Scholarship, Publication and Career Advancement in Health Professions Education

William C McGaghie

AMEE GUIDE
Education Management

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Acknowledgements

Abstract

Scholarship and publication are key contributors to career advancement in health professions education worldwide. Scholarship is expressed in many ways including original research; integration and synthesis of ideas and data, often across disciplines; application of skill and knowledge to problems that have consequences for health professionals, students, and patients; and teaching in many forms. Professional publication also has diverse outlets ranging from empirical articles in peer reviewed journals, textbook chapters, videos, simulation technologies, and many other means of expression. Scholarship and publication are evaluated and judged using criteria that are consensual, public, and transparent.

This three-part *AMEE Guide* presents advice about how to prepare and publish health professions education research reports and other forms of scholarship in professional journals and other outlets. Part One addresses scholarship – its varieties, assessment, and attributes of productive scholars and scholarly teams. Part Two maps the road to publication, beginning with what's important and reportable and moving to manuscript planning and writing, gauging manuscript quality, manuscript submission and review, and writing in English. Part Three offers 21 practical suggestions about how to advance a successful and satisfying career in the academic health professions. Concluding remarks encourage health professions educators to pursue scholarship with vision and reflection.

Scholarship and publication are key contributors to career advancement in health professions education worldwide

TAKE HOME MESSAGES

- Scholarship and publication are key activities for academic health professionals.

- Scholarship and its products are expressed in a variety of ways beyond scientific journal articles.

- Skills needed for scholarship and publication are acquired from deliberate practice over a long time span.

- Scholarship and publication in the health professions are governed by rules and best practices, which are demonstrated and made plain.

- Career advancement in the academic health professions should not be left to chance.

- Twenty-one practical suggestions are offered about acquiring and using knowledge and skills needed for advancement in the academic health professions.

Introduction

Newcomers enter the realm of scholarship, publication, and career advancement in health professions education as if going into an alien culture. This alien culture has a language, code of conduct, transaction patterns, and rules of engagement that express core ideas that are different from ideas usually found in clinics and classrooms. Newcomers and established scholars alike must understand, accept, work on, and extend the field's core ideas. Several core ideas (with examples) expressed in health professions scholarship and publication include:

- **Values** – primacy of advancing knowledge and professional practice; conceptual thinking and theory building; clear and simple writing

- **Aspirations** – conduct "*cutting edge*" biomedical, clinical, and behavioral research; publish research reports in peer-reviewed journals; express scholarship in teaching, program development and administration, community service, and many other ways; improve education via research; personal career development

- **Key practices** – individual and team science; collegial disputation; reading; writing

- **Diverse forms of activity** – writing journal articles and other publications; preparing grant applications; teaching; attending and participating in scientific and professional meetings; evaluating papers and grant applications written by peers; professional portfolio management

- **Judgment criteria** – importance and publishability of written work; methodological rigor of research studies; clear goals, scholar preparation, proper methods, significant results, effective presentation, and reflective critique of scholarly products; quality of writing

- **Quality standards** – uniformly high, competitive standards for submitted papers; peer review of scholarship; acknowledge the utility of "connoisseurship" as needed

- **Recurring conflicts and tensions** – judging scholarly quality and quantity; annual journal page limits; tension about authorship credit; unclear rules about professional advancement and promotion; potential for bias due to financial support or sponsorship.

Once these and other core ideas about scholarship, publication, and career advancement in the healthcare professions are understood and accepted, how can novices and seasoned clinicians become prepared to participate in this domain? Historically, most health professionals including physicians, nurses, dentists, pharmacists, physiotherapists, social workers and others have relied on personal experience, short courses and workshops, and occasionally mentored practice to acquire scholarly skills. A small fraction of health professionals have developed skills in scholarship and publication from fellowships and advanced degree programs. However, those programs are not available widely and have uneven quality. Thus there is a lack of resources and opportunities for pharmacists, nurses, doctors, and other healthcare professionals to acquire and refine skills needed for scholarship and publication. This monograph aims to provide that needed scholarly resource and to reveal the core ideas and cultural roots that are the foundations of scholarship, publication, and career advancement in the health professions.

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Reading is the cornerstone of scholarship in health professions education yet it often goes unnoticed. Reading professional material actively, effectively, and powerfully is a core habit in scholarly work. There are two ways in which reading experience is a particularly important resource for writing. First, the culture or domain of health professions education is found to a significant degree on the page (or screen). Second, learning to participate effectively begins with learning to read powerfully, both to learn what matters most in the field and to observe special instances of scholarly performance that can serve as models for emulation in one's own work. When you watch a professional at work in scholarship, a significant part of what you watch is the performance evident on or inferable from the page.

This is a report for health professions educators, worldwide. Its intent is to inform readers about how to publish health science education research reports and other forms of scholarship in professional journals and other outlets. The aim is to share public and *tacit knowledge*, unspoken keys to success in the academic health sciences (Sternberg & Horvath 1999, Sternberg *et al.* 2000, Sternberg 2004). Its primary goal is to express 35 years' experience in health professions research and writing as a set of public, accessible, and useful tools and skills for other scholars, young and old. A secondary goal is to argue that career advancement in health professions education should be based on a broad definition of scholarship that not only includes research publications but also teaching, curriculum development, learner evaluation, team training and interdisciplinary study, and many other professional practices (McGaghie & Frey 1986, Cottrell 2006, Hammick *et al.* 2007).

