be completely exhausted. They would be happy and botch up texts perfunctorily because they know I would rectify whatever mistakes they make. But I'm not that stupid. I let them know that they are the first authors of their papers and must be responsible for shaping them into publishable forms. Some of them had hated me. They thought I was too strict with them. However, after graduation, they unexceptionally thanked me for giving them chances to practice in high stakes publishing games.

Although he put the onus on the student rather than on himself, he backed them up whenever they faced insurmountable barriers. For example, he diagnosed problems with experiments and recruited my editorial services for his student authors.

Compared with Zhan, Din's co-participation with his supervisor Charles was very limited since he was mostly geographically distant from his students at U1. Although Charles did send emails (which Din declined to show me for privacy considerations) to instruct them and prescribed topics for Din and his peers, all related to some aspects of transcription factors, face-to-face communication with him was very rare. Even when he was back, he hardly had time to work on experiments with them.

3.2.2. Co-participation with Peers

Apart from co-participating with the supervisor, the students also interacted with others in scholarly activities. Peer communication counted a lot for Zhan. Since research students in the same group shared the same experimenting space and office, they inevitably interacted with each other for difficulties such as experimenting procedures and reference resources. Because all the students followed in this study lived on campus, they spent most of their day in the laboratory or office even if it was well past working hours. Such an environment enormously fostered peer communication. Zhan had two Shi Xiong (male students enrolled earlier) and two Shi Jie (female students enrolled earlier) working in the same laboratory in his first year of the program while two of them graduated one year later. One Shi Jie visited the laboratory very often because she worked as assistant in a neighboring lab after her graduation, and another Shi Xiong also regularly came back since he was pursuing his doctoral degree in a nearby university. In addition, another male student, Zhi, was enrolled in the same program with him in the same year. According to Zhan, he was, to a large extent, guided in literature reading and other aspects by Shi Xiong and Shi Jie. This could be testified to by the fact that the very first two English papers he read was given to him by a Shi Xiong.

Unfortunately, Din and his other fellow students were denied access to Shi Xiong or Shi Jie, because it was the first year that Charles started to supervise Master's students at U1. Thus, co-participation with peers was restricted to within the four students enrolled in the same year. Since no one was more experienced in the area of transcription factors than others, mutual engagement with more adept peers was considerably reduced in Din's group compared with Zhan's group.

3.2.3. Co-participation with Others

Apart from the supervisor and peers, students also co-participate in scholarly activities with others. One important person was the lab assistant. The research assistant of Zhan's group, Hua, had been working with Mark for decades and was very skillful in doing experiments in which Master's students were involved. She commuted to the laboratory during weekdays and most Saturdays to make sure experiments were in track. Even during summer and winter vacations, she could only take a weeklong holiday while her colleagues enjoyed month-long ones. Zhan emphasized that it was Hua who taught him how to do experiments step by step. In contrast, although the lab assistant Qian in Din's group was also experienced in this position, the topic of transcription factors was as new to her as to anybody else in the group, except Charles, when this study was conducted.

Both Zhan and Din also co-participated with others in scholarly activities. For example, Zhan worked with me face-to-face on his manuscript twice. Din, hardly accessible to his own supervisor, was more radical in obtaining external help than Zhan. He turned to other more experienced researchers for advice about his thesis and paper for publication. One obvious example is Fan (pseudonym), a professor not belonging to Charles' research group but in the same department. Fan, whom Din never mentioned in the interviews, was listed as co-supervisor on his thesis and co-author of his published paper together with Charles. Shockingly, Din completely abandoned the topic of transcription factors and wrote on topics more in line with Fan's expertise in both his thesis and published paper. In addition, Din invoked the service of a former schoolmate to edit the English abstract of his published paper.

