EAP WRITING SUPPORT FOR THE RESEARCH PROCESS: QUESTIONS AND EMERGING ISSUES

Christine B. FEAK[1]

Abstract

As researchers continue to face pressures to publish their work in English-medium journals, the need for EAP writing specialists to provide support for this process continues to be of increasing importance. We have come quite far in our ability to help doctoral students navigate their way through their degree programs and become full participants in their chosen own fields. Successes aside, however, we must always question whether and how we are meeting their writing communication needs. This involves deepening our understanding of the research writing challenges faced by the new generation of scholars, which are becoming progressively more complex. This complexity can be attributed to a number of factors such as the students themselves, the increasing importance of interdisciplinary research, emerging research genres, and new audience with whom researchers are expected to engage. Adding to this complexity is the reality that the writing mentoring doctoral students receive may be inadequate. This paper discusses these issues and proposes that EAP writing instructors can play an invaluable role in helping doctoral students and other research writers gain an enhanced set of knowledge brokering skills that will allow them to transport and translate their research across many boundaries. In doing so, we can also model the kind of mentoring approaches that the current generation of scholars can enact to support the research writing of successive generations of scholars.

Keywords: English for Academic purposes, writing for publication, doctoral students, mentoring

1. Introduction

The publication output of researchers worldwide is growing at ever increasing rates (Solomon, Laakso, & Björk, 2013). Indeed, since 1945, research publication has grown 8-9% annually. This amounts to an approximate doubling of research nearly every nine years (Bornmann & Mutz, 2015), which translates into an increase from roughly 1,350,000 published papers in 2006 to just under 2,700,00 papers in 2015. As might be expected, much of this publication work is emerging from countries where English is the official language (or functions as the official language)[2]. This would seem to support the widespread belief that researchers who do not use

[1] Christine B. Feak, University of Michigan, Ann Arbor, USA, cfeak@umich.edu

[2] The United States has not designated an official language, although for all practical purposes it is American English.

English as their L1 are greatly disadvantaged when it comes to publication. But, if we take a look at actual publication statistics, we see most research publications now come from non-Anglophone countries. In 2014, the top five producers of citable papers were, in order, the United States, China, the United Kingdom, Germany and Japan. Collectively, these countries produced approximately 1,320,000 papers, but slightly less than half of these were from the United States and the United Kingdom, a shift from a decade ago. The United States in particular is experiencing a decline in its *percentage* of total global publications from around 35% in 1996 to just over 20% in 2014 (SCImago, 2016). Other Anglophone countries are experiencing similar reduction in their slice of the research pie.

The decline in the percentage of global research output of Anglophone countries is not necessarily a sign of the diminishing quality of research vis-à-vis that of other countries, but due to a complex set of factors. These include the growth in the number of refereed scholarly journals, estimated in 2002 to be just over 17,500 in 2002 and conservatively estimated in 2011 to be roughly 58,000 (Cope & Phillips, 2014); the overall growth in the number of researchers (Lamb, 2004); increases in discoveries worthy of publication (P. T. Carroll, 1986); and the pressures to publish for career advancement (Lawrence, 2003).

The pressure to publish is particularly relevant as this now generally entails the burden of publishing in an English-medium journal that has a high impact factor as well as a rigorous peer review protocol. While the issue of English hegemony is an extremely important issue, I will set this aside for another time and instead focus here on English for Academic Purposes (EAP) support for scholarly publication, particularly the challenges that we face as practitioners who are responsible for research writing support. Attention to these challenges is worthwhile because even if researchers in non-Anglophone countries are successfully publishing in English, the pressures to publish in English will continue to escalate, raising questions of how we can meet the EAP communication needs of the current and future generations of scholars.