There are at least two audiences for this work. The first audience is composed of health professions educators who are keen to establish themselves as scholars – students, residents, fellows, instructors, assistant professors – in a variety of fields who are just getting started on teaching and research careers. The second audience includes the establishment – deans and other leaders – officials who are trying to set promotion guidelines or make more transparent what is meant by scholarship in health professions education. Motives and interests coalesce for these two groups. New teachers aim to produce sound educational scholarship in many varieties; deans aim to reinforce and advance scholarly work. The audiences are complementary.

Hafler and colleagues (2008) amplify this idea in a set of *Educational Scholarship Guides* published on-line by the Association of American Medical Colleges (AAMC) through the MedEdPORTAL access site. The Guide series includes four sets of criteria to gauge scholarship quality for different purposes:

1. Educational Scholarship Guide for Faculty;
2. Educational Scholarship Guide for Promotion and Tenure; a
3. Worksheet: Evaluating Educational Scholarship; and a
4. Checklist: Author Submission [for MedEdPORTAL].

These *Guides* advance the argument that scholarship in health professions education has many faces and outlets beyond empirical research articles in professional journals.

Scholarship and publication are important topics in international health professions education because the education of nurses, physiotherapists, doctors, pharmacists, and other professionals throughout the world now emphasizes curricula and teaching that are grounded in the best available evidence (Harden *et al.* 2000), derived from rigorous research studies (Baernstein *et al.* 2007) that link healthcare education with patient care outcomes (Carney *et al.* 2004; Chen *et al.* 2004; Wayne *et al.* 2008). This scholarship carries responsibility. It contains moral imperatives for high quality, the need to present ideas and data for review and judgment by peers, to advance the field, and to prepare the next generation of health professions scholars to address the key questions of its day.

Scholarly emphasis and opportunity warrant early attention. Most of this *AMEE Guide* is about publication of research reports but other forms of scholarship are also valued equally. There are many ways for professional workers to express scholarship, especially for those working in less developed centers where publication is difficult. Mennin and McGrew (2000) reinforce this point by stating that educational scholarship includes, "*. . . activities such as the development of an innovative curriculum, web-based teaching materials, textbook publications, new teaching modules, new approaches to student assessment, community-based education, and continuing medical education*". Variety is the hallmark of scholarship in health professions education. There are many pathways to make a contribution to educational advancement.

Part One begins with a small set of key ideas about **Scholarship** in the health professions: (a) varieties and products of scholarship, (b) assessment of scholarship, and attributes of (c) persons and (d) teams that promote scholarly productivity. Part Two, **The Road to Publication**, is much longer. It discusses practical, "*how to*" ideas and skills about preparing, submitting, and publishing scholarly work in health professions education. The bottom line is simple – *getting published* in the professional literature. Its sequelae are also plain. They are to: (a) advance health professions education science and practice, (b) enrich human capital in the health professions, and (c) boost morale among those who care about educating great clinicians. Part Three, **Career Advancement**, presents a set of 21 practical suggestions about how to have a successful and satisfying academic career in the health sciences. An academic career may have a single focus in patient care, education, administration, research, community service, public health, or some other area. However, most academic careers in the health sciences involve a mix of professional priorities that change in direction and breadth over time and place. For most academic health professionals a career is a series of jobs. The intent of Part Three is to provide advice about how to navigate and manage a rich and maturing academic career. A **Conclusion** provides summary remarks.

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This *AMEE Guide* originates from workshop presentations at international AMEE meetings from 2004 to 2008. The workshops have been titled, *Mastering the Scholarly Process* and *Writing for Publication*. The workshops have been presented in collaboration with Ms J M Monica van de Ridder of University Medical Center, Utrecht, The Netherlands and Dr Diane B Wayne of the Northwestern University Feinberg School of Medicine, Chicago, Illinois USA.

The objectives and activities of these workshops address enduring issues in health professions education. The AMEE Executive Committee commissioned this report to summarize and simplify basic issues in health professions education research, writing, and career management.

Many important topics in health professions education scholarship are not covered in this report. They include research problem formulation, quantitative and qualitative research designs, project management and execution, measurement and data analysis, and a host of others. This *AMEE Guide* is not a primer on educational research methods. Basic and advanced instruction on educational research methods is available from other sources (Association of American Medical Colleges [AAMC] 2008; Borg *et al.* 2003, Fraenkel & Wallen 2000; McGaghie *et al.* 2008; Shadish *et al.* 2002).

