

INTERNSHIPS IN BIOMEDICAL COMMUNICATION: COULD THEY WORK FOR YOU?

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Ask 50 different biomedical communicators about their careers, and you'll likely get 50 very different answers. Our discipline includes not only writers and editors, but also educators, scientists, physicians, researchers, journalists, public relations specialists, and more. For some of us this is our first career, for others our second or third. Moreover, each of us found our way to this melting pot of a discipline by unique trajectories.

This diversity in our field is attractive, but it can confuse and possibly discourage people trying to navigate their way into a medical writing career. Given this, perhaps no field is better suited for an internship model than that of biomedical communications. Aspiring professionals in our discipline need help understanding the myriad career options available to them; they need opportunities to explore different work roles and environments in order to discern which best matches their interests and skills; and they need to make meaningful connections with successful, seasoned medical writers/editors who are willing to serve as mentors and role models.

In turn, experienced professionals have a responsibility to further the discipline of medical writing. In fact, the AMWA objectives are aimed at supporting and preparing professionals in biomedical communications, and all of these could be facilitated through internships.

AMWA OBJECTIVES

- To bring together persons who are interested in any aspect of communication in the science and allied health professions
- To promote standards of excellence in biomedical communication
- To inform and encourage those committed to improving the quality and effectiveness of biomedical

communication

- To provide educational opportunities that lead to, support, and enhance excellence in biomedical communication

This article describes our in-the-trenches experiences as intern and advisor, working together as editors in a busy family medicine department within a large, public, research-oriented university. Our audience and purpose for this manuscript are twofold:

- 1 For AMWA professionals, we describe the potential benefits of hosting interns and provide ideas for training and engaging them on projects.
- 2 For students of medical writing who seek real-world experience in their craft, we offer tips on finding a suitable internship and on making the most of that experience.

We begin with a brief description of “the players” (ourselves) and the setting in which we work, so as to give readers a context for our observations. We follow this with a discussion of some of the pros and cons of internships, presenting first the advisor's perspective, and then the intern's perspective. In the next section, we join voices to describe the practical matters of how an internship might proceed (eg, the types of support an intern needs, examples of intern-friendly projects). In the final “matchmaking” section, we break ranks once again to offer our individual suggestions on how to find an advisor/intern and suggest professional qualities that advisor and intern might value in the other.

THE PLAYERS

Advisor: Anne Marie Weber-Main is an Assistant Professor and the Associate Director of Research in the Department of Family Medicine and Community Health, University of Minnesota Twin Cities. Her doctoral

degree is in chemistry, and she has been an AMWA member since 1998.

Intern: Heather Haley is a master's student in Scientific and Technical Communication in the Department of Rhetoric, University of Minnesota-Twin Cities. This program has an internship requirement. She also has a master's degree in chemistry. Heather has been an AMWA student member since 2002.

THE SETTING

We work as authors' editors in the University of Minnesota Medical School. Our clients are the approximately 50 full-time faculty and clinical research fellows in the Department of Family Medicine and Community Health—a mix of MDs and PhDs with research interests in such areas as chronic disease care and prevention (eg, diabetes, cancer, cardiovascular diseases), mental and behavioral health, human sexuality, health disparities, HIV prevention, women's health, and medical education. In our day-to-day work, we assist these researchers with the development of their scholarly manuscripts, grant proposals, peer-reviewed journal articles, abstracts for scientific conferences, book chapters, and other special writing projects.

SOME PROS AND CONS OF THE INTERNSHIP EXPERIENCE

➤ **For Advisors (Anne Marie's Perspective):**

What are the benefits of hosting an intern?

Share the workload. As I suspect is true for most of my AMWA colleagues, it is rare that I have any downtime in my job. On the contrary, I typically have an overwhelming backlog of editing projects demanding my attention, especially when multiple grant proposals are being prepared. Hosting an

intern has allowed me to distribute my workload—a little at first, and much more so over time as Heather became more familiar with the work and I had a chance to evaluate her skills. The result is that my clients are more satisfied (their projects are done more quickly) and my worklife is more satisfying (some of the constant time pressure is relieved). From the advisor's perspective, having professional backup—to a level appropriately matching an intern's expertise, of course—is one of the most valuable services an intern can provide.