2. What Research Writing Support is Available?

The range of writing support for English as an Academic Language Authors (EALA) varies considerably worldwide. EALA may have access to nothing but convenience editing (Willey & Tanimoto, 2013) by "text shapers" (Burrough-Boenisch, 2003) or other literacy brokers (Lillis & Curry, 2006) considered to have the requisite knowledge of English to ready an article for publication. These individuals may be peers within or outside a department and in some cases are EFL instructors. Regardless of who is helping, the support is ad hoc. At the other extreme, EALA may have tremendous resources such as those provided by Department of International Medical Communications at Tokyo Medical University, which offers "in-house support for medical writing, and the flow of the

information from within Japan to the outside" (Editage, 2014). In between, we have countless numbers of EAP research writing courses and workshops offered by various kinds of departments.

In the case of EAP research writing courses, we are very fortunate to be able to draw from an abundance of research to inform our teaching. My goal here is not to provide an extensive overview of this body of work, but central here, of course, is research on genre, especially Swales' seminal work, *Genre Analysis* (1990), along with other major studies of genre, too numerous to mention[3], studies in Corpus Linguistics[4] and analyses of social practices both within local institutions and globally[5]. This important work has informed EAP coursework and materials that are data driven (Johns, 2002); consider, for example, *Academic Writing for Graduate Students* (Swales & Feak, 2012) among others. Were it not for data driven EAP writing courses, many EALA would perhaps face even greater obstacles to their publication efforts. I say this because often little explicit guidance is provided in content courses to help doctoral students and junior scholars develop their research writing (or speaking), a point that I will take up again later. Indeed, it is often assumed that someone else should and will deal with writing and speaking in research contexts or that doctoral students will somehow figure this out on their own via a process of osmosis. This learning through exposure perspective was quite dominant in the United States over a decade ago. However, fortunately, there is increasing recognition of the need for doctoral writing support for all students, with major initiatives being spearheaded by the doctoral students themselves, graduate schools as well as such groups as the Consortium on Graduate Communication (CGC), "an independent community of educators who provide professional development in academic written and oral communication to [all] (post-) graduate students before and during their master's and doctoral degrees (Consortium on Graduate Communication, 2014). Such initiatives are essential because, after all, no one is proficient in academic English at the onset of a doctoral program and all doctoral students and junior scholars struggle with the publication process regardless of their L1.

3. What Challenges to Offering Support Exist?

What was relevant 20 years ago may not necessarily fit the needs of today's EALA. As someone who is responsible for quite a number of EAP research writing courses, I find that it is increasingly more difficult to know what to teach in a course designed to prepare doctoral students pursuing an academic career and *when* to teach it. Compounding the challenge is the discouraging reality that even when we think our courses provide ample opportunities for writers to develop their

[3] See Paltridge (2014) and Hyland & Shaw (2016) for overviews.
[4] See Charles et al. (2011), O'Keeffe & McCarthy (2010) and Timmis (2015) for overviews.
[5] See Duff (2010), Zappa-Hollman & Duff (2015) and Hyland (2013) for more information.

research writing skills, there is no guarantee that the learning that may have taken place will transfer to new writing contexts. This seems to challenge a core assumption of EAP writing classes, namely that what students learn will be readily *reused* or *transferred* for other high stakes academic writing. Put another way, a typical aim of our EAP writing instruction is "to enable students to write better not for writing classes, but for other purposes" (Leki & Carson, 1997, p. 39). While a small body of literature suggests that students are able to apply prior learning in a writing course to fit new writing contexts (L. A. Carroll, 2002; McCarthy, 1987; Walvoord, McCarthy, & Robison, 1990), most evidence suggests that previous learning tends not to be extended to new writing tasks (DePalma & Ringer, 2011; Ferris & Hedgcock, 2004; Smit, 2004; Wardle, 2009). The lack of transfer has often been attributed to the differences in writing processes that writers undertake within new contexts (e.g. EAP course writing assignments are quite different from the writing required in a content course). In the case of EALA, other factors affecting transfer include their overall level of proficiency in English, as well as exposures to relevant genres (Ferris & Hedgcock, 2004). Now, we might think that the lack of transfer raises serious questions about the value of EAP writing support for EALA. But this would be incorrect. What it does indicate is that a single research writing course is not enough. It also points to the need to pay closer attention to the factors that can influence the effectiveness of research writing coursework and support for doctoral students and other EALA. Matters of proficiency aside, let me turn to some practical issues that deserve our attention.