Varieties and products of scholarship

The academic community was enlightened by Ernest Boyer's (1990) publication, *Scholarship Reconsidered: Priorities of the Professoriate*. This slim volume presents four categories of scholarship, gives examples from each category, and argues that items within each category are legitimate evidence of scholarly accomplishment. Boyer first describes the *Scholarship of Discovery*, reports of original research investigations or studies that involve engineering and new product development. The second category is the *Scholarship of Integration*, work that "*gives meaning to isolated facts, putting them in perspective; . . . makes connections across disciplines, placing them in a larger context; and illuminates data in a revealing way*". Examples include narrative research reviews and quantitative research synthesis as meta-analysis. The third category embodies the *Scholarship of Application*, where "*knowledge is responsibly applied to consequential problems*". Public speaking, academic consulting, managing a simulation center, and directing a clinical clerkship or postgraduate residency program are illustrations of the scholarship of application. Category four is the *Scholarship of Teaching*, revealed in many ways including lectures, seminar debate, PBL tutoring, research supervision, mentoring, e-learning courses, and informed use of simulation technology. Scholarship has many dimensions, each with numerous forms of expression.

Table 1 (overleaf) displays Boyer's four categories of scholarship. Each category is amplified by published examples either directly from health professions education or from neighbor disciplines. Its purpose is to show that varieties of scholarship in healthcare education are not better or worse, just different. The academic community is enriched by each form of scholarship and its products.

The products of scholarship in health professions education also range widely (Simpson *et al.* 2007). The most common and recognized product is a research article published in a peer reviewed journal like *Medical Teacher*. However, there are many other ways scientists and scholars in the health professions can publish their work. A list of common scholarly products in health science education with several examples is found in Box 1.

TABLE 1
Varieties and Products of Health Professions Education Scholarship

Varieties	Description or question	Example product
DISCOVERY		
Research		
Quantitative	Does newborn resuscitation training (NRT) alter health worker NRT practices in a Kenya public hospital?	Opiyo et al. (2008)
Qualitative	How to strengthen nursing students' clinical judgment using a high-fidelity human patient simulator?	Lasater (2007)
Development & Engineering		
Product development	Design and engineering of the female pelvis high-fidelity clinical simulator	Pugh (2002); Verschuren & Hartog (2005)
Measurement development – cognitive	Systematic approach to developing educational outcome measure in clinical cardiology	Issenberg et al. (2000)
Team performance	Paramedic team performance measurement in simulation-based training	Rosen et al., (2008); Scott et al. (2006)
Team member contribution	Development of a theory-based assessment of team member effectiveness	Loughrey et al. (2007)
Measurement development – attitude	Development of measures of faculty attitude toward clinical evaluation of students and clinicians' attitudes toward nutrition in patient care	McGaghie et al. (1995; 2001)
INTEGRATION/SYNTHESIS		
Quantitative meta-analysis	Which CME program variables affect physician learning outcomes in knowledge, performance, and patient care?	Mansouri & Lockyer (2007)
Systematic review-bounded narrative	35 yr. review on features and uses of high-fidelity medical simulations that lead to effective learning	Issenberg et al., (2005)
Selective review	Do commercial test preparation courses improve test scores?	McGaghie et al. (2004)
Textbook	What is the state-of-the-art about clinical simulation for education and evaluation in the health professions?	Kyle & Murray (2008)
Textbook chapter	What is the state of the art in clinical performance assessment?	Petrusa (2002)
APPLICATION		
Consulting/ speaking	What are the obligations of academic medical centers to tomorrow's doctors?	Cohen (2002)
Policy analysis: "best practices"	Can America's best medical schools be identified and ranked?	McGaghie & Thompson (2001)
Personal opinion	Arguments about the [im]morality of U.S. market driven health care	Kassirer (1995, 1998)
TEACHING		
Formal degree programs	University of Illinois Master of Health Professions Education (MHPE) program	University of Illinois at Chicago (2008)
Grand rounds	Multi-specialty palliative care curriculum development project	Weissman et al. (2007)
Seminars	Advanced educational programs for health science educators	Harvard Macy Institute (2008)
Virtual medical school	Web-based medical curriculum	IVIMEDS (2008)
Research supervision	How is effective research supervision defined and evaluated?	Brown & Atkins (1998), Dores et al. (2006)
Mentoring	What are features of an effective mentor in the health professions and other disciplines?	Berk et al. (2005), Committee on Science, Engineering, and Public Policy (1997), Sambunjak et al. (2006)
CME	What is the best evidence about the effectiveness of continuing medical education?	Baumann & Moores (2009)
Educational simulation	Use of simulation to educate nurses and respiratory therapists in essential clinical procedures	Alinier et al. (2006); Tuttle et al. (2007)
Educational materials	Pediatric acute care simulator cases: septic shock	Adler et al. (2008)

Important and useful scholarship in health professions education can be published or presented in many different ways. An article reporting original research data published in a peer reviewed professional journal is frequently considered the "gold standard" of academic expression. These are valued highly in academic settings and carry much weight in faculty promotion and tenure decisions. While there are many other ways for healthcare professionals to make important scholarly contributions as listed above and in Table 1, scholarly products different from peer reviewed journal articles may not be prized in one's local setting. In many academic organizations, not all scholarly products are considered equal. The larger community of stakeholders, often in positions of power (e.g., deans, promotion committees), may not endorse a broad definition of scholarship. Thus knowing and following local criteria and standards for academic advancement is an important part of career management. This aspect of career management receives more attention in Part Three of this *AMEE Guide*.