Expand your medical writing group. Working with Heather has made it very clear that I am doing the job of more than one person. Over 9 months while working at 50% time, Heather assisted with the development and editing of nearly 15 journal articles, seven grant proposals, one book, two surveys, and three conference abstracts. In addition, she developed all 24 individual faculty profiles for our Web page, and she is leading the development of an online Writing for Publication teaching module that will be used in future faculty development initiatives in our department. Data such as these are extremely useful during discussions with my program director and department head as we seek to keep pace with our faculty's burgeoning editing needs. If you are seeking to expand your medical writing group, hosting an intern could be a low-risk strategy for trying out entry-level candidates and "growing your own" service capacity.

Meet your institution's education and service goals. Mentoring is a valued activity in academe. This is particularly so at the University of Minnesota, which as a public land grant university includes service and outreach in its mission, in addition to education and research. For her master's program, Heather needed to complete 135 hours of a supervised internship experience. She originally signed on with me for 3 months of training, but she was so productive that I hired her as a research assistant for the next two semesters. By mentoring Heather, I am contributing

to the service and education missions of my institution. This is a task I can put on my curriculum vitae and be rewarded for during my annual faculty merit review. If you work in a different setting such as a business environment, check to see if mentoring is valued in your organization. Many businesses have formal mentoring programs for executives. In addition, an internship program could be an effective mechanism for forging (or strengthening) relationships between businesses and educational institutions in your community.

Learn by teaching. When working with faculty clients, I endeavor to coach them on how to write about their research in clear, persuasive language, how to create a reviewer-friendly grant proposal, and so on. But for the most part, given the demands on everyone's time, I simply focus on getting the editing job done; I work hands-on in the manuscript (text, tables, figures) so that the product is improved and gets out the door expeditiously. In this work model, I edit instinctively, with little time for reflection. But with my intern, I slow down the process. I take the time to explain to Heather in greater detail what tactics I am using to reshape a manuscript, for example:

- Inserting "signposts" (descriptive headers, summary paragraphs, advance organizer sentences) within a grant proposal to help readers navigate the lengthy document;
- Strategically reformatting a table to improve reader comprehension;
- Inserting the appropriate level of detail into an abstract to entice reader interest.

Through this one-on-one teaching, I have developed a heightened self-awareness of my approach to my craft. I have a greater sense of the "why" behind my editing choices—choices that, I have found, transcend rules of grammar and are strongly steeped in the rhetoric of writing for scientific audiences. Moreover, I have learned much from reviewing Heather's independent editing work, precisely because our approaches to the same

piece of text are unique. Lastly, I have learned from Heather more efficient ways to approach my job. That kind of informal consultation alone is worth the price of an intern's admission!

What are the challenges to hosting an intern?

Time investment. It's unrealistic to expect an intern to step seamlessly into the job. Advisors need to plan on allocating time to their intern's orientation and development, especially early on in the relationship. To acclimate Heather, I met with her every day or every other day for the first few weeks, even if only for 15 minutes, to get her started on a project or to check in on her progress at day's end. On one day, we would review together an example of how I critically reviewed and edited a particularly difficult article draft; on another day, we would step through a grant writing presentation I had given to faculty, as a way of introducing her to important principles in this genre. Sometimes, I simply answered Heather's questions about the department, my career experiences, or my personal approach to writing/editing.

If you belong to a larger work group, time spent training your intern can be spread around. I belong to a research services team that includes an epidemiologist, statistician, and other skilled support staff. All were willing to answer Heather's questions, and she in turn was not shy about seeking out their expertise. Another time-saving strategy is to have your intern "shadow" you for the day. Heather was a frequent attendee at my individual meetings with faculty authors and in grant peer review sessions—none of which required any extra effort on my part, but which informally helped to develop her skills.

Cost investment. In some settings, "intern" translates into "free labor." We were fortunate enough to have the financial means (a research infrastructure grant) to pay Heather as a student worker for the summer months and then as a research assistant during the subsequent academic year. Your institution may not have the resources

to pay an intern, but don't let that dissuade you. Many students would be willing to complete an internship simply for the hands-on experience, knowing that this will help them land their desired job down the line.

Your investment leaves. Interns are, by definition, temporary workers. But in losing an intern, you will have gained a colleague. As your protégé advances in his or her career, you can continue to collaborate and learn from one another as your interests overlap.