Doctoral students and writing baggage

Regardless of the importance of writing to support a research career, it is widely accepted that most students do not particularly enjoy writing. In fact, many students fear writing and carry into the writing process and our EAP writing courses quite a lot of writing baggage[6] (Elkins, 1998). Because this writing baggage has the potential to affect writing success, it is important to know what is in it. Possible content includes previous writing success and/or failure (Chittum & Bryant, 2014) and the writer's image of him- or herself as a writer—whether good or bad (Elkins, 1998). Packed alongside these major influences are procrastination, perfectionism, conformity, dread, self-doubt, and even fantasies of a world where they do not need to write or where their writing will not be evaluated (Elkins, 1998). Many of these burdens have accumulated over years of coursework in which students have become conditioned to see writing as an activity where some illusive state of perfection was the goal, and one in which being grammatically correct appears to be more important than saying something worthwhile. When we teach research writing, we need to consider students' attitudes and prior experiences because whatever is in their baggage, it will work its way into writing. In light of this, our writing coursework and feedback needs to be structured in such

[6] My use of baggage here refers to emotional baggage, i.e. unresolved problems or issues from the past that have a negative effect on the present.

a way that does not add to, but instead begins to unpack the baggage and be truly supportive of doctoral students and other EALA.

Doctoral student background

Apart from the emotional baggage, yet another challenge to developing research writing support is related to the tension that exists between knowledge telling, typical of undergraduate writing, and the complex and cognitively demanding activity of knowledge-transforming in which expert writers engage (Scardamalia & Bereiter, 1987). This tension is not unexpected when we consider that throughout their undergraduate education students are accustomed to writing within the secure boundaries of their professors' lecture content and course texts. Indeed, for most undergraduate students and beginning doctoral students, academic source texts, whether spoken or written, are founts of knowledge (Geisler, 1994) whose content is imparted to display mastery of it. At the doctoral level, moving beyond this comfortable space of knowledge transfer requires a considerable effort on the part of students who now are expected to add a "rhetorical dimension" to their content knowledge that consists of knowing "when, where, to whom and how to communicate" (Jacobs, 2007, p. 62).

This process of adding a rhetorical dimension to writing also means that doctoral students need to undergo a shift in their identity from that of a knowledge user to that of a knowledge creator. Supporting this process again requires us to have a good understanding of our doctoral students. Our students are not simply less knowledgeable members of their disciplines. They are individuals with histories. Research shows that students pursuing doctoral degrees are today a much more diverse group than they were several decades ago (Gardner, Jansujwicz, Hutchins, Cline, & Levesque, 2012). In some cases, they may be complete newcomers to their chosen fields. Students may be discipline changers, who have abandoned their undergraduate majors (Ondrusek, 2012). Within this group, there may also be career changers, who have had a career in one area that they are leaving to pursue new interests. This is not uncommon for those working in science, engineering and technology fields who decide to become science schoolteachers or professors in Education to promote good science teaching. Career-changers are typical in Business Finance Ph.D. programs, which often accept students from the engineering disciplines. Students entering graduate school from such diverse backgrounds may have very limited experience writing in their new disciplines; have been away from academia for some time; and have little more than their undergraduate writing experience to draw on. Even when discipline and career changers have extensive writing experience, they may be struggling to make sense of the writing practices of their new chosen fields (Feak, 2016). Important here is that we need to abandon the assumption that doctoral students have an "untroubled sense of scholarly identity" (Khost, Lohe, & Sweetman, 2015, p. 21) and acknowledge that doctoral students and EALA may have conflicting and or incompletely developed writing persona.