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Assessment of scholarship

Boyer's breakthrough at defining scholarship in four broad categories is extended by equally important work on the assessment of scholarship (Glassick *et al.* 1997; Glassick 2000; Hafler *et al.* 2005). Assessment of scholarship is important because ". . . in order to recognize discovery, integration, application, and teaching as legitimate forms of scholarship, the academy must evaluate them by a set of standards that capture and acknowledge what they share as scholarly acts" (Glassick *et al.* 1997). Six criteria are proposed that bring uniformity and objectivity to the evaluation of scholarly products. The criteria can be used for the assessment of scholarship *across disciplines*. They are not confined to a single profession or specialty. The six criteria for assessment of scholarship are presented in Table 2. Each criterion is accompanied by a set of three measurable standards that can be used to gauge achievement.

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Table 2
Criteria and Standards for Assessment of Scholarship From Glassick et al. (1997)

CRITERIA	STANDARDS
Clear Goals	Does the scholar state the basic purposes of his or her work? Does the scholar define objectives that are realistic and achievable? Does the scholar identify important questions in the field?
Adequate Preparation	Does the scholar show an understanding of existing scholarship in the field? Does the scholar bring the necessary skills to his or her work? Does the scholar bring together the resources necessary to move the project forward?
Appropriate Methods	Does the scholar use methods appropriate to the goals? Does the scholar apply effectively the methods selected? Does the scholar modify procedures in response to changing circumstances?
Significant Results	Does the scholar achieve the goals? Does the scholar's work add consequentially to the field? Does the scholar's work open additional areas for further exploration?
Effective Presentation	Does the scholar use a suitable style and effective organization to present his or her work? Does the scholar use appropriate forums for communicating work to its intended audiences? Does the scholar present his or her message with clarity and integrity?
Reflective Critique	Does the scholar critically evaluate his or her own work? Does the scholar bring an appropriate breadth of evidence to his or her critique? Does the scholar use evaluation to improve the quality of future work?

The Glassick *et al.* (1997) criteria and standards describe what scholarship is but are silent about who produces scholarship and how it is done. The next sections describe scholarly individuals and teams and how they work.

Productive scholar attributes

Many studies and reports have documented the attributes of productive scholars in a variety of academic disciplines (Fox 1985, Bland et al. 2005, Thagard 2005, Mayrath 2008). The personal and social characteristics of these men and women are similar to those of achievement oriented people in many fields. In brief, productive scholars are passionate about their work and are inspired by strong convictions. They have a "sacred spark." Scholars are organized, focused, engage in multiple tasks simultaneously, and have tenacious concentration. Productive scholars work very hard, over long time periods, display great stamina, and set high standards for themselves and others. Survey research within the professoriate by Bland and colleagues (2005) shows that a positive response to the statement, "*I am driven to conduct research*" is the best predictor of research productivity among a set of personal and professional variables.

This short profile should not be seen as a behavioral prescription or a set of rules to decide if one should enter the realm of scholarship and publication in the healthcare professions. The profile simply states that creative scholars, like committed clinicians, are engaged in their work, take it seriously, and receive positive reinforcement from their productivity.

Is high intelligence a marker for scholarly productivity? Are productive scholars smarter than their peers? Not necessarily. Higher education scholar Mary Frank Fox (1985) concludes from her studies of scientific achievement, "*Measured ability level. . . correlates very weakly with productivity and achievement in science. Although high IQ may be a prerequisite for doctoral training, once the degree is obtained, differences in measured ability do not predict subsequent levels of performance*".

Productive scholars also enjoy social events yet tend to be detached and reflective. They are avid, wide-ranging readers in their academic specialties, other disciplines, and about popular culture. Scholars relish collegiality, continuous learning, curiosity, and vigorous disputation. Scholars who display high academic productivity and achievement often cannot distinguish work from play.

Finally, Parsell and Bligh (1999) remind us in the earlier AMEE Guide No. 17, Writing for Journal Publication, about the motives that shape and channel the behavior of individual scholars. Some of the motives are intrinsic, residing within the person. Other motives are extrinsic, governed by academic, professional, or environmental pressures. Intrinsic motives include sharing knowledge, career advancement, status improvement, collegial approval, personal pleasure, and response to challenge. Extrinsic motives involve academic pressure, commitment to patient care, practice improvement, the need to promote use of new technologies, and other outside forces. Intrinsic and extrinsic motives make health science education scholars productive. The motives also help the scholars identify research issues that are important to study and are reportable.

Productive scholarly teams

Academic productivity and achievement has historically been the result of individual scholars working alone. Much work that leads to publications in the health professions continues to follow this solitary scholar model, especially for scholars who work in professional isolation. Educational scientists and writers in the healthcare professions may have no option to working alone.