➤ **For Interns (Heather's Perspective): What are the benefits to completing an internship?**

Get on-the-job training. The most obvious benefit for me was acquiring desperately needed experience—something that anyone wanting to work in medical writing desires. I now have actual writing samples! My internship was a great confidence boost for me, because I learned that I can do the work and I actually like it. With a few samples and a bit of experience, my first full-time job hunt (now in progress) seems a little less daunting.

Hone existing skills—and acquire new ones. My internship was invaluable for teaching me not only new approaches to editing a manuscript but also new strategies for professionally managing authors' relationships with their writing. From my graduate classes in rhetoric, I never realized that editing is one part people skills, one part playing with text. In addition, my personal writing has improved significantly from editing the work of other authors.

Get career direction. As students, we may think we want a medical writing career, but an internship helps to affirm this or point you in another direction. Even if you end up disliking a particular flavor of medical writing or do not mesh well with your internship advisor, you'll have gained valuable information for future career decisions. Originally, as a graduate student reading ads on AMWA's Job Market, I thought all the jobs sounded good. But now, with the perspective gained from my internship experience, I know that

although I like editing, I am a creative person at heart. I realize that over the long term I will be more satisfied in a position that calls for some original writing rather than exclusively editing.

What are the challenges to completing an internship?

Competing for your advisor's time. Since many medical writers are constantly pulled in multiple directions, the biggest challenge for any intern can be maneuvering yourself into your advisor's schedule. With Anne Marie, I adapted to this situation by learning to distinguish between when to "ask questions first" and when to "do a task first" and ask questions at a better time. Another useful strategy is being direct in clarifying what you need from your advisor—for example, a decision or feedback on a specific section of a manuscript, as opposed to the whole document. If you are the first intern in a particular work setting, the experience will be new for both you and your advisor, and at times you'll be making it up as you go along.

Stretching beyond your experience and comfort zone. Depending on personality and previous experience, an intern will struggle more with some tasks than with others. My biggest challenges were grant writing and establishing author-editor relationships. Grant writing was, and still is, a long learning curve for me. I find grants intimidating, because there is a lot at stake with an application; also, the density of ideas in the text and sheer size of the document (35-70 pages single-spaced) can be overwhelming. It took me several months to become comfortable performing more substantive grant-related tasks such as macro-editing a complete section.

Fortunately, I moved past my fears of the author-editor relationship more quickly. In the beginning, I was worried about offending a writer with my comments or editing changes, since writing is an act of self-expression. I danced around the edges of my first couple of projects, not adequately addressing some of the major flaws in the manuscript. Over time, however, by observ-

ing Anne Marie give feedback to authors, I learned that there are tactful ways to say, "your article introduction is boring." I also developed my own approach to reviewing and editing research articles by taking ownership of the results being reported. Coming from a science background, I was quickly able to operationalize the macroediting process by asking myself, "If these were my results, how would I present them?" Now, I have no problem tackling other people's troubled manuscripts, even when it means suggesting they delay publication and rerun analyses.

Practical Issues: How an Internship Proceeds

What types of support—tangible and intangible—do interns need?

All interns will have some minimum, core needs that must be met: they need projects on which to contribute (discussed later), a place to work, informational tools to help them learn, and of course, individualized instruction and feedback on their performance. Below, we offer our shared perspectives on how advisors might satisfactorily meet each of these needs.

Workspace. Any intern will want at least a rudimentary workspace with computer access, a phone, and a place to keep his or her papers. An intern will acclimate faster to the work environment—and become productive more quickly—if given frequent opportunities for face-to-face contact with the advisor; hence, a workspace near the advisor is ideal. For the first 3 months of her internship, Heather worked just a few doors down from Anne Marie in the vacant office of a faculty member on sabbatical. Later, she transitioned to a cubicle in another building where other research assistants, fellows, and faculty members were housed. Geographic separation will necessitate more frequent phone calls, e-mail messages, and meetings, but this arrangement can work fine once an intern is "trained up a bit" and working more independently.

Training tools. One of the best training tools for an intern is seeing

examples of well-done professional work. This includes works-in-progress as well as finished products. By reviewing these materials, interns can acquire insights into their advisor's writing/editing processes and get new ideas on how to approach an assignment. In our situation, Heather was given carte blanche access to Anne Marie's project files. We found it helpful to continue this practice even 6 months later; as interns move to a higher level of functioning, they need new examples of more sophisticated work to get fresh insights and avoid getting stuck.