Interdisciplinarity

A further challenge in developing writing support is related to changing research climates that increasingly value interdisciplinary work or that have embraced such work as the norm. While doctoral students still need to acquire the knowledge and expertise in one core area, they often must also become "adaptable, flexible, and capable of smooth transitions across disciplinary boundaries as they collaborate on projects with colleagues" (Guerin, 2013, p. 138). A graduate student in Information Science who is conducting research on health information systems for clinics, for example, may need to work with team members from cardiology, mechanical engineering, and mathematics. Another graduate student in Applied Mathematics may be collaborating with others in biology, medicine and pharmacy in efforts to create mathematical models of sleep, biorhythms and medication uptake. Whether this work is multidisciplinary, interdisciplinary, transdisciplinary, it reflects the perspective of knowledge as something that "feeds in from different directions, but is not hierarchical" (Guerin, 2013, p. 139). Within such a research environment doctoral students and EALA working among different academic tribes and territories may see them as all the same and lack of sensitivity to disciplinary traditions and idiosyncratic practices (Becher & Trowler, 2001). While some of this confusion may arise because disciplines themselves are fluid and boundaries are unclear, it is also attributable to students often not recognizing the thinking, reading and writing practices specific to their core discipline. But, these days even understanding the writing practices of a single discipline is not without its own challenges. Take Chemistry, for instance. Within this discipline one will find the following broad areas.

Analytical Chemistry	Material Chemistry
Chemical Biology	Organic Chemistry
Inorganic Chemistry	Physical Chemistry

Nested within these we then find further sub-disciplines.

Bioanalytical Chemistry	Nano Chemistry, Optics and Imaging
Bioinorganic Chemistry	Organometallic Chemistry
Bioorganic Chemistry	RNA BioChemistry
Biophysical Chemistry	Sensor Science
Computational/Theoretical	Surface Chemistry
Energy Science	Sustainable Chemistry
Environmental Chemistry	Ultrafast Dynamics

Within this research and writing context, it can be difficult to determine what is core and what kind of writing instruction can help doctoral students and EALA learn the rules of the interdisciplinary writing game, rules that may even be opaque to advisors. In many instances, advisors may be unable to provide writing

mentorship since they may not possess the discoursal expertise needed to help students gain some sensitivity to the 'unique thought processes' and disciplinary traditions that are valued in academic writing (Feak, 2008; Swales, 1990; Zhu, 2004).

New Genres

A further challenge in designing research writing courses is related to the research genres themselves. While we can safely assume that EALA will continue to write research papers, this genre is changing and new genres are becoming more important. Currently, the online journal research article is a "stabilised-for-now or stabilised-enough" genre (Pérez-Llantada, 2013), but we do see evolution in such areas as required research highlights, which, depending how Internet searches are done, may be more visible to online readers than are article abstracts. Another important innovation here is the emerging requirement that authors produce a lay abstract that is published alongside a traditional abstract, the goal of which is to increase public awareness of and facilitate access to research. Lay abstracts are becoming increasingly common in a variety of disciplines, but especially so in the broad area of medical research. The *Journal of the National Cancer Institute*, for instance, states that all articles must include an abstract that is "readable by nonspecialists as well as by experts in the particular field" (Journal of the National Cancer Institute, 2016). I offer an example here from an article in *PDA Journal of Pharmaceutical Science and Technology*, which first presents the traditional abstract followed by the lay abstract. For the purposes of illustration, here they are placed side by side for ease of comparison.

This new genre, which has yet to be explored in the EAP writing literature, varies considerably among the different journals in which they appear. In some cases, the lay abstract may be a few sentences, while in others it may be similar in length to a traditional abstract. There is also variety in terms of the content, which again in some cases, mirrors that of the traditional abstract (i.e. includes background/purpose, methods, results and conclusion), and in others may reformulate the content quite differently (for instance: situation, problem, solution/addressing the problem and conclusion—similar to the above example). Regardless of the differences, effective lay abstracts are expected to be "relevant to the intended audience while striking the right balance between a detailed scientific explanation and oversimplification" (Dubé & Lapane, 2014, p. 577). This is quite a challenge and points to the need for research so that this genre can be incorporated into research writing courses.