By contrast, academic work today is increasingly characterized by "*team science*" where high output derives from groups, not just individuals. An entire issue of the *American Journal of Preventive Medicine* (August 2008, Vol. 35 [2S]) is devoted to the theme, "*The Science of Team Science: Origins and Themes.*" Persons interested in engaging in scholarship and publication in the health professions may choose to seek opportunities to work with an academic team rather than work alone.

Some scientific teams are more productive than others and research on scholarly teams has identified their key features. Research by Hong and Page (2004) and Wuchty et al. (2007) shows that productive academic teams have at least eight attributes.

Intrinsic and extrinsic motives make health science education scholars productive. The motives also help the scholars identify research issues that are important to study and are reportable.

Persons interested in engaging in scholarship and publication in the health professions may choose to seek opportunities to work with an academic team rather than work alone.

Productive scholarly teams have:

1. Shared goals, a common mission;
2. Clear leadership that may change or rotate;
3. High standards; they engage in
4. Sustained hard work; are situated in
5. Physical proximity; the team members
6. Minimize status differences within the team; and
7. Maximize status of the team; and promote
8. Shared activities that breed trust.

Scholarly teams that embody most of these attributes are more likely to publish research reports that are highly cited than teams having fewer attributes. Such teams are not formed quickly or by accident. One facet of team leadership is identifying and refreshing team talent.

A rare yet valuable product of academic and scholarly teamwork is its potential to generate synergy, what psychologist Barton Kunstler (2004) calls the "*hothouse effect*". This is achieved when group productivity grows, thrives, and "*feeds on itself*". In a hothouse environment energy and intensity are not consumed, they expand. A confluence of forces that can be cultivated is needed for groups to reach the hothouse state. Academic organizations can shape these forces to boost team creativity and performance.

Barton Kunstler (2004) writes, "*The community that generates the hothouse effect can be identified by its ability to accomplish the following [five criteria]:*

1. *Sustain a high level of innovative creativity for a significant period of time.*

2. *Draw on the knowledge and innovations of the broader cultural zone to which it belongs.*

3. *Spawn geniuses whose achievements climax the work of many other practitioners at all levels of achievement, from the brilliant on down to the work-a-day purveyor of common goods.*

4. *Establish a new idiom, a new way of doing things that informs its creative products and establishes new standards, procedures, and principles in a variety of fields.*

5. *Achieve recognition from contemporaries and establish a lasting legacy to which future generations continually return and emulate*".

Few, if any, scholarly teams in health professions education have achieved "*hothouse*" status. However, this is a goal worth pursuing on grounds of potential contributions to the field, professional advancement, and collegial satisfaction.

With these key ideas as background the discussion now moves to practical matters of scholarship and writing toward the goal of *getting published in health professions education*.

This part of the *AMEE Guide* has seven sections that address knowledge, skills, and actions needed to publish scholarly work in health professions education: (a) What is important and reportable? (b) Planning and preparation, (c) Discipline of writing, (d) Manuscript quality, (e) Manuscript submission and sequelae, (f) Manuscript review, and (g) Writing in English. The narrative emphasizes publication of research reports while acknowledging other writing options. Table 1 and previous statements clearly show there are many other forms of scholarly expression and publication opportunities available to future authors. This part also stems from and extends *AMEE Guide No. 17, Writing for Journal Publication* that was published a decade ago (Parsell and Bligh, 1999). *AMEE Guide No. 17* remains available, timely, and useful.

What's important and reportable?

Journal editors are eager to receive manuscripts that address important or controversial topics. Health professions education, like other domains of practice and inquiry, advances as old and new educational approaches are studied, tested, argued, and shaped. Manuscripts that tackle "leading edge" research questions or policy issues are prized because they stretch current thinking and advance the field. An editor's first impression about a submitted paper concerns the importance of the research question or issue addressed by the manuscript and the report's location in an intellectual context.

Editors frequently use the "Who cares?" test as a screen to decide if a paper should advance in the editorial process. Does the manuscript make a genuine contribution to scholarship or does it rehash existing knowledge? For example, as a reviewer for several health science education journals, papers describing educational workshops where the outcome measure is participants' responses to questionnaire items about program satisfaction simply do not excite me. To be publishable, manuscripts must deal with topics that matter to the health science education community of teachers, administrators, and scholars. Papers on topics that are stale, shallow, or remote from professional priorities do not pass muster.

Steven Kanter, editor of the journal *Academic Medicine*, has expressed interest in receiving and publishing manuscripts that describe genuine innovations in academic medicine (2008). Kanter argues that reports about medical innovations need to answer more questions than "*What was done?*" and "*Did it work?*" To be important and reportable, Kanter states that manuscripts on medical innovations should present "*. . . a reflective, analytical and scholarly treatment that, to the extent possible and appropriate, satisfies the following criteria:*

1. *There is a clear and thorough description of the problem.*
2. *There is a statement about the degree to which the problem is generalizable.*
3. *Key issues of the stakeholders are stated.*
4. *There is a delineation of the array of potential solutions.*
5. *The details of why a particular solution was selected and/or developed are presented.*

6. *The implementation of a particular innovative solution is described.*

7. *There is a critical analysis of the quality of the innovative solution.*

8. *There is an assessment of the innovation's potential influence on the field, discipline, or area of study.*

9. *There is an account of the degree to which the innovation described is a sustained innovation".*

Authors who aim to publish reports about medical innovations in Academic Medicine should address these criteria as manuscripts are planned and written.