We encourage advisors to share with interns their favorite books, articles, Web sites, and other information sources. Interns will appreciate seeing any instructional materials that their advisors have on hand, be they handouts, PowerPoint presentations, or lecture notes. As the first medical editing intern in our setting, Heather had the foresight to develop a portfolio of materials that she found useful—information that will be archived and passed down to future interns. She also took advantage of free or low-cost workshops on grant writing and Web-based teaching offered by other departments/offices at the University of Minnesota.

Instruction and feedback. Of course, every intern will bring to the table a unique depth and range of expertise. Even those with advanced skills will need an orientation to their new work environment. Thus, in the beginning weeks of an internship, most of the advisor-intern time will be spent in individualized instruction. This can occur by any number of methods, both formal and informal. We found it helpful to read and then discuss drafts together. We also engaged in piggyback editing, in which one of us coarsely edited a document first, then passed it to the other for additional fine-tuning. Occasionally, we used our regular meeting time to run through spontaneous tutorials (conversations, really) on practical topics such as constructing an effective author query or writing useful cover letters/e-mail

messages to accompany the return of an edited document.

As the intern works on assigned projects, the instruction process gains momentum through feedback on projects. Feedback is always time well spent. By reviewing an intern's work, advisors can ensure that their institution's professional quality standards are being met, while assessing specific areas in which the intern needs further instruction. Feedback also helps interns identify their own areas for improvement. Feedback is the mechanism for gauging an intern's progress and determining he or she is ready for more sophisticated assignments. Although the instruction/feedback

process can be time intensive during the first few weeks, the intern will gain independence from the process and ultimately be more efficient in helping advisors meet their work demands.

What types of projects might an intern participate in?

No matter what your work setting, we highly recommend involving interns (at least at first) in routine, ground-level projects, which for us meant manuscript editing. Interns will likely conform to work expectations faster than if assigned to a special, nonroutine project for which there is no precedent. Consider giving interns a healthy mix of short-term and long-

ARTICLES		
Project	Intern Activities	Skills Developed
Review article on health issues faced by immigrant Latino adolescents	<ul style="list-style-type: none"> Discussed article's strengths/weaknesses with advisor and co-developed editing strategy Participated in author feedback meeting 	<ul style="list-style-type: none"> Critiquing writing Professionally managing the author-editor relationship
Research report on attitudinal differences in adolescents	<ul style="list-style-type: none"> Substantively edited article for logic and length With statistician, rewrote figures and results 	<ul style="list-style-type: none"> Applying style guidelines Collaborating with content and methods experts
GRANT PROPOSALS		
Project	Intern Activities	Skills Developed
Training grant application to the Centers for Disease Control	<ul style="list-style-type: none"> Line edited text for grammar and clarity Redesigned tables 	<ul style="list-style-type: none"> Microediting Applying an editorial approach to table revision
Research grant application to the National Institutes of Health	<ul style="list-style-type: none"> Edited the proposal text for clarity and persuasion Critiqued proposal draft in an internal peer review session Served as project manager: collected materials from co-investigators, wrote text for "boilerplate" sections of grants 	<ul style="list-style-type: none"> Macroediting Critical appraisal Completing deadline-driven tasks Coordinating multiple authors' work on a single document
SPECIAL PROJECTS		
Project	Intern Activities	Skills Developed
Full-length book for higher education audience	<ul style="list-style-type: none"> Proofread galleys 	<ul style="list-style-type: none"> Proofreading Attention to detail
Web site redesign for department	<ul style="list-style-type: none"> Wrote individual Web pages for 24 research faculty Helped write general Web site content 	<ul style="list-style-type: none"> Planning communication projects in a team setting Editing multimedia projects

Figure 1. Examples of projects for interns.

term projects. Diversity will keep their interest piqued, give them more material to put on a resume, and stretch their skills. If most of your projects are comprehensive in scope, start out by assigning only parts to an intern. For example, with grant applications, Heather initially edited figures and tables instead of the whole document. On later proposals, she worked on macroediting whole sections. To give advisors ideas for appropriate projects, we broke down some of Heather's internship projects by project activities and skills developed (*Figure 1 on previous page*).