Abstract
Glass prefilled syringes are increasingly becoming a container of choice for storing and administering therapeutic protein products to patients. Tungsten leaching from a PFS is known to induce protein particle formation, and the source was traced to the tungsten pins used in the manufacturing process of the syringe barrels. Study of the tungstates present in extracts from both tungsten pins used in the syringe manufacturing process and from single syringes from various suppliers was undertaken. Electrospray mass spectrometry was chosen as a technique with the sensitivity to characterize tungstates at levels (~1 ppm of elemental tungsten) observed in single syringes. Extraction solvents were chosen to simulate the range (pH 4.0–7.0) typically used for therapeutic protein formulation. A commercial product formulation buffer was also used as an extraction solution to characterize tungstate species used for tungsten spiking studies of protein. All pin and syringe extracts from various manufacturers were similar in regards to containing stable Na/K containing lacunary polytungstate ($[W_{11}O_{39}]^{7-}$) species, which were the main species present in syringe extracts and are different than the metatungstate ($[W_{12}O_{39}]^{6-}$) species identified in commercially available sodium polytungstate and as the main species in pin extracts. These stable Na/K containing polytungstates species present in pin and syringe extracts are likely formed during the glass manufacturing process at >400 °C and may have the capability to subsequently form larger polytungstate complexes.

LAY ABSTRACT: Glass prefilled syringes are a type of container used for storing and administering biotechnology medicines to patients. The manufacturing process for the syringes may lead to very low levels of the metal tungsten being present in the syringes, and thus in the medicine stored in the syringes. The presence of tungsten in certain biotechnology medicines has been shown to cause changes to the medicine. Understanding something that can cause a medicine to change is an important part of producing safe and effective medicines for patients. The study described in this article sought to increase understanding by characterizing the form of tungsten observed in syringes from a number of vendors. Study of the tungsten present in syringes from four vendors indicates the same form of tungsten is observed regardless of the vendor. The study also found that the form of tungsten differed from that expected.

(Ronk, Lee, Fujimori, Yeh, & Nashed-Samuel, 2016)

Together with support for the writing of new genres, we also need to attend to other traditional genres in the publication network such as cover letters, manuscript reviews and responses to reviewer and comments. These supporting genres have been receiving considerable attention in the literature as private documents that have a direct impact on publication success, but more attention is needed to shed

light on the writing of these texts so that students can explore them in the context of a writing course and develop strategies for producing them.

4. How might Changing Expectations of Academics' Activities Influence Writing Support?

Perhaps one of the greatest challenges facing new doctoral students and EALA is the growing demand for research to be made accessible to the public. In many countries, especially the United States and those in the United Kingdom, it is no longer enough for faculty to focus on teaching and research. To these traditional responsibilities, faculty members must now add activities that contribute to creating an informed, scientifically literate citizenship as well as to decreasing the gap between the ivory tower and the public. I have already mentioned some of this activity in the context of lay abstracts, but the need for researchers to connect with the public extends beyond the realm of journal publication to the broader activity of direct public engagement through speaking and other writing. Definitions of public engagement vary, but generally, this activity requires researchers to expand their sphere of their work and communication beyond academia to contribute more directly to the public good (Brooks, 2013). To accomplish this, various platforms are being created for public discourse where researchers and non-researchers alike can participate in meaningful interactions. Unlike the static lay abstract, much public engagement is a two-way conversation between researchers and the public. It is not merely outreach or a public relations tool intended to highlight the relevance of universities and their research output. On the contrary, it is an attempt to forge partnerships and relationships with communities on many levels, where community can be envisioned as any group of people with a shared interest in the public good, ranging from the community where a university is located, to individuals in other countries and to companies.