I have stated earlier that many types of manuscripts appeal to me (McGaghie 1999). They include "*educational research reports that feature atypical yet rigorous measurement methods, hypothesis-driven studies on basic subjects like reasoning and problem solving that are grounded in theory, program evaluations with control or comparison groups, expository yet meticulous accounts of qualitative inquiry, research on the construct validity of interpretations from educational measurements, and critical essays addressing controversial subjects from more than one perspective".* Other reviewers and editors, of course, may have different tastes.

In general, there are at least eight manuscript features that spark interest among journal editors (Bordage 2001; Bordage et al. 2001; Kazdin 1995; Nihalani & Mayrath 2008; Smart 2005). The eight manuscript features are listed in Box 2.

BOX 2
Manuscript feature that create interest

1. Importance of the question or topic addressed, i.e., successfully passing the "Who cares?" test;

2. Originality, presenting fresh data and ideas in a new and interesting way;

3. Timeliness, addressing a research problem or professional topic of major current interest to medical educators;

4. Grounded in current knowledge, i.e., demonstrate awareness of historical, cultural, or methodological context;

5. Relevance to the receiving journal, i.e., conforms with a journal's publication priorities;

6. Appropriate methods, i.e., uses correct research procedures;

7. Quality presentation, i.e., written report displays professionalism and is not amateurish;

8. Scientific and professional conduct, research and writing done according to ethical rules and standards.

Manuscripts that embody these features have a high probability of publication in health science education journals.

There are a number of persistent "hot topics" in health professions education that are receiving research attention, some for decades. Below is a short list of six new and recurring themes worldwide.

1. What is the best approach to *student selection* in a fixed-quota setting where the number of applicants exceeds the number of available spaces? Should selection decisions rely on test scores, candidates' personal qualities, life experience, ethnic background, or some combination of these variables? (McGaghie 2002; Ziv et al. 2008).

2. What are the best practices available for *educating great clinicians*? These include the balance of basic science and clinical education, depth and breadth of fund of knowledge, attention to skill acquisition and maintenance, interest in cultural competence, and other attributes of professionalism (Norman et al. 2002).

3. How shall we *evaluate fitness for practice* among young nurses, doctors, and technicians at the conclusion of training and among professionals in practice? Complex conceptual and measurement questions just won't go away (Downing & Yudkowsky 2009; Norman et al. 2002).

4. Educating and evaluating physicians, nurses, paramedics, and others to *engage in interdisciplinary teamwork*, to complement acquisition of individual knowledge and skill, is increasingly important in health professions education. Is there an optimal calculus for team composition? Are team members interchangeable? (Hammick et al. 2007, Rosen et al. 2008).

5. Attention to the *educational environment* where health science teaching and learning take place receives frequent research attention. Should health science education occur in the lecture hall or laboratory, problem-based learning group, individual tutorial session, with a standardized patient or other simulation, or some combination of these settings? The location and technologies of health science education warrant continued research attention (Norman et al. 2002).

6. Maintenance of clinical competence via a combination of self-regulation, self-education, and formal courses and evaluations presented by academic institutions and professional boards and agencies is often studied by evaluation researchers. What types of continuing professional education are most effective? What are the best approaches to evaluate clinical competence throughout a professional career? (Baumann & Moores 2009; Davis et al. 1995).

These and many other research and scholarly issues are important and reportable to the health professions education research community (McGaghie et al. 2008). Collegial discussion and effective mentoring will help young investigators identify significant scholarly topics.

What is the answer to the "*Who cares?*" test? Scholarship and publication in health sciences education has at least seven constituencies who care. They are (a) professional learners at all levels; (b) teachers and educators; (c) policy makers; (d) public and private funding sources and third party payers; (e) academic administrators, e.g., deans, program managers; (f) commercial vendors and manufacturers; and (g) the public. Each of these constituencies has a stake in the products of health professions education research and scholarship although their interests and motives vary. The products of scholarship and publication in health professions education are important and accessible to each constituency.

Planning and preparation

Inexperienced scholars are frequently impulsive. Young scholars, in particular, believe several common myths that are distorted views about healthcare education research and publication. Three myths are that (a) research and writing are easy; (b) scholarship is best done in spurts; and (c) a manuscript should be written, critiqued, and revised in many drafts to get the paper in final form. The goal of this section is to dispel such myths. The message is simple. For inexperienced scholars, authoring a peer reviewed journal article comes from hard work sustained over time. In addition, *the probability of getting published in health professions education is increased in direct proportion to an author's planning and preparation.* Inexperienced scholars must resist the impulse to "*start writing, now!*" They should, instead, heed the White Rabbit's advice to *Alice in Wonderland*, "*Don't just do something, stand there!*" (Carroll 2003). Young scholars must learn to plan and manage a detailed manuscript preparation strategy to increase the likelihood of publication success.