3.3. Publication and Academic English Learning Outcomes

Although Charles had a much stronger academic background than Mark in terms of educational and international experiences, the two participants' publication and English academic literacy learning outcomes were reversed, with Zhan completely overshadowing Din. Zhan, like most of his predecessors, published a paper in a US-based mainstream journal in his subdiscipline and was awarded with an 'honored graduate' distinction. According to Mark and another researcher in the same area, although the impact factor of the journal was only about 3.0, it had been one of the best journals in cardiology and few researchers from non-Anglophone regions can publish in it. In the last interview, Zhan showed great satisfaction with his production of an English manuscript:

You can't imagine how I admired myself when the first draft of the English version was finished! Of course, I know perfectly that the idea is from Prof. Mark; Hua taught me how to do experiments step by step; Shi Xiong and Shi Jie also helped a lot; your editorial service is also indispensable. But I still feel so good about myself. I'm the first author!

In addition to producing the English article manuscript, Zhan reported in the last interview that he was highly selective in reading English journal articles in his subfield, reading the title and abstract more carefully, glossing over the method section entirely and relying on figures rather than the result section for major results. Although he was still unsatisfied with his speed of finishing an average paper within 20-30 minutes for general information, he obviously displayed features of an expert reader (see [19]). Zhan's labmate, Zhi, also published an article in a European-based journal with an impact factor similar to that of Zhan's and he also read like an expert reader.

In contrast, Din only published a paper in an obscure Chinese journal in which authors can get published easily. Although he completely abandoned the transcription factor project, Charles did urge him to write a paper in English. But he simply dismissed it by repeating:

It's too difficult to write a paper in English! It's too difficult...

Without specifying what the difficulty was no matter how hard I prompted him for details, he seemed not to have any concrete idea of the task at all. Similarly, none of Din's other three labmates published anything in English regardless of the fact that two of them were the most English proficient among all the Master's students admitted to Faculty of Medicine in 2009, showing that Din's failure to realize his goal of publishing in a high-profile international journal was by no means individual in nature.

Admittedly, failing to publish internationally does not mean that Charles' students were not learning. Din reported that he had made great progress in reading English literature by the fourth semester. According to him, he was not afraid of reading articles in English anymore and read much faster, finishing a paper from journals of low impact factor within the spare time of one day. However, he confided that some papers might take him as long as six hours to read. He still read unselectively from the beginning to the end, a sign of an inefficient academic reader [19].

4 Discussions and Conclusion

In this study, two medical Master's students at a Chinese university were followed longitudinally for more than two years in their pursuit of international publication and academic English literacy development. Largely similar in background including in English proficiency, motivation, and effort to learn English, their publication and academic English learning outcomes differed markedly with Zhan publishing an article in a prestigious US journal and capable of reading skillfully, while Din only published in an obscure local journal and could only read unselectively in English. Although Din was 10 years older than Zhan and his personal investment of time in English learning did not last as long as Zhan, these factors alone can be dismissed in explaining their marked difference in publishing and learning outcomes because his two much younger and highly English proficient labmates failed to publish internationally either while Zhi, Zhan's labmate, also published a paper in an European-based SCI-indexed journal. On the contrary, Charles' students at U2, where he mostly stayed, had been found publishing on the topic of transcription factors in high-profile international journals comparable to outlets of Zhan's article, suggesting the pivotal role of the master for productive achievements and learning outcomes of newcomers in CoPs.

In Lave and Wenger's notion of legitimate peripheral participation, learning is a social process that happens during co-participation with peers and more experienced old-timers/experts [12]. Deprivation of access to co-participation with old-timers and experts deny newcomers chances to learn. In this study,

learning did happen to both Din and Zhan, newcomers and legitimate members of their respective CoPs, in the sense that both successfully graduated with a Master's degree. While their legitimacy in CoPs was institutionally sanctioned, their marked differences in publishing and academic English learning outcomes points to the importance of the organization of their respective CoPs.

Based on the theory of LPP, Zhan's success, to a large extent, should be attributed to his optimal chances to co-participate with old-timers of his CoP. As a relative newcomer to his laboratory and the international publishing game, Zhan received mediation from the right people at the right occasions for his publication-oriented practice. First of all, although Mark did not stay together with his students every day, he was there for two days every week and came to the rescue when things went awry. More importantly, he provided ideas and guidance in the writing process. Zhan's co-participation with Hua, Shixiong, and Shijie, as well as myself, all added to his increasing competence and probability to accomplish his final goal of publishing in a prestigious international peer-reviewed journal, supporting Wenger's statement that mutual engagement in CoP involves synergy of co-participants [13]. Since productive activity and learning are 'dialectically related' ([12], p. 102), Zhan's optimal co-participation with old-timers also allowed him to take quantum leaps ahead in acquiring academic English literacy. Before the end of his Master's program, he could read English articles selectively to search for information like an expert and produce an English article manuscript and revise it to a publishable form with the help of others.