Public engagement has become a priority for universities, governments and the next generation of scholars eager to make sure their research has broad relevance. To this end, in the U.S., national research grants require a self-contained project summary that is understandable to both a knowledgeable peer and a scientifically or technically literate lay reader; universities are establishing offices of public engagement; and junior scholars have begun their own initiatives. Examples of the latter are two initiatives at the University of Michigan: RELATE (Researchers Expanding Lay-Audience Teaching and Engagement) and MiSciWriters (Michigan Science Writers). RELATE seeks to open conversations between researchers and different public audiences places such as libraries, schools and even bars (during a time affectionately known as Nerd Nite). Focusing mainly on writing, MiSciWriters is committed to written science communication as an integral part of scientific research and as vital to increasing awareness of (and engagement in) science communication with the public. At the more senior level, we have seen the

creation of new research publications targeting the public. Important here is *The Conversation*, which, unlike typical science and research news publications for lay audiences, consists of articles written by the researchers and other academics who have done the work featured in an article (as opposed to journalists) "to provide the public with clarity and insight into society's biggest problems" ("The Conversation," 2016) and accessible descriptions of related research efforts.

While many researchers see the value of public engagement, most are uncomfortable writing (or speaking) to the public, having spent the majority of their careers communicating only to peers within their research areas. A critical issue in communicating with the public is that subject-matter knowledge creates obstacles when writers are not aware of the needs of non-expert readers who do not possess similar disciplinary knowledge (Schriver, 2012); in other words doctoral students, junior scholars and even more senior scholars can suffer from the "curse of knowledge". Apart from subject matter knowledge mismatch, miscommunications between those with unequal levels of knowledge can easily arise when it comes to common words that have specialized meanings in a particular discipline, which gives rise to tension in finding the right balance between accuracy and accessibility. This is illustrated in Table 1, which shows how non-experts might understand various terms related to climate change and possible alternatives that an expert could use instead.

Table 1. Common Words with Specialized Meanings in Climate Change Research

Scientific term	Possible Non-expert Understanding	Alternatives
enhance	improve	intensify, increase
aerosol	spray can	tiny particle in the atmosphere
positive trend	good trend	upward trend
theory	hunch, speculation	scientific understanding
uncertainty	being unsure, a lack of knowing	range
error	a mistake, something wrong or incorrect	difference from an exact number
bias	preference, unfairness, preconceived negative idea	a tendency
scheme	a devious plan	systematic plan
anomaly	abnormal occurrence	change from long-term average

(Somerville & Hassol, 2011)

Universities are beginning to consider ways to promote EALA and doctoral student involvement in public engagement activities, one of the most innovative being the Alan Alda Center for Communicating Science located at the University of Stony Brook (http://www.centerforcommunicatingscience.org). Other major players are the non-profit agencies, Compass (http://www.compassonline.org) and the

American Association for the Advancement of Science Center for Public Engagement with Science and Technology (http://www.aaas.org/pes), the AAAS.

As the next generation of researchers (along with the current generation) is increasingly being expected to enter into and create spoken and written conversations with a wide range of participants and stakeholders, they are engaging in a new form of boundary spanning or knowledge brokering. They are engaged in a process of not simply transferring old knowledge to new places, but transforming knowledge to present it in ways that are not typically valued in traditional research writing courses. These ways include the understanding that very powerful messages can be conveyed not only through words, but also through engaging visualizations; that personal stories, metaphors and analogies familiar to the audience can often more effectively promote understanding than can statistics and equations; and that organization of content may need to be adjusted for a non-expert. On this latter point, the American Association for the Advancement of Science (AAAS) suggests that rather than starting a spoken or written text with a review of research, as would be common in a research article introduction (Figure 1), a text aimed at non-experts should abandon that approach and instead start with information on why individuals should care about an issue (American Association for the Advancement of Science, 2016). See Figure 2.

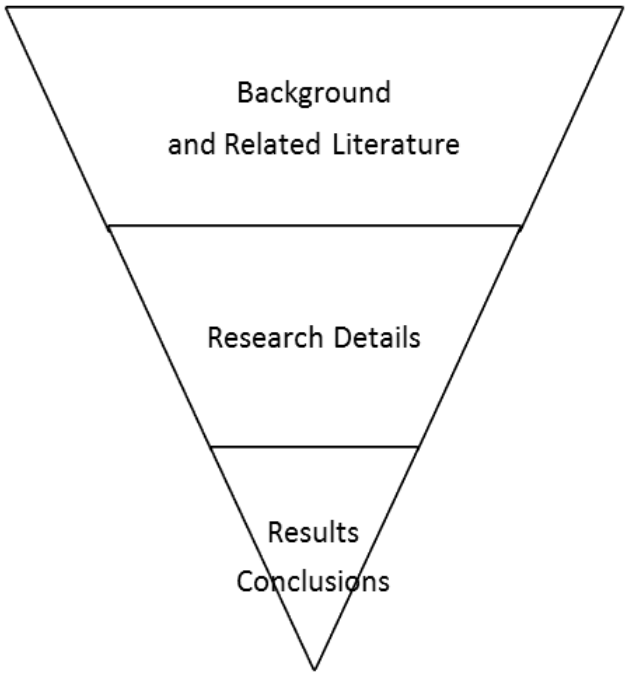

Figure 1: Expert to Expert Communication (adapted from AAAS, 2016)

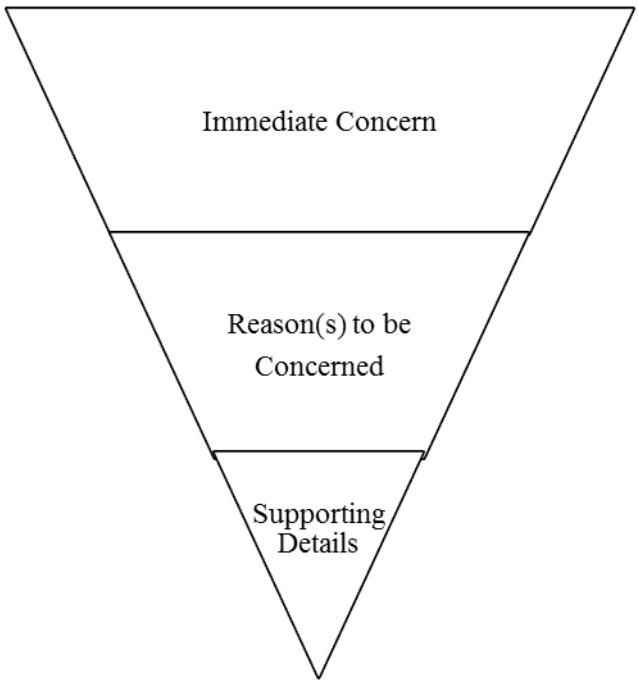

Figure 2: Expert to Non-Expert Communication (adapted from AAAS, 2016)

At this point, one might wonder why researchers do not simply rely on traditional science journalism to disseminate their work. Although this route has been valuable, studies show that very little research is picked up by the media, with about three of every 1000 papers receiving attention (Suleski & Ibaraki, 2009). This small percentage may in fact decrease as media outlets reduce the staff covering research news (e.g., the 2013 closing of the *New York Times* environment desk). Even more important, however, is the likelihood of errors and misrepresentation as the text moves from the journalist to editors and copy editors before publication. Clearly, then, traditional journal publication followed by media coverage as the main pathway for research to reach the public is problematic, prompting greater interest in researcher authored texts in publications and other digital formats. This is not surprising and should be seen as important when we consider that for the public research articles are in fact an occluded genre, hidden from view due to both very restricted access and highly specialized content.

5. Where do We Go from Here?

So where does this leave us with how to develop research writing support?