Planning a scholarly publication, and executing the plan to a finished product, requires thought, discipline, and persistence. The skill set needed to "*think through*" and create a manuscript ready for journal publication is similar to that needed to plan and conduct a research project. A well planned and executed research project often leads to a well written paper. Detailed and thoughtful planning and project management are keys to academic success.

Figure 1, which amplifies a similar figure (1a and b) in Parsell and Bligh (1999), shows the chain of events that happen when a message moves from an author through journal publication to intended readers. The message, of course, is the research data, editorial opinion, research synthesis, or persuasive prose targeted at readers. But to arrive at readers' desks an author needs to carefully consider the intended audience and the journal outlets audience members read. Is the audience composed of basic scientists; clinicians such as physiotherapists, dentists, physicians, or nurses; educators employed at health science schools; deans and administrators; government officials; or a combination of these groups? If an intended audience is small and focused, a specialty journal like *Advances in Physiology Education* or *Academic Psychiatry* works well. However, if an intended audience is broad, clinical and health professions education journals with wider scope are good outlets: *BMJ*, *Nursing Research*, *Medical Teacher*, *Journal of Dental Education*, *Journal of Allied Health*, *Advances in Health Sciences Education*, and many more.

The probability of getting published in health professions education is increased in direct proportion to an author's planning and preparation.

Young scholars must learn to plan and manage a detailed manuscript preparation strategy to increase the likelihood of publication success.
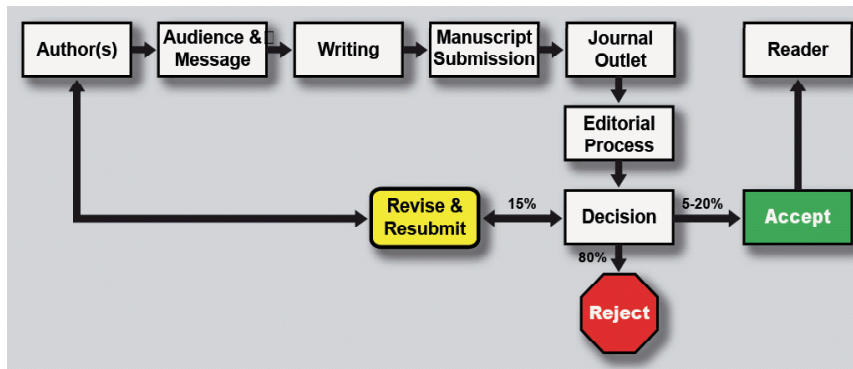
Figure 1 is also instructive because it shows that a range of about 5% to 20% of submitted manuscripts are accepted for journal publication. Percentages shown in Figure 1 are historical editorial decision rates for the AMEE journal, *Medical Teacher*. Other scholarly journals have different decision rates. Most submitted papers are either rejected immediately (approximately 80%) or critiqued and returned to the author for revision, resubmission, and more peer review until they are fit for publication (approximately 15%). A small fraction of submitted manuscripts (about 5%) are accepted outright for publication. Reviewers' critiques, usually summarized by the journal editor, may call for major or minor revisions. This is a key step in the editorial process as reviewers and editors work together with authors to boost manuscript quality to meet a journal's publication standards.

Manuscript rejection is a fact of academic life experienced by all scholars. Even seasoned, well published academic writers have their papers rejected due to editorial judgments about a manuscript's importance, methodological rigor, written presentation, and many other reasons. Reflective scholars take rejection in stride, study and learn from reviewers' critiques, and revise and resubmit their work serially to backup journals. Repeated rejections for the same reasons strongly suggest that a paper cannot be salvaged and that the author should move on to other projects.

Prospective authors are also advised to read and use the *Uniform Requirements for Manuscripts Submitted to Biomedical Journals: Writing and Editing for Biomedical Publication* (International Committee of Medical Journal Editors 2007). This is a practical, and wide-ranging source of advice about planning and preparing manuscripts for publication in biomedical journals. No details are spared. Its coverage includes ethical considerations about the conduct and reporting of research, publishing and editorial issues related to journal publication, **manuscript preparation and submission**, and other topics (emphasis added). Many tips about manuscript planning and preparation for biomedical journal publication that are contained in the *Uniform Requirements* also apply to health professions education journal articles.

Manuscript rejection is a fact of academic life experienced by all scholars.

Another key step in manuscript planning and preparation is to find out if standard reporting conventions apply to the type of research or review paper an author is planning. Many journals now insist that reporting conventions must be followed for a paper to be considered for publication. Statements describing reporting conventions for six types of study designs that are published in the health professions education literature are shown in Table 3. [The TREND and STROBE Statements cover similar study designs – quasi-experiments to behavioral scientists (Shadish et al. 2002) – and have consistent suggestions about reporting conventions.] The STARD Statement, which addresses papers about diagnostic test accuracy, offers good advice for health professions education studies reporting development of psychometric or edumetric measures. The SQUIRE statement gives reporting conventions for improvement studies in health care. The SQUIRE guidelines are directly applicable to educational research reports in the health sciences.

TABLE 3
Study Designs and Reporting Conventions

STUDY DESIGN	REPORTING CONVENTION
Randomized Controlled Trials	CONSORT Statement (Moher et al. 2001)
Non-randomized Comparative Studies	TREND Statement (Des Jarlais et al. 2004)
Observational Studies (cohort, case-control, observational)	STROBE Statement (von Elm et al. 2008)
Meta-Analyses: Randomized Controlled Trials	QUOROM Statement (Moher et al. 1999)
Meta-Analyses of Observational Studies	MOOSE Statement (Stroup et al. 2000)
Qualitative Reports	American Educational Research Association (2006); Popay et al. (1998)
Diagnostic Test Accuracy	STARD Statement (Bossuyt et al. 2003)
Health Care Improvement Studies	SQUIRE Statement (Davidoff et al. 2008)

Experience teaches that journals, like people, have habits. Journal habits involve both substance and style. Substance concerns the topics or content usually covered in articles published by a journal. Style is about the structure, organization, length, and appearance of a journal's articles. Savvy scholars scout target journals as needed for insights about manuscript planning and preparation. They study past journal issues carefully. Smart writers also question colleagues who have published papers in the target journal for tips about the journal's habits, preferences, and tastes. Scouting also yields insights about a journal's publication rate (no. papers accepted/total no. papers submitted) as an index of selectivity, types of manuscripts a journal seeks, and its publication history. Medical Teacher, for example, publishes about 20% of the manuscripts it receives (Figure 1). It publishes manuscripts as articles, short communications, letters, and in an "other" category (Twelve tips, What is . . . ? How to . . . ? Personal view). Knowing and attending to a journal's habits increases the odds that an author's submitted paper will be accepted for publication.

A closing message about planning and preparation is that all journals provide extensive *instructions to authors* about manuscript writing and submission. **Successful scholars follow these instructions without deviation**. One should

just obey these very clear and simple rules to increase the likelihood of a successful result.

Discipline of writing

Academic writing is hard work. Young scholars in particular struggle with writing because it requires focus, concentration, and organization. Writing calls for a set of skills and abilities that value reflection more than reaction. Good writers use words and language to structure, describe, and explain data and ideas to colleagues and critics. Skillful academic writers also aim for clarity and simplicity. The key is to make it easy for readers to comprehend your message, enjoy the experience, and look forward to future installments. Writers need discipline to reach these goals, an outlook that sees productive scholarship as a marathon, not a sprint.

Academic writing is solitary work that cannot be done by groups or committees (Klingner et al. 2005). After planning discussions or strategy sessions by a research team the responsibility to write a paper usually resides with the first author or a delegate. This person plans and outlines the manuscript, shapes its structure and language, and produces a draft. The act of scholarly writing is very different from other written expressions like preparing a thank-you note, listing recipe ingredients, or composing a song. That's why scholarly writing is best done alone in a study.

Young scholars in particular need to block out and jealously guard protected time for scholarly reading, writing, and reflection. Scholarship is legitimate work and is valued in proportion to its time allocation in one's daily schedule, and one's weekly, monthly, and annual calendar. If scholarly productivity is a professional expectation, time and resources must be set aside to achieve it.

If scholarly productivity is a professional expectation, time and resources must be set aside to achieve it.

Academic writing is often done in three consecutive stages. First, the author frames and shapes the *structure* of a report or manuscript. Most published research reports are governed by the familiar Introduction, Methods, Results, and Discussion (IMRaD) format (Day 1989; Huth 1999) and journal length limits (e.g., 3,000 words). Other publication formats such as essays, reviews, and editorials have fewer structural constraints which gives an author latitude about how to organize the paper. Second, the author *formulates arguments* by writing the "*big picture*" about the topic of a manuscript and later adding details. At this stage an author communicates a central theme, composes and supports a line of reasoning, presents and verifies data, and derives conclusions. In a research report the big picture is given in the Introduction, details appear in Methods and Results. The Discussion section may also address details and revisit a broader theme. Third, the author *edits and improves* an early draft as a manuscript moves toward journal submission.

Valuable advice about academic work is embodied in *Fenstemacher's Law of Writing*, named for my ninth grade English teacher, Mrs. Beryl Proctor Fenstemacher. *Fenstemacher's Law* is captured in five words: "*Plan, organize, outline, outline, outline . . .*". Mrs. Fenstemacher drilled her students incessantly about the importance of this simple rule, that a manuscript should be *outlined* in multiple drafts but *written* in three drafts or less. Outlines should be written in great detail, down to the level of individual paragraphs, identify tables and

figures, and cite all references. She also set conditions where her students engaged in much focused, sweaty, deliberate practice (Ericsson 2004) to fulfill the *Law's* requirements. No doubt Mrs. Fenstemacher would be pleased to know her *Law of Writing* is now in print. No doubt she would be pleased to know the outline for this AMEE Guide went through four drafts while the writing occupied two drafts.

Manuscript planning is often an iterative, back-and-forth process as an author rewrites an outline to sculpt its form and style. Authors should anticipate and respond to changes as an outