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Theorizing the Value of English Proficiency in Cross-Cultural Rhetorics of Health and Medicine: A
Qualitative Study

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Abstract

This study reports the results of 12 recent interviews with nonnative-English-speaking (NNES) authors who have conducted research and written articles on health and medical subjects. Analyzing the interview transcripts through the theoretical lens of Pierre Bourdieu's forms of capital, this study expands on previous research by offering a more precise and theoretically grounded understanding of how NNES authors perceive the value of English proficiency in relation to their success as scientific researchers. This theorization of the varying ways in which authors perceive the value of English proficiency affords new perspectives on the inequities that NNES authors encounter in the global publishing economy and their rhetorical strategies for overcoming these inequities. The study concludes by reflecting on theoretical and practical implications for researchers, teachers, and other stakeholders in the global publishing industry.

Keywords

science communication, global publishing, intercultural communication, qualitative research, Bourdieu

This study explores the rhetorical practices of nonnative-English-speaking (NNES) authors who have conducted research and written articles on health and medical subjects. Specifically, we report results from a series of 12 interviews with such authors, conducted between October 2013 and April 2014. Previous research in linguistics and related fields has exposed several important dimensions of NNES academic authorship, including the specific writing struggles that these authors face (Belcher, 2009; Cho, 2009; Hirano, 2009; Mur-Dueñas, 2014; Wharton, 2012; Willey & Tanimoto, 2012) and some of the lived experiences of NNES scientists (Canagaraja, 2002; Ekeroma, 2013; Englander, 2009; Ferguson, Pérez-Llantada, & Plo, 2011; Flowerdew, 2008; Hanauer & Englander, 2011; Huang, 2010; Lillis & Curry, 2010; Metcalfe, 2009; Pérez-Llantada, Plo, & Ferguson, 2011). Our study expands on this previous research by offering a more precise and theoretically grounded understanding of how NNES authors perceive the value of English proficiency in relation to their success as scientific researchers. This theorization of the varying ways in which authors perceive the value of English proficiency affords new perspectives on the inequities that NNES authors encounter in the global publishing economy and their rhetorical strategies for overcoming them.

To understand the different types of advantages that our study participants obtain as they increase their English proficiency, we invoke Bourdieu's (1977, 1982, and 1986) theories of the forms of capital in the context of NNES scholarship by Lillis and Curry (2010). Our study, however, is the first to apply an in-depth theorization of Bourdieu's forms of capital to NNES authorship. Bourdieu (1986) has explained *capital*, in its most basic economic form, as "accumulated labor (in its materialized form or its incorporated embodied form) which, when appropriated on a private, i.e., exclusive, basis by agents or groups of agents, enables them to appropriate social energy in the form of reified or living labor," (p. 46). The other forms of capital that emerge as important in our analysis, which include cultural, linguistic, and social capital, have been explained by Smart (1993) as metaphorical extensions of economic capital that account for the fact that real-world interactions

between individuals and social groups always involve forms of capital exchange that are not strictly economic. Especially important in our analysis is *linguistic capital*, which Bourdieu (1982) described as linguistic skill that grants individuals a distinct advantage over their competitors in what he calls the “linguistic market” (p. 55).

Previous research on NNES academic authorship has clearly established that English proficiency is an important form of linguistic capital in international publishing, and some researchers have gone further in analyzing the specific ways that English proficiency functions as linguistic capital. As Piller and Cho (2013) observed, for instance, English proficiency is not only necessary for researchers who want to reach international audiences but has come to serve as a “natural and neutral medium of academic excellence” (p. 24) in the world of international scholarly publishing. The manner in which English proficiency functions for the South Korean authors who participated in Piller and Cho’s study closely resembles what Bourdieu (1982) described as linguistic capital. In other words, linguistic capital is more than just a proficiency or set of skills; it is a marker that is often taken at face value of a researcher’s status in the academic community. English proficiency, thus, is almost like a form of currency, and theorizing in terms of Bourdieu’s forms of capital gives us a way to understand the value of that currency. Along similar lines, Hasrati’s (2012) study in an Iranian university suggested that Western publishing mechanisms such as impact factors can be imposed on international authors in a way that leads to the “commodification of research” and creates a system in which impact factor is “exchangeable for monetary and credentialing rewards” (p. 155); see also Cho, 2009; Englander, 2009; Ferguson, G., Pérez-Llantada, C., & Plo, 2011; Flowerdew, 2008; Hanauer & Englander, 2011; Lillis & Curry, 2010; Mur-Dueñas, 2014; Salager-Meyer, 2008).

What is not clear from previous literature is precisely how English proficiency offers value to NNES authors in the different kinds of rhetorical situations that occur throughout their academic

careers. Nor has such research considered the multiple ways in which English proficiency can interact with other forms of capital that are important in global academic publishing. In fact, Bourdieu (1977) characterized linguistic capital as a subset of the category that he calls cultural capital, so an important premise of our study is that any linguistic capital that these authors gain by improving their English proficiency must be understood in relation to other forms of capital that are important to their research and publication efforts. *Cultural capital*, for Bourdieu, refers to the various advantages that derive from the intellectual property, knowledge, or knowledge-producing goods and services (e.g., books, computers, training, degree and certification programs) that an individual has access to or possesses. *Social capital* (distinct from, but often intertwined with, cultural capital) refers to the advantages that an individual gains from their connections with other people through clubs, organizations, family and friend networks, religious organizations, and other social groups. By theoretically explaining the multiple ways in which linguistic capital can interact with Bourdieu's other forms of capital, our study expands on previous understandings of the NNES authorship experience.

An important finding of our study, which represents a new contribution to previous literature on this subject, is that English proficiency does not operate in just one way across all contexts of NNES authorship. Rather, it can operate as many different kinds of capital, depending on the author's situation. The demographic diversity of our study population enables us to expose this variety to a greater extent than that revealed in other studies. Yes, we argue, English proficiency is a form of linguistic capital, but how this linguistic capital operates to provide value to these authors varies a lot from one author's situation to the next, and it also varies throughout the careers of individual authors.

Methods

After receiving approval for this study from our university's institutional review board in September 2013, we recruited 12 participants through the authors' personal contacts in organizations that employ or offer assistance to NNES researchers in health and medicine. We decided to focus on researchers in health and medicine, in part, because as authors specializing in the rhetorics of health and medicine, we had access to such researchers. But as scholars across the disciplines increasingly come to realize that "public health is global health" (Welhausen, 2015, p. 276), communication scholars have a special urgency for communication scholars to take the lead in conducting research that might facilitate the increased transfer of health and medical knowledge from "center" to "periphery" nations.¹ Such knowledge transfer is proving to be increasingly important in research-based efforts to overcome global health disparities and to address health crises that can arise from infectious disease threats such as that which recently occurred with the rapid global spread of the Ebola virus.