Today EAP writing support should be instrumental in, if not vital to, successful communications for a range of audiences. I say vital because doctoral students and

EALA may not always receive the writing mentoring that they need. This is because, as mentioned earlier, many disciplinary experts are ill-equipped to mentor their students to become capable writers, highlighting a central weakness of the apprentice model in describing the process of becoming a research writer. If current doctoral students are not receiving adequate mentoring, why would we expect the next generation of scholars to fare much better? By mentoring our students, in addition to the actual writing instruction, we can be role models for how to mentor writers. While EAP writing instructors are not insiders to most of the disciplines from which students and established scholars come, we are aware or can become aware of how students' prior writing experiences affect their current writing. This includes, of course, taking into account the students' emotional baggage as opposed to teaching as though it does not exist. It also means recognizing that doctoral students and other scholars would benefit from a writing toolkit consisting of genre awareness and a compass to help them make the transition from being a writer engaged in duplication of knowledge to a writer who sees that writing is done in order to not retell old stories, but to persuade, argue and create new knowledge.

This rhetorical dimension of writing may be known to advisors and other senior members of a discipline, but knowledge of this important facet of research writing is often tacit, rendering it difficult to articulate (Geisler, 1994) and share with others. While we might be critical of faculty members for not working to bring their writing knowledge to the surface or not devoting attention to supporting their doctoral students in their writing development, this would be somewhat unfair. Research has suggested that advisors and other faculty mentors may not realize that their students and even their junior colleagues need direction to become capable writers. Often advisors believe that if students are immersed in academic writing that alone should be sufficient for students to evolve into full-fledged members of their academic communities (Casanave, 2005) (the osmosis approach to learning mentioned earlier). Other research has shown that many advisors have difficulties coaching or scaffolding their students, modeling, and finding the vocabulary to make explicit their tacit knowledge of writing (Brown, Collins, & Duguid, 1989). A main reason for this is that they have never been trained to do so. Other obstacles hindering advisors' ability to mentor doctoral students include a lack of confidence in one's own ability (especially junior faculty), a lack of understanding of how writing is learned and the assumption that the conventions of academic writing are a matter of common sense and self-evident (Starke-Meyerring, 2011).

It is in this space where advisors may be struggling that EAP writing instructors may be able to offer the best support to research writers and in turn reveal the ways that will also help them mentor their own students. Similar to what Jacobs has argued in relation to language lecturers, EAP teachers often have "the rhetorical tools to make explicit what is hidden" (Jacobs, 2007, p. 78). They can help writers see and understand the rhetorical patterns that are the foundations of the

disciplines. In doing so, the tacit can be made explicit, even if not completely so. Although we cannot have complete knowledge of the rhetoric of each discipline, we can help students unpack the genres and rhetoric of research writing and support their efforts to write successfully in multiple domains.

When communicating peer to peer, writers need knowledge of both the content domain and rhetorical domain of a discipline or several disciplines. When communicating with the public they need to understand the knowledge and rhetorical domains that can facilitate interactions with non-experts, who may range from policy makers in government, to a CEO of a company, to members of the local community. As doctoral students, researchers and EALA strive to meet the changing communication demands and expectations of society as a whole and universities in specific, our goal in teaching research writing therefore becomes one of providing opportunities and guidance that enable them to become not only research writers, but knowledge brokers: "people whose job it is to move knowledge around and create connections between researchers and their various audiences" (Meyer, 2010, p. 118). Doing so, will raise their genre and rhetorical awareness of *when* to write and *when not*; *what* to write about *to whom*, *when*, *where*, as well as in *what* manner (Caplan, 2014, based on Hymes 1972). Through this process, we can do more than guide our students, we can also contribute to the future successful writing mentoring between professors and their doctoral students.

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The Author

Christine B. Feak is a lecturer at the English Language Institute, University of Michigan, where she is the lead lecturer for dissertation writing and writing for publication courses. She is co-author (with John Swales) of *Academic Writing for Graduate Students* and the new *English in Today's Research World* book series focused on the writing of research genres and subgenres. In addition to teaching and textbook writing, she also serves as co-editor of *ESP*, an international peer-reviewed journal focusing on topics relevant to the teaching and learning of discourse for specific communities. Her current research interests include academic writing in education, medicine, and business; the academic writing and writing for publication needs of scholars in developing countries; and the development of effective academic writing curricula.