MATCHMAKING

➤ For Interns (Heather's Perspective): *How do I find an internship?*

If you have no prior formal experience in medical writing, I think the priority is to find *any* internship. I was less concerned about the specific work environment (eg, regulatory affairs versus publishing) and more interested in finding any opportunity where I could participate in a variety of tasks and work directly with a more experienced medical writer. Remember, an internship is a short-term commitment; in the process you gain not only valuable professional skills, but also great insight into your own career desires.

There are two basic routes to finding an internship: creating one for yourself or answering ads that filter through your academic program. I chose the first route, and it led to a highly rewarding experience. Creating your own experience does require a bit of cold calling (or cold e-mailing, in today's computer-driven age). My starting point was contacting local AMWA members. This approach worked for me, and I found my internship quickly and with minimal effort. Originally, I attempted to line up an internship at a local company with someone I met through AMWA. However, this process was going nowhere quickly, so I decided to talk with Anne Marie. I'd met her several years prior when I was conducting informational interviews about careers

that blended science and writing. Periodically, I'd run into her at the AMWA annual conference since our initial meeting. Fortunately for me, Anne Marie is consistently swamped with work (like many medical writers and editors). She agreed to take me on to ease her workload and help me satisfy my degree requirement.

What types of training experiences do I look for?

Anne Marie brought me along to many of her meetings and writing-facilitating activities. I was able to see her in action facilitating a writing workshop for clinical research fellows, conducting meetings with authors to give editorial feedback, and leading mock grant peer reviews. These activities allowed me to assimilate strategies for managing people's relationships with their writing. I also absorbed a great deal of general writing knowledge—as Anne Marie was instructing authors, she was also instructing me.

In addition, she shared with me both published articles and samples of various documents ranging from cover letters to specific aims sections of grants. Comparing the before and after versions of edited manuscripts gave me new insights into identifying and fixing problems and querying authors. In the beginning, Anne Marie would give me a manuscript to edit, then improve on my editing by making more changes and raising additional issues for the author. From this interactive editing, I quickly learned general strategies and my advisor's expectations. In short time, I was able to progress to working independently with our faculty/fellow authors.

What qualities do I look for in a mentor?

In investigating potential internships and mentors, don't become too entrenched in the details of finding the "perfect" internship or mentor. Keep the big picture in perspective—as I mentioned earlier, an internship is a short-term opportunity to get experience and build your professional skills. That being said, here are a few traits

you might keep in mind when searching for a mentor:

Established in his/her position. I recommend working with someone who is reasonably well established in his/her current position, probably with at least 4 years of experience. Mentors such as these are more likely to have figured out their job description and defined their work boundaries with clients and coworkers; this creates a secure professional environment for the intern to work. Anne Marie is the sole editor in her department, so there are no group standards to follow. Nonetheless, in her 7 years of service she has set a clear precedent for what editors do and don't do for faculty; our *modus operandi*; how we collaborate with statisticians and support personnel, etc. With these understandings in place, I didn't have to wonder about how to approach faculty or guess at an appropriate timeline for a project.

Willing to share. Especially in an internship where interns learn by example, a willingness to share is an essential mentor quality. Look for someone who readily shares examples of their work, their most trusted books and other writing resources, their colleagues, and their opinions.

Flexible. Flexibility is another key quality. Find someone who can let go and let you, the intern, get your feet wet. The effective mentor might give you the first crack at a manuscript or leave you to meet with the statistician alone. It would be boring (and ultimately self-limiting) to hover over your mentor's shoulder and watch her or him edit on screen. However, comparing the before and the after on a mentor's work is highly informative. You won't write and edit the exact same way as your mentor—nor should you. A flexible advisor will be able to get past stylistic differences and focus on the big picture for the tasks at hand.

➤ For Advisors (Anne Marie's Perspective):

What qualities or experiences do I look for in an intern?

This will depend heavily on how you plan to put your intern to work.