Prior to their interviews, each of the 12 participants completed a demographic questionnaire (see Appendix A) and a consent form. Table 1 summarizes participant demographic information (names are pseudonyms). We conducted 11 semi-structured interviews via Skype, recording them with Audacity. Each interview lasted around 45 minutes. One other interview was conducted via e-mail because we could not establish an adequate Skype connection with this participant, who was located in Indonesia. We designed the interview questions to allow participants to define and characterize their own rhetorical practices as freely as possible (see Appendix B). The first two questions were intentionally designed with a broad scope (i.e., not specifically focused on language, writing, or publishing) that encouraged participants to talk about any aspect of their research. The remaining five questions honed in more specifically on the rhetorical practices that we wanted to examine in this study, including use of English as a nonnative language, article drafting and

submission, interaction with editors and reviewers, and the writing process. But these questions were still open-ended enough to allow for a wide variety of interpretations of these rhetorical practices.

INSERT TABLE 1 ABOUT HERE

Following Bazeley and Jackson's (2013) advice, we used QSR International's NVivo 10 qualitative analysis software from the beginning of the project. NVivo is one of the most widely used software packages for analyzing qualitative data. Such programs are designed to enhance but not replace the analytic procedures that qualitative researchers typically use (Bazeley & Jackson, p. 3; Hoover & Koerber, 2011). For NVivo in particular, the basic element of the system is the *node*, a visible category in which researchers can store a wide variety of content that is appropriate to their research. Such content may include excerpts from interview transcripts, clips from audio files, segments of videos, text or visual information from Web sites, excerpts from pdf's, and virtually any other kind of content that can be stored in a digital format. Qualitative analysis in NVivo consists of importing all relevant artifacts into the software program and then coding these artifacts by using keyboard commands or interface features to copy snippets of these materials into one or more nodes. Nodes can be created as freestanding entities or built into a tree structure with several levels, similar to the way in which researchers who are coding without software might develop tables to depict the major themes and subthemes that emerge in their research.

Early in the research process, we used NVivo 10 to store information, manage sources for the literature review, and transcribe the interviews. As each transcript was completed, we began a process of iterative coding, which involved carefully reading the transcripts while developing a system of nodes and subnodes to document the major themes and to put these themes in conversation with the secondary literature. Coding involved multiple passes through the transcripts and several rounds of revision to our node structure. Our coding procedures were guided by the principles espoused by Bazeley and Jackson (2013), who encouraged researchers to take advantage

of the fluidity that NVivo affords. Thus, we allowed the initial structure of nodes and subnodes to emerge organically from our close reading and rereading of the data itself rather than imposed a predetermined coding scheme on the transcripts as we imported them into the NVivo project file.

In these early coding phases, we also followed Bazeley and Jackson's (2013) suggestion to code the secondary literature along with the interview transcripts so that relevant concepts from this literature would be incorporated into the same system of nodes and subnodes that we were using to identify key themes and concepts in the transcripts. Our analytic technique might be best understood as a process of putting the interview transcripts in conversation with the previous literature to enable the two sets of texts to interact with each other. Thus, just as much as we used the theory to illuminate the interview data, we used the interview data to deepen and refine our understanding of Bourdieu's (1977; 1982; 1986) complex theoretical scheme.²

By the time we had finished coding all 12 interview transcripts and made significant progress in coding the secondary literature, we had reached a point of *theoretical saturation*, meaning that the same themes were starting to recur with some frequency, so it was more beneficial to pause and reflect on these themes than to continue acquiring additional data. Thus, at this point in the study, we decided to stop recruiting participants and instead to revisit and revise our coding scheme. We determined that Bourdieu's (1982) forms of capital offered the most fruitful way to capture both what was common across all 12 interviews and the diversity and richness that emerged because of the diverse experiences and demographic profiles of our participants. So we began a second round of coding that was much more structured than the first, building a node structure around Bourdieu's forms of capital, with three main nodes: *cultural capital*, *social capital*, and *cultural and social capital*, for data that could fit into either of the first two nodes. Each of these nodes contained several subnodes to capture the variation within the main node. (See Figures 1-3 for screenshots of our final coding structure).

INSERT FIGURES 1-3 ABOUT HERE

Our results section is organized around the themes that were most prominent in the final NVivo node structure—beginning with the multiple forms of cultural capital that surfaced in the authors’ narratives and then addressing social capital. Throughout this section, we also acknowledge themes that contained elements of both cultural and social capital.

Results

As Table 1 shows, the demographic profile of our participants does not support a monolithic profile of the NNES author. In the following analysis, we explore the forms of capital that our participants described as crucial to their success and trace how these forms of capital are employed, exchanged, and transformed through these authors’ research and writing experiences.

English Proficiency and Forms of Cultural Capital

The first part of our analysis is organized around three different forms of cultural capital that are reflected in the participants’ explanations of how their use of English affects the work they do as health and medical researchers. First, we describe the experiences of participants who conduct their research exclusively in English. Second, we describe the experiences of authors who conduct research in multiple languages. And third, we report the experiences of authors who learned to do research in their native languages but later lost that ability.

English Proficiency as Embodied Cultural Capital. Our first group of participants expressed that they only know how to think scientifically in English, not in their native languages, because their formal scientific training occurred exclusively in English. In Paul’s case, for instance, his native language is an indigenous Nigerian language, but as he commented, “I can’t even write the way I

write in English in the indigenous language. I've never written any articles outside the English language.” When asked about the reasons for this situation, Paul expressed that, from his perspective, there was never any choice:

[English is] just the only international language that I have been schooled.... Right from my primary school to university.... that's the only language I speak and I can write in... I have no choice other than to write and publish in English, so it's more circumstances than personal decisions you see.

Monica expressed some ideas similar to Paul's, even though she received most of her scientific training in Germany:

It sounds maybe crazy or strange to you, but I haven't written anything in German scientific...so I wouldn't know, um, I was thinking to try to publish my thesis in German, the results, and I didn't do that because I wouldn't [know] where to send it to.

When asked to elaborate, Monica simply repeated that she had never even thought of conducting science in German, her native language, because all of her scientific training has been in English.