Among all Zhan's chances of co-participation with old-timers in his CoP, the role of Mark is central. His practice of putting the onus on the student while supporting them whenever necessary particularly aligned well with the spirit of LPP and was germane to fostering learning for newcomers. Similar to the professors who effectively socialized their students into journal publication by offering them 'excellent enculturative opportunities' ([3], p. 660), Mark provided his students like Zhan 'access to resources that enhance their participation' ([13], p. 10). Unlike the biochemistry professor who inadvertently stripped his doctoral students of participation in shaping their own English article drafts into publishable forms [8], Mark maximized learning by demanding his students to revise repeatedly while monitoring the process closely himself. Unlike the professor who implicitly expected his student to figure out his ambivalent comments [15], Mark always articulated his comments explicitly and iteratively until his students came to share his perception. He seemed to grasp the essence of LPP in which learning opportunities unfold by engaging in practice [12].

Besides his own mutual engagement with students in his lab, he also created an environment for his students like Zhan to have opportunities for mutual engagement with other, more adept old-timers. Hua, who later became an important more adept oldtimer to graduate students, learned to do experiments in cardiology by co-participation with Mark, the master of this group. The students who set the high standard of publishing in high-profile international journals did not achieve that alone, but by co-participating with Mark and Hua. In addition, my editorial service was actively sought out by Mark.

Conversely, Din's greatly diminished outcomes in both publication and academic English learning could be construed as a consequence of a different political and social organization within his CoP, which largely deprived him of chances of mutual engagement with more adept oldtimers in the subfield of transcription factors. Din's LPP was mainly embodied in three ways, co-participation with staff members or peers in the journal club activities, email instruction from Charles, and face-to-face

interaction with Fan and his peers. Among them, Charles was the only master on transcription factors. Although Din revealed that Charles regularly instructed him and other students about their experiments via email, distant contact is less effective than face-to-face interactions because it denies participants chances of ‘observing others and being observed’ ([12], p. 78). The greatly discounted effectiveness of distance contact among senior researchers and novice ones in comparison with face-to-face communication has been demonstrated empirically. Flowerdew indicates that Oliver, a novice researcher in Hong Kong, regarded communicating with his erstwhile doctoral supervisor via email much less efficient than their former face-to-face communications [7]. More recently, Simpson deplores the writing process of a doctoral student he studied that could be considered as mostly solitary because his supervisor only communicated with him through ‘succinct email messages’ from a distance ([14], p. 237).

While largely deprived of access to Charles, Din turned to Fan (an expert in totally different areas physically close to him) for guidance. His co-participation with Fan produced a thesis and a published article somewhat in line with the latter’s expertise. Unlike Mark and Charles, Fan never managed to publish internationally himself. Thus, it was unrealistic to expect him to guide Din to international publication. Although Charles’s two other students, the two in their early 20s and most proficient in English, did manage to finish their respective projects on transcription factors, neither of them published anything in English either. Two explanations can apply. First, the experimental results they produced were not significant enough to merit international publications. Second, if the results were good enough, their deprivation of mutual engagement with Charles, the only master of international publication in the research group, denied them the chance to do so. These explanations are buttressed by the fact that Charles’ students at U2 where he stayed most of the time were publishing in international peer-reviewed journals in English, pointing to the importance of ‘observing and being observed by’ ([12], p. 78) the master. If Charles had worked full time at U1, he could have shown his Master’s students and the lab assistant Qian the way to do experiments related to transcription factors. Equally importantly, he could have guided his students through the article writing and revising process in English if the results produced had merited international publication.