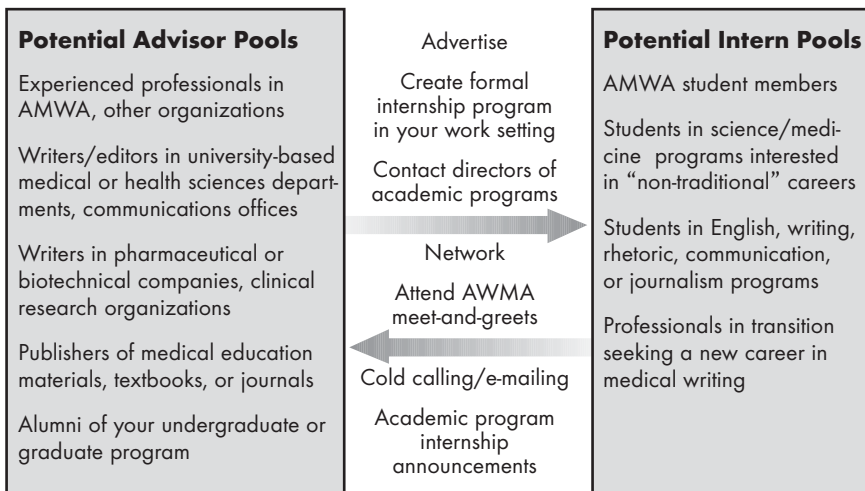


Figure 2. Ways to make internship connections.

What kinds of tasks or projects are you likely to assign to him or her? Are you looking for backup in your position or are you assigning the intern to a special project that is outside of your everyday realm of activities? If you want an intern to help you with your immediate work (as I did), then the qualities you want will mirror those of a candidate who wants your job, but is less experienced than you are. In my line of work and setting, skills such as the following are particularly valuable.

- Professional demeanor and excellent interpersonal skills, including a good e-mail presence (Much of my work is done through e-mail because my family medicine faculty clients are physically dispersed across multiple campuses and residency training sites.)
- Research trained or research savvy, especially in medical or science fields
- Familiarity with the structure of biomedical research articles and grant proposals, and the audiences who read them
- Skills and confidence in editing scientific content and querying authors to ensure accuracy of content and improve understanding, readability, and logic
- Ability to multitask and readily shift gears when new priorities arise (eg, pitching in on a grant proposal due in a week's time)

- Independent, but knows when to ask for help; not paralyzed by chaos
- Willingness to consult with and learn from other personnel: statistician, database manager, administrative assistants, grant accountants, etc.

Consider crafting a written job description for an internship appointment, even if you never show it to anyone else. This exercise will force you to think about what type and level of skills in an intern would be beneficial for you. It will also help equip you to evaluate candidates for that position. The match matters. This is true, even if you will not be paying your intern, because you will be investing your time in their training and supervision.

How do I find an intern?

I'll admit, I had it easy—my intern found me. Nonetheless, I can think of a number of pools from which promising candidates for internships in biomedical communication might be drawn (*Figure 2*). There are several mechanisms by which advisors and interns might make professional connections.

Could and should AMWA play a larger role in intern-advisor match-making? Internships are a timely issue within the organization. At the 2004 Annual Conference, Barbara Gastel led an open session on hosting an intern. AMWA is looking to grow its student

membership, as evidenced by the annual conference student travel awards, the addition of the Student Center to the *AMWA Journal*, and other promotional efforts targeting students. Internships seem to fit within the mission of the organization, and AMWA could conceivably facilitate some aspects of internships through mechanisms already in existence such as the Members Only bulletin board on the AMWA Web site, annual conference job posting board, and local chapter meetings. By taking an active interest in internships, AMWA could create more professional added value for all of its members, from veteran medical writers to students.

CONCLUSION

We found the intern-advisor experience to be highly beneficial for both of us. Our success, we believe, resulted from attending to several features of the relationship:

- Confirming before the start that there was a match with the advisor's need and organizational culture and the intern's needs
- Mutually agreeing on the time and work investment each would make
- Attending to the work arrangements and setting ground rules
- Providing close initial supervision of the intern with later careful movement to more independence
- Providing the intern opportunities to work on routine but diverse projects—not marginalizing him or her on a special project
- Providing past work examples
- Attending to both skill development in medical writing and client-editor relationships

It is our hope that having presented some guiding principles and our case example, we will encourage other AMWA members to consider hosting an intern—the “diamonds in the rough” of our discipline—and inspire AMWA student members to pursue internship training as a means of facilitating their long-term success.