Olivia also reported that all of her scientific training has been in English: “Even my first interview for a job, although it was a job in Italy, was done with an English mother tongue speaker....And all the scientific literature is in English, so I've never done scientific Italian.” She offers an interesting assessment of how the two languages relate in her daily life:

Science, I definitely think about it in English. Life, again it's very mixed. My other half is English, so it's really mixed. I think there are great ways of saying in both languages, and I like to switch to what's more appropriate, to be honest, even when thinking.

The English proficiency that these participants described reflects the form of cultural capital that Bourdieu (1986) described as *embodied*, a “cultural competence” such as “being able to read in a world of illiterates” (p. 49). Smart (1993) further explained embodied cultural capital as “knowledge or skill” that “can be possessed because it is embodied, incorporated within the body or mind (*habitus*) of those who know how to do certain valued things” (p. 393). These participants’ experiences also correspond with Bourdieu’s (1977) definition of *linguistic capital* as a subcategory of embodied cultural capital: “Linguistic capital is an embodied capital and...language learning is one dimension of the learning of a total body schema which is itself adjusted to a system of objective chances of acceptability” (p. 660). This type of embodied cultural capital—a fundamental knowledge that cannot be taken away from an individual—has been our focus in examining this first group of participants. The ability to speak English, as characterized by these participants, emerges not only as cultural capital but as a form of cultural capital that is crucial to their success as authors. In fact, these participants learned to become proficient in English along with learning science, so English is fundamentally tied to their abilities to think, write, and talk about the research they conduct.

English Proficiency as Objectified Cultural Capital. The second group of participants resembles the first group in that they reported that English is the primary language they use when thinking, writing, or speaking about science. But these participants differ from those in the first group in that their daily scientific practices involve a mix between English and at least one other language. For example, Alex’s relationship to English is different from that of Monica, Paul, or Olivia because even though

Alex's scientific training was in English, his native language is Hebrew and much of his recent research has been conducted in a laboratory in France. Thus, in Alex's interview, he discussed three different languages that are involved in his current scientific work. Still, like Paul and Monica, Alex mentioned the dominance and centrality of English in all of his scientific work and echoed the idea that English is an inevitable presence, so he has little choice but to use it in his writing. But because Alex's work takes place in a French laboratory, he and the other scientists use a lot of French in their everyday exchanges with each other:

So most of the exchanges, the day-to-day exchanges, are in French, but because English is the dominant language, the literature is in English, the international conferences are in English, and when you get to the hard core science, it's going to be in English, so there's not much opportunity to learn that kind of French.

Although Alex described a mix of English and French in his scientific workplace exchanges, with English terms frequently slipping in to express technical concepts, some of his colleagues have tried to conduct science exclusively in French. Alex's mention of some French scientists' resistance to English offers an interesting new dimension to the widespread idea that the domination of English as an international scientific language is inevitable. As he commented, "There's also a lot of, in France and in Europe...inner fighting about preserving the French language versus adopting English."

Nick also reported that his scientific work involves a mix of two languages: Chinese and English. Early in his interview, Nick echoed other participants' statements about the dominance of English in his scientific training: "I'm not fluent at all in the native language [Chinese] in terms of science. Because I learned the scientific terms in English, it's hard for me to find the right Chinese

words for those terms.” But as the interview proceeded, he reported that his own scientific practice incorporates elements of both languages:

If I’m using the English language, talking to you or describing science, I think in English. I don’t have an intermediate step. I don’t think about the Chinese language and then translate that into the English one. But when I speak Chinese, either scientifically or not, I think in Chinese.

In other words, to a greater extent than any of the other participants discussed so far, Nick claimed to be truly bilingual in his scientific work.

Mark’s story offers another interesting example. More so than any other participant in this study, Mark has learned science from the beginning in a bilingual environment. Although he began his primary education in an English-only school in India, his family moved to a more remote region of India after the first couple of years, so between his “first standard” and his “fifth standard” years, all of his instruction occurred in a regional Indian language. In his “fifth standard” year, he resumed English instruction, but as he stated, “the medium of teaching was not English. I only had English as second language.... Everything else, all of the subjects were in my regional language, so I went that way until 10th standard.” He further described an educational environment different from that described by any of our other interviewees, recounting that all of his books and instructors used the regional Indian language. But when these texts and instructors addressed scientific subject matter, they often included in parentheses the English translations for important technical terms:

So I used to practice this again and again, just to get myself familiar with the words in English—what something is called, what “stem” is called in plants. There are so many other

things. In physical sciences, there were different kinds of words. I used to practice them quite a bit. So when I came to my 11th and 12th standards, I basically moved completely into an English medium.

He then described a brief period of struggle during the first years of his undergraduate studies, when he felt that he had mastered the subject matter but could not communicate because he was behind his peers in English proficiency:

I really did very well in my studies—always one of the top in the class. I used to come up with answers for questions my professor used to give us in undergrad, but my professor used to ask me, “Then why don’t you just come and explain to everybody else how you did that?” But I couldn’t explain it because I couldn’t speak English.

Karen is a definite exception in our study because she does not have enough English proficiency to write about science, so she writes in her native Indonesian language and then translates: “I consider I still need an editor to write manuscripts. I don’t know the right English with its soul. I need to interact often with native English.” Karen is the only participant who first writes the article in her native language and then translates it to English. As she explained, “At first, I use Google to translate and thesaurus.com to find words variation. Then, I make smoother based on my English knowledge.” She is also the only participant in our study for whom science knowledge and English knowledge are two forms of cultural capital that she must access and acquire separately from each other.

Despite their differences, the participants in this second group share two important traits: (a) they have access to more than one language in which they are able to think, write, and talk about

science, and (b) they typically use English when they communicate officially about their research because they realize that doing so is necessary if they want to communicate successfully with expert audiences. Thus, we characterize the English proficiency of this group of participants as *objectified cultural capital*, which Bourdieu (1986) defined as “material objects and media” that can be possessed, “such as writings, paintings, monuments, instruments, etc.” (p. 50). In other words, for this group of participants, English proficiency is more like an object that they possess than a bodily capacity that is internal and intrinsic to their ability to do science. For these participants, then, possessing the object of English proficiency gives them an advantage, but they can also make a conscious choice about how and when to use this object. For example, a writer might possess a computer, which gives the writer a great advantage, but the writer still might choose sometimes to write with pen and paper. By contrast, this element of choice is lacking for the first group of participants, whose English proficiency is more like embodied cultural capital that they cannot separate from their ability to do science.