While showing the importance of sustained mutual engagement with old-timers in CoPs for newcomers, this study particularly points to the key role of the master in CoPs where research students learn academic literacy and produce scholarly products like papers for publication. The different roles of Mark and Charles in their respective CoPs supports the observation of Lave and Wenger [12] that masters can vary greatly in their roles in CoPs. Drawing from this study, I argue that the different roles played by masters can have consequences on the productive activity and learning outcomes of the relative newcomers in such CoPs. Pedagogically, this argument suggests that institution administrators responsible for allocating research student advising work to professors need to consider not only the professors’ individual competence in research but also their possibility of and willingness for close mutual engagement with their students.

Acknowledgements

I would like to thank the three anonymous reviewers for their constructive feedback on an earlier version of this paper.

Conflicts of Interest

The author declares no conflict of interest.

References

1. Gosden, H. Success in research article writing and revision: A social-constructionist perspective. *Engl. Specif. Purpo.* **1995**, *14*, 35–57.
2. Li, Y. Apprentice scholarly writing in a community of practice: An intraview of an NNES graduate student writing a research article. *TESOL Q.* **2007**, *41*, 55–79.
3. Florence, M.K.; Yore, L.D. Learning to write like a scientist: Coauthoring as an enculturation task. *J. Res. Sci. Teach.* **2004**, *41*, 637–668.
4. Luo, N.; Xiao, Q.L. An investigation of the EAP literacy acquisition process of master students: A case study of master students at a research institute of Wuhan University of Science and Technology. *Wai Yu Jiao Xue Li Lun Yu Shi Jian* **2011**, *3*, 80–87
5. Cui, M.X.; Wu, J.L. Outstanding doctoral students can make as much as 80,000 rmb a year at Wuhan University and supervisors won't need to become their bosses anymore. *Wuhan Morning News*, 11 July 2012.
6. Tardy, C.M. “It's like a story”: Rhetorical knowledge development in advanced academic literacy. *J. Engl. Acad. Purp.* **2005**, *4*, 325–339.
7. Flowerdew, J. Discourse community, legitimate peripheral participation, and the nonnative-english speaking scholar. *TESOL Q.* **2000**, *34*, 127–150
8. Li, Y. I have no time to find out where the sentences came from i just rebuild them: A biochemistry professor eliminating novices' textual borrowing. *J. Second Lang. Writ.* **2012**, *21*, 59–70.
9. Li, Y.; Flowerdew, J. Shaping chinese novice scientists' manuscripts for publication. *J. Second Lang. Writ.* **2007**, *17*, 100–117.
10. Lillis, T.; Curry, M.J. Reframing notions of competence in scholarly writing: From individual to networked activity. *Revista Canaria de Estudios Ingleses* **2006**, *53*, 63–78.
11. Prior, P. *Writing/disciplinarity: A sociohistoric account of literate activity in the academy.* Lawrence Erlbaum Associates: Mahwah, NJ, USA, 1998.
12. Lave, J.; Wenger, E. *Situated learning: Legitimate peripheral participation.* Cambridge University Press: Cambridge, UK, 1991.
13. Wenger, E. *Communities of practice: Learning, meaning, and identity.* Cambridge University Press: Cambridge, UK, 1998.
14. Simpson, S. Systems of writing response: A Brazilian student's experiences writing for publication in an environmental sciences doctoral program. *Res. Teach. Engl.* **2013**, *48*, 228–249
15. Blakeslee, A.M. Activity, context, interaction, and authority: Learning to write scientific papers in situ. *J. Bus. Tech. Commun.* **1997**, *11*, 125–178.
16. Belcher, D.D. The apprenticeship approach to advanced academic literacy: Research students and their mentors. *Engl. Specif. Purpo.* **1994**, *13*, 23–34.
17. China's Communists' News, 2008. Available online: <http://cpc.people.com.cn/GB/64093/64387/8410062.html> (accessed on 20 March 2015).

18. Deenadayalan, Y.; Grimmer-Somers, K.; Prior, M.; Kumar, S. How to run an effective journal club: A systematic review. *J. Eval. Clin. Pract.* **2008**, *14*, 898–911.
19. Bazerman, C. Physicists reading physics: Schema-laden purposes and purpose-laden schema. *Writ. Commun.* **1985**, *2*, 3–23.

© 2015 by the author; licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).