Transformation From Objectified to Embodied Cultural Capital. A third group of participants reported that they initially learned how to do science in their native language but that they later lost that ability and would have a hard time getting it back. Their comments give us yet another perspective on the relationship between the linguistic capital that is gained through English proficiency and the other forms of capital that are necessary to succeed in the competitive domain of global publishing. The form of capital that these participants gain through English proficiency resembles to some extent embodied cultural capital because they have internalized English to such an extent that they can no longer communicate about science in their native languages.

As one such participant, Dan, commented, “I probably don’t know how to write in Mandarin what I can write in English now because some of the terms, I don’t even know how to

express it in Chinese anymore, because it's so scientific, so specific." He went on to explain why he is not concerned about losing his ability to write about science in his native language:

I guess I haven't worried about that because we haven't thought about going back, but in China – if we're ever going to move back, we're going to go back to Shanghai. So in the scientific world, English prevails, especially for a lot of terms. If I don't know how to say them in Chinese or Mandarin, probably my colleague knows how to say it in English.

Kristina, whose native language is Spanish, echoes ideas similar to Dan's:

In science, I think in English—I cannot speak Spanish in science anymore. Yes—My thoughts are in English. It's funny how the brain works. Now it's very difficult to describe what I'm doing in Spanish. I've tried. I have some friends from other Spanish-speaking countries, and it's a mix of words in English and linkers in Spanish, and it doesn't go very well. But when I was studying there—biology there—I learned everything in Spanish and it was easy for me to write. I considered myself to be a good writer in Spanish by then. Now I don't know because I haven't tried. At least speaking is very hard, so I assume writing will also be harder.

And as she further explained, "There are many things that are totally different and many things I've learned in English and don't know the translation. And many Spanish scientific words I've forgotten because I don't use them anymore."

Whereas some participants seemed indifferent about this loss of ability to communicate science in their native language, a few expressed remorse. Rebecca was one of them:

Yes, so that's a big problem actually. I made an extreme effort to learn chemistry in English when I came here. I learned every [term] that was provided. I read all the books, etc. But then what happened, as the science evolved and I learned more chemistry and I learned everything in English, now I have problem. I have a problem translating chemistry into Hungarian because I don't know the right word or the right expressions and that's a big problem. It would take me an extreme effort to present in Hungarian in my area. So that's definitely a big problem.

She went on to explain that her husband faces the same situation:

We are traveling back to Hungary, and my husband is invited to give lectures at the university in Hungary, and he actually requested if he could present in English because he just can't translate into Hungarian, and they are happy about it because they can learn English....But these are the situations that are awkward. I cannot present in Hungarian. It would take me a lot of effort and I probably wouldn't use the appropriate expressions.

In this third group of participants, we see how fluid the boundaries are between embodied and objectified cultural capital. In making a conscious choice to use English to advance their careers, these participants have gained an English proficiency that eventually transformed into an embodied form of cultural capital that is so ingrained that they have lost their ability to write, think, and talk about science in their native languages.

In the next subsection, we will further expand our understanding of English proficiency as linguistic capital by seeing how that capital can assume different forms, and can take on different meanings, at different times in an author's career.

English Proficiency and Social Capital

We now turn to *social capital*, which Bourdieu (1986) defined as

the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance—or in other words, to membership in a group—which provides each of its members with the backing of the collectivity-owned capital. (p. 51)

In this study, then, social capital can be understood as the advantages that authors gain through the communities and social networks to which they belong. Highlighting an especially important feature of social capital, Smart (1993) established a spectrum in which economic capital, at one end of the spectrum, is the most concrete, measurable form of capital, and social capital, at the opposite end, is the most vague and hardest to measure form:

Social capital is the most tentative and least secure of these forms, while economic capital is the most "objective," certain, and enforceable. Social capital, designating such things as obligations and trust, is by its very nature vague and unmeasurable. Obligation is always potential: once it has been used, it does not exist anymore, and until then, there is no certainty that the obligation or "gift debt" will actually be reciprocated. (p. 392)

Because social capital is fluid, we examine it here more in terms of what it can accomplish at a given time and place than in terms of something that the participants might possess as a tangible

commodity. This emphasis reflects Lillis and Curry's (2010) observation that "success in English-medium publishing seems to depend largely on the extent to which scholars can mobilize relevant resources via networked activity" (p. 61). In this regard, we see interesting variations between participants within each of the groups we discussed. The importance of social capital is apparent when participants described how their social networks have expanded and changed as their English proficiency has grown and how they might use these networks, in turn, to gain the additional knowledge they need to become even more successful. Whereas cultural capital (whether embodied or objectified) stays with them and continually increases throughout their careers, social capital is more fleeting and depends on the author's geographic location at a specific moment.

The importance of social capital can be seen by juxtaposing the experiences of Monica, Paul, and Mark. Monica did not start learning English until she was 18, a much later age than that of most of our participants. Yet she reported that she had published 20 articles. As she told her story, we could see that the social capital she had acquired through being able to interact with top-notch Western scientists had been just as important to her publishing career as the cultural capital she had acquired through her degrees and formal training in English. Furthermore, when talking about academic publishing, she claimed that she did not feel disadvantaged compared to native English speakers. We might speculate that she did not feel disadvantaged because she had received most of her scientific training in locations (Germany, the United Kingdom, and the United States) that have given her great access to social capital as defined by Adler and Kwon (2002): "a resource that inheres in the social network tying a focal actor to other actors" (p. 19). So even though Monica has conducted much of research in periphery locations (Africa mostly), she has enjoyed more mobility than most other participants and has therefore had great access to formal training and other forms of assistance with her English and with publishing more generally. Thus, when Monica talked about difficulties she faces as a scientific author, she mentioned high-level concerns such as questions of

authorship, access to grant funding, and the struggles she has faced as she continues to learn the subtle differences between U.S. and British forms of spoken English. Monica did not mention word and sentence-level struggles as a problem she faces when drafting research articles.

Monica's story bears out the observations of previous researchers who have emphasized the importance of a scholar's geographic location in facilitating acceptance in the scholarly community (Curry & Lillis, 2004; Lillis & Curry, 2010). As for specific resources that she has found helpful in gaining such acceptance, Monica reported that she has attended some conference workshops that helped her understand advanced topics such as Western conceptions of authorship. A topic such as this—Western understandings of authorship—might be viewed as one of those forms of tacit knowledge that NNES authors have to learn, often through informal means, in addition to acquiring English proficiency.

Paul's experience is an interesting contrast to Monica's in that he has many more years of formal training in English but reported having a great deal more publishing disadvantages than did Monica. In sharp contrast to Monica's repeated mentioning of the social networks and connections from which she has benefitted, Paul emphasized the individual agency that has been required for him to succeed: He has had to "grope in the dark." He portrayed this lack of beneficial social networks as a trait that is shared with many of his Nigerian colleagues. For instance, Paul mentioned that he received a grant from his institution to fund his dissertation research but that such is not the case for most of his colleagues; they have to fund it through personal savings or loans. He also described many different strategies he has used to overcome obstacles and to help colleagues do the same. Paul claimed that he has had no formal training in academic publishing even though he has studied English since he was 6 years old: "I have no other alternative than to publish or perish, so it became more or less like a personal determination to me to get as much readings that I can do and to also get support." Paul's story illustrates what authors must do if their geographic locations do

not facilitate access to the social capital that comes from being part of the mainstream scientific community. Paul mentioned some networks that have assisted him. But he mostly emphasized his isolation from the larger global publishing community and the extent to which he has had to seek out these forms of social support.

Mark told a different story, but as a scientist who received most of his early training in a remote region of India, the isolation he described resonates with that described by Paul. Particularly striking is Mark's story about a disadvantage that one of his mentors experienced as a result of his remote geographic location:

He was probably a professor for 20 years. In my personal perception, he was pretty good in English. He did a postdoc at Harvard and all that kind of stuff. But he submitted a paper to a neurology journal, and the editor came back questioning his style of writing and his standard of English, all those kinds of things....I was a little surprised, but people do face those kinds of situations where, if you're part of a community, you would actually—you spend most of your life in Indian science. Then sometimes the way you articulate your science may be different from people from the West.

Karen is another participant who is disadvantaged because of her geographic isolation in Indonesia. As Karen put it, "There are many paid English editor services, but we can't pay because they are too expensive according to our currency. I used that service before, the cost is equal with 1 month of my salary at that time."

In considering the disadvantages that authors such as Paul, Mark, and Karen face due to their geographic isolation, we gain additional appreciation for the advantages that other authors can acquire through social capital. Such advantages can include information, influence, control, power,

and solidarity. The social capital that they acquire through improving their English proficiency in turn grants them expanded access to additional social networks, relationships, and information that further enhance their abilities to succeed in the global publishing economy. Matthew's interview includes an observation that captures this feeling of belonging that authors can derive through social capital. As someone who received scientific training in both English and Swedish from a very young age, he said he felt quite confident in his English usage while he was in Sweden, but when he came to the United States as an adult, he realized it lacked some of the subtleties of the language: "I don't think I was funny in English until maybe 6 months to a year had passed. Being able to quickly come up with a 'your mom' joke at the right time took a while." Thus, in contrast to other participants who reported feeling disadvantaged at times because of their remote geographic locations, Matthew reminded us that a certain amount of safety and security can be lost, at least initially, when an author moves to what might seem like a more advantageous location.

Additional features of social capital become apparent in the stories of another group of participants who did not start out in locations that granted them social capital but who moved to a different geographic location or a different organization where they acquired forms of social capital that they acknowledged to be contingent and subject to change. For instance, Kristina seemed to have a lot of access to mentoring and editing assistance, probably as part of her position in the organization at which she was currently employed. She acknowledged that this situation could change if she would ever move to a different organization. And Rebecca, who earned a PhD in organic chemistry at a university in Hungary, explained that in the U.S. pharmaceutical industry in which she currently worked, she had access to a lot of institutional assistance and resources. Because of this access, the difficulties she described would be difficulties that any scientist faces, regardless of their English proficiency:

The biggest general challenge is to identify the ideal compound that has good enzymatic activity, cellular activity in vivo and the ideal properties. Because there is no perfect molecule but you have to put multiple things together in order to have a drug molecule. Achieving all the ideal properties at the same time in one compound is a very big challenge.

Rebecca also talked about the various forms of assistance she has had with her scientific writing since moving to the United States. In particular, she described the collaborative process of preparing for presentations, in which she received assistance from individuals at all levels:

We do these presentations and we prepare for it. And I feel like not only what we say, but also what we put on the slides matters a lot....The data and results—so what goes on the slide requires a lot of effort. I personally have discussions with the head of drug discovery, and he approves what I put on the slides, and he also gives me input on what he thinks and how I should convey what I should say.

Kristina and Rebecca's stories, once again, reflect the point about how authors' access to social capital can be affected by their geographic and organizational location, as scholars such as Canagarajah (2002), Curry and Lillis (2004), Lillis and Curry (2010), and Salager-Meyer (2008) have emphasized.

Discussion

Piller and Cho's (2013) idea of English proficiency as a marker of individual success for NNES scientists is certainly borne out in our interviews—to such a great extent that most of our participants reported that they depend on English to be able to think, talk, or write about the health

or medical research that they conduct. But because of the diversity of experiences that emerge in our participants' stories, we also see a lot of variation in the types of capital that authors can accrue through gaining and improving their English proficiency. For our participants, English proficiency does not always function strictly as linguistic capital in Bourdieu's (1986) sense of that concept. Rather, as we have made clear, English proficiency is sometimes better characterized as objectified cultural capital, and over the course of an individual author's career, the cultural capital that the author gains through English proficiency shifts to take on different forms and functions, depending on the situation and on the author's geographic location. Furthermore, our participants' experiences make clear that we have to consider not only cultural capital; we also must account for the ways that English proficiency interacts with social capital. This aspect of our authors' experiences is best understood as an iterative relationship in which the authors sometimes use their English proficiency to increase their social capital but sometimes use their social capital to increase their English proficiency. And in contrast to cultural capital, the social capital that they accrue through English proficiency is much more contingent, fluid, and subject to change as their careers progress and as they move to different geographic locations.

The fluidity of capital and the ease with which forms of capital morph into each other, both for individual authors and for our group of participants, substantiate recent efforts to expand on Bourdieu's (1977, 1982, 1986) theorization of the forms of capital. Given that this theorization unfolds over texts that span several years of Bourdieu's scholarly career, it is perhaps not surprising that recent theorists who explicate Bourdieu's forms of capital have identified inconsistencies in his scheme and slippage in the forms of capital. Smart (1993) presented this instability and slippage as inherent strengths of Bourdieu's scheme and even questioned some scholars' assumptions that the scheme was ever intended to be based on a foundational economic form of capital. Instead, Smart asked us to consider the possibility that capital is inherently metaphorical, whether in its basic

economic form or in any of the other forms it can assume as it travels from one individual or group to another. To illustrate, Smart offered the compelling example of the topics that financial experts debate:

When accountants argue about how to calculate rates of depreciation, the market value of a company's goodwill, or the brand equity of products of a company involved in a merger or takeover...and when billions of dollars are spent yearly to create a product's image, we can hardly claim that economic capital is unproblematic and involves only "real, measurable entities." (p. 391)

Echoing Smart's reflections about the metaphorical nature of capital, we began our study with the basic premise that English proficiency functions as linguistic capital—a premise that has been solidly established in previous scholarship. But through the analytic process, we came to understand how easily the boundaries between forms of capital can blur as English proficiency interacts with other forms of capital and even morphs from one form of capital to another during the course of an author's scholarly career.

These theoretical contributions of our study connect in important ways to the previous literature on this topic. Despite the variation in their approaches and conclusions, much of the previous research is motivated by a shared assumption that NNES authors face some level of inherent disadvantage in the international arena of scholarly publishing and that this disadvantage is a result of their lack of English proficiency. In most studies, this disadvantage or burden is construed as something that exists outside of the author, as opposed to the author's personal identity. A less common, but important, trend in linguistics scholarship is that some researchers are beginning to question the assumption that the lack of English proficiency is in itself an inherent

disadvantage that can be understood and remediated as a singular phenomenon. Calling this assumption into question, for instance, Ferguson et al. (2011) encouraged researchers to “underline the problematic nature of a coarse native-nonnative dichotomy in matters of academic publication” and “to argue for a more nuanced, more circumspect view of linguistic disadvantage, language being a hampering factor, not always or necessarily a key one, but one that in combination with others can amount to a significant obstacle” (p. 43). This position is corroborated by Uzuner’s (2008) comprehensive review article, which covers 39 empirical studies, revealing that a complicated set of factors, including research infrastructure, geographic location, and socialization into the scholarly community, determine the extent to which any individual NNES author will be hampered by a lack of English proficiency. Along similar lines, Lillis and Curry (2010) argued that we need to “[shift] the emphasis away from straightforward divisions—between Anglophone centre and Anglophone non-centre, between centre and ‘periphery,’ between monolingual and multilingual” (p. 163).

By exposing these different forms of capital, and the ways in which English proficiency functions as different forms of capital at different times, our study thus reinforces the findings of those scholars who suggest that we must go beyond linguistic capital to consider more than just the discrete linguistic challenges that such researchers face. Toward the goal of achieving this more complex perspective, we have exposed that for most of our study participants, the mandate to use English in their scientific writing is not a force that exists outside of their identities as scientific authors, as it has been depicted by linguistics researchers such as Piller and Cho (2013), who emphasized that the English mandate is the result of a silent but powerful “language policy” imposed by the rise of neoliberalism and globalization, or Hasrati (2012), who used Bourdieu’s concept of “symbolic violence” to express something similar about the mandate to publish scientific research in English. Rather, in our study, all the participants except Karen reported that they have internalized English to such an extent that they do not know how to write, think, or talk about their

health or medical research in any language other than English.

To understand the implications of our study for technical communication research and pedagogy, it is useful to emphasize the wide variety of skills that participants in our study demonstrated and to reflect on the practices that they report using in order to acquire and refine these skills. Such skills include English proficiency but, as we have demonstrated, they also include many other forms of scholarly and practical know-how. In particular, participants who reported struggling to write academically in English seemed to report that their success as scholarly authors depends on knowing how to find the resources they need to compensate for this perceived deficit. As we have demonstrated, Bourdieu's (1986) concepts of social, cultural, and linguistic capital usefully illuminate the different types of material, economic, and social resources that grant these participants (some more than others, of course) the capacity to overcome their disadvantages and the rhetorical practices through which they are able to use these resources. An important feature of Bourdieu's concepts that our study demonstrates is that we cannot look at these resources as just skills or material entities that individual authors either possess or do not possess; such literacy practices (both institutional and individual) are fluid and both constrain and enable these participants.

Taken collectively, our participants' abilities to think, write, and produce science in English, seem more appropriately characterized as transnational scientific literacy—a more comprehensive view of their abilities than might be suggested by thinking strictly in terms of English proficiency or linguistic capital. As Rounsaville (2014) stated, studies of transnational literacy begin with the assumption that literacy is both “situated” and “dispersed,” and the goal of such studies is to examine “how transnational movement affects everyday writing practices” (p. 333; see also Warriner, 2007). Our study's main contribution to the literature in professional and technical communication, then, is to illuminate the ways in which these participants' transnational literacies are transformed as

they progress in their careers and move to new geographic locations by examining the different ways that English proficiency functions as cultural and social capital. Along these lines, we see evidence of Lorimer Leonard's (2013) observation that transnational literacy is not durable; rather, it is transformed as authors move around the world, working at different jobs in different geographic locations. A clear example of this transformation in authors' literacy practices is when participants reported that English has become so entrenched in their research that they have lost their ability to communicate science in their native language.

As educators, if we want to work toward a pedagogy that would truly teach transnational literacy skills to NNES authors, we need to train such authors to access the social networks and communication skills that they need to gain access to scientific publishing communities; such skills and access are especially important, as our study suggests, for authors who are more isolated because of their geographic location. Although a few recent articles in linguistics journals urge instructors to teach a wider variety of literacy practices (Huang, 2010; Pérez-Llantada et al., 2011; Uzuner, 2008), most linguistics literature still suggests a pedagogy that reflects a quite narrow definition of literacy—one that limits literacy to skills in reading, writing, and crafting research articles but not in the broader array of rhetorical practices that our participants reported as crucial to their success (see, e.g., Belcher, 2009; Cargill & O'Connor, 2006; Cho, 2009; Stoller & Robinson, 2013). As teachers of professional and technical communication who continue to heed the call for globalized classrooms (e.g., Bokor, 2011), we might make a conscious effort to expand how we define these authors' literacy practices and needs.

To help us achieve these goals, our findings about the participants' experiences in thinking and doing science in English might be extremely useful. After conducting ethnographic research in a physics laboratory, Wickman (2015) concluded that "locating the semiotic power of writing in science requires close attention to the distributed processes through which scientists construct and

communicate about their objects of study” (p. 86). Wickman’s recent study builds on a long tradition of ethnographic research that establishes the centrality of writing in producing scientific knowledge. Although this is a rich tradition of research that has been conducted in multiple geographic and disciplinary locations, such research has been conducted almost exclusively in Western nations and with participants who are native English speakers. Thus, our participants’ diverse narratives suggest how we might incorporate international and intercultural perspectives into communication researchers’ previous understandings of the science - language relationship.

Because the importance of writing to producing scientific knowledge has not received much attention in the linguistics literature on NNES academic authors, expanding our international and intercultural understanding of the science - language relationship positions us to make important contributions to that literature as well. Specifically, our findings have important implications for research and pedagogy in professional and technical communication in that they help us understand the thought processes that underlie NNES authors’ scientific research and writing. These findings resonate with Annous and Nicolas’s (2015) conclusion, based on their study of a business school curriculum at a Lebanese university, that English language instruction is most effective when it is integrated across the different subjects that students study in the university rather than isolated in a single, language-focused class.

Our findings also have implications for stakeholders beyond the field of technical communication, such as in the global publishing industry. As Canagarajah (2002) has observed, the academic publishing enterprise plays an important “gatekeeping role,” and “those who have access to this forum have an advantage in the knowledge-production industry” (p. 76). Thus, those people who wield power in this system, including journal editors and corporate publishing executives, occupy an especially important position from which systemic change can be enacted. Enacting changes to democratize the overall system of global publishing is important not only because it

benefits scholarly researchers in periphery nations, Canagarajah argued, but because it enriches the knowledge that is available to all of us: “Engaging in one-sided knowledge production is not only unethical, but it is impoverishing for all of us” (p. 264). Along these lines, in thinking about what institutions such as universities might do, we might consider institutional efforts that facilitate transfer of information and skills not only from the center to the periphery but also in the opposite direction. What would it look like, for instance, to host a seminar that invites scholarly authors from periphery nations to educate well-established scholars from center nations on the obstacles that these authors face and the new knowledge they are producing in spite of these obstacles? How might such a seminar awaken all of us to new possibilities for redesigning the whole system of global knowledge production?

In his concluding chapter, Canagarajah (2002) discussed examples of individuals who have implemented innovative solutions to facilitate knowledge transfer between center and periphery nations. In all cases, these solutions have involved a willingness to travel back and forth between the center and periphery locations and to come to understand multiple perspectives within the complex context of global publishing. As Canagarajah said of one such journal editor, “His understanding of the local culture and the difficulties scholars face in writing has enabled him to adopt publishing practices that are more flexible and supportive” (p. 266). This editor has founded an “alternative journal” titled *Lanka* that is specifically devoted to enabling researchers in Sri Lanka to publish articles reporting their findings. With such a specific focus, the editor has customized the journal’s publishing practices in ways that benefit these particular researchers and, in so doing, established a venue in which this knowledge, which would otherwise remain hidden from global audiences, can reach the world.

Canagarajah (2002) clearly believed that periphery scholars have a moral obligation to their native communities and that when they travel to center locations to benefit their own careers, they also need to give back to their local communities:

Many consider such responsibilities as irrelevant to their work. Given the limited information flow between the center and the periphery, and the limited opportunities for travel, these visiting scholars have to consider themselves representatives of their community while they are abroad, imbued with a clear sense of accountability to the professional and intellectual advancement of their colleagues at home. (p. 292)

This idea and Canagarajah's overall emphasis on the need for periphery scholars to adopt hybrid perspectives are interesting in relation to our findings about NNES authors who reported that they have lost their ability to communicate with native audiences. Along similar lines, Lillis and Curry (2010) emphasized the importance of mobilizing local and transnational networks. Their research with authors working outside of the Anglophone center of academic publishing suggests that both local and transnational networks, each in their own way, are important for these authors, and Lillis and Curry concluded that the most successful authors are those who are able to sustain both network types.

This back and forth movement between center and periphery, as expressed by Canagarajah (2002), or between local and transnational networks, as expressed by Lillis and Curry (2010), relates interestingly to our findings about the participants who expressed that they initially lost a great deal of social capital when they moved from periphery to center nations. In some cases, the participants

seemed to feel that it was a worthwhile trade-off, because they eventually acquired new forms of social capital that were much more effective than were the old forms they possessed when they were more strongly tied to their native communities. These participants seemed indifferent about the fact that they may have lost the ability to communicate science in their native languages. But some of the participants did express regret about this situation, and this regret appears especially significant in light of Canagarajah's and Lillis and Curry's emphasis on the need for scholars who move from periphery to center to maintain ties with their native communities. Of course, as scholars of technical communication, we need to avoid making moral judgments about either of these responses. Thus, the obligations of NNES authors to their native communities pose an important ethical dilemma that should be further explored in future technical communication research.

Conclusion

We invite teacher - scholars to keep this ethical dilemma in mind as we continue these important lines of research and pedagogical innovations, but we hope that our interview results offer a useful starting place. Research in this area answers Condit's (2013) call to achieve a more international focus in our research on health and medical rhetoric. At the same time, though, as technical communication scholars, we are uniquely positioned to make important new contributions to the knowledge base that has developed through decades of research on the NNES author's situation, much of which has been generated by scholars in linguistics and related fields, but not in technical communication. Rather than just looking at the disadvantages of being a NNES scholar, we have strived to expose the specific dynamics of the linguistic disadvantages in relation to multiple forms of social and cultural capital to which these individual authors may or may not have access. By taking this approach, we have focused not only on our participants' disadvantages but also on the

strategies and rhetorical agency that they employ to overcome the obstacles they face and to look at the different forms of rhetorical agency that they possess.

Along these lines, our study echoes Lillis and Curry's (2010) emphasis on the many different possibilities and opportunities for periphery scholars—not just to increase their English proficiency but to acquire the other forms of capital that must interact with linguistic capital to ensure publishing success. And perhaps in light of such findings, we will eventually need to redefine success so that it is not just about one individual author getting published despite many obstacles but about improving the overall knowledge-production process in ways that will more consistently acknowledge the contributions of scholars across the globe.

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Authors' biographical notes

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Notes

1. *Center* and *periphery* are terms coined by Wallerstein (1991) as part of his world systems theory for explaining the different ways in which more and less developed nations, respectively, participate in the world economy. These terms have been adopted by scholars such as Canagarajah (2002), Lillis and Curry (2010), and Salager-Meyer (2008) as a way to designate the different locations from which NNES authors engage in the global publishing economy.
2. Gill and Babrow (2007) had a similar approach to the relationships between theory, data, and analysis. Although their theory and subject matter are entirely different from ours, their methodological approach served as an exemplar for our study.

Look for: Search In: figure 1 Find Now Clear Advanced Find X

Name	Sources	References	Created On	Created By	Modified On	Modified By
cultural capital	22	94	5/10/2015 11:49 AM	AK	10/20/2014 8:21 AM	AK
writing distinct from science	15	75	5/10/2015 11:49 AM	AK	10/20/2014 9:25 AM	AK
But science is a process of constant communication, right	1	7	5/10/2015 11:49 AM	AK	10/20/2014 9:21 AM	AK
Western publishing conventions	5	31	5/10/2015 11:49 AM	AK	10/20/2014 9:54 AM	AK
variation within English	4	22	5/10/2015 11:49 AM	AK	10/20/2014 9:03 AM	AK
thinking in english	15	71	5/10/2015 11:49 AM	AK	10/20/2014 9:56 AM	AK
embodied cultural capital	4	12	5/10/2015 11:49 AM	AK	7/21/2016 6:34 AM	AK
objectified cultural capital	8	35	5/10/2015 11:49 AM	AK	7/21/2016 6:34 AM	AK
resistance to English	2	6	5/10/2015 11:49 AM	AK	10/20/2014 9:28 AM	AK
I never looked at English as a foreign language.	1	1	5/10/2015 11:49 AM	AK	10/20/2014 8:16 AM	AK
I look at it more like an advantage than a problem.	1	1	5/10/2015 11:49 AM	AK	10/20/2014 8:15 AM	AK
I don't feel French the way I feel Hebrew and English. I'	4	16	5/10/2015 11:49 AM	AK	10/20/2014 9:56 AM	AK
lost ability to do science in native language	6	15	5/10/2015 11:49 AM	AK	10/20/2014 9:55 AM	AK
linguistic capital	1	1	5/10/2015 11:49 AM	AK	10/20/2014 9:47 AM	AK
how much published	12	15	5/10/2015 11:49 AM	AK	10/20/2014 9:04 AM	AK
benefits of being bilingual	2	5	5/10/2015 11:49 AM	AK	10/20/2014 9:28 AM	AK
authorship	11	48	5/10/2015 11:49 AM	AK	10/20/2014 9:21 AM	AK
access	5	13	5/10/2015 11:49 AM	AK	10/20/2014 8:21 AM	AK

AK 18 Items

Figure 1. This screenshot from NVivo 10 shows the *cultural capital* node in our final coding structure. The node structure encompasses multiple levels, with *cultural capital* at the top level, and additional levels of subnodes. The Sources column indicates how many of our artifacts include at least one reference to the node, and the References column indicates how many total places in these artifacts are referenced at the node.

Look for: Search In: figure 2 Find Now Clear Advanced Find X

figure 2

Name	Sources	References	Created On	Created By	Modified On	Modified By
social capital	7	20	5/10/2015 11:49 AM	AK	10/20/2014 9:56 AM	AK
writing as social	7	20	5/10/2015 11:49 AM	AK	10/20/2014 9:56 AM	AK
scholar's location	6	33	5/10/2015 11:49 AM	AK	10/20/2014 9:54 AM	AK
more than one audience	4	15	5/10/2015 11:49 AM	AK	10/20/2014 9:16 AM	AK
humor	1	1	5/10/2015 11:49 AM	AK	6/12/2014 5:22 PM	AK
cross-cultural understandings	4	26	5/10/2015 11:49 AM	AK	6/5/2014 2:07 PM	AK
becoming part of community	20	94	5/10/2015 11:49 AM	AK	10/20/2014 9:56 AM	AK

AK 7 Items

Figure 2. This screenshot from NVivo 10 shows the *social capital* node in our final coding structure. The Sources column indicates how many of our artifacts include at least one reference to the node, and the References column indicates how many total places in these artifacts are referenced at the node.

Figure 1. This screenshot from NVivo 10 shows the *cultural and social capital* node in our final coding structure. The Sources column indicates how many of our artifacts include at least one reference to the node, and the References column indicates how many total places in these artifacts are referenced at the node.

Table 1. Study Participants.

Pseudonym	Occupation	Native Country	Degree	Current Research	Native Language	English Training (years)
Kristina	PhD student	Chile	BSc	Protein - protein interaction	Spanish	1
Rebecca	Research scientist	Hungary	PhD	Medicinal chemistry: cancer drugs	Hungarian	3
David	Basic research	China	PhD	Functional analysis of protein arginine methylation	Chinese	12
Monica	Consultant	Germany	MD, PhD	HIV prevention	German	6
Karen	Lecturer	Indonesia	MS	Health promotion and nutrition	Indonesian	0
Olivia	Group leader	Italy	PhD	Cancer drug discovery	Italian	13
Nick	Drug discovery	Taiwan	PhD	Drug discovery: neurodegenerative diseases	Mandarin	10

Paul	Lecturer	Nigeria	MSc	Aging and sexuality	Yoruba	18
Matthew	Software developer	Sweden	PhD	Machine learning algorithms	Swedish	9
Alex	Postdoctoral	Israel	PhD	Evolution	Hebrew	20+
Dan	Director of translational research operations	China	PhD/ MD	Oncology clinical trials	Chinese	28
Mark	Biological scientist	India	PhD	Cancer research	Telugu	27

Appendix A: Demographic Questionnaire

1. What is your first and last name? How would you like us to address you during the interview and in e-mails?
2. Where are you currently employed, and what is your job description?
3. How long have you been employed in this position? Did you hold another research-related job prior to your current position?
4. What academic degrees have you earned?
5. What is the topic of your current research?
6. What is your native language (or languages)?
7. How many years of formal training in English have you completed?
8. What other countries have you lived in?
9. What languages do you speak?

Appendix B: Interview Questions

1. What is the topic that you are currently researching, and how did you become interested in this topic? (Possible follow-up questions: How long have you been researching this topic, and have you previously done research on other topics?)
2. What stage are you at in the current research project, and what is the biggest challenge you feel that you face at this stage?
3. How would you describe your proficiency in both written and spoken English? (Possible follow-up questions: How did you learn English and at what age? Have you tried to improve your English? If yes, how—(classes, by experience, by mimicking others' writing?))^[KA1]
4. How many articles have you drafted in English, and how many articles have you submitted to English-only journals?
5. How would you describe the experiences you've had in drafting articles for English-only journals? (Possible follow-up questions: Have reviewers and editors provided helpful feedback? How do you think they could make this feedback more helpful?)
6. Please describe the process that you follow when you draft a research article and submit it to a peer-reviewed journal. Is your writing process different when you write in English than when you write in your native language?
7. What is the hardest part of writing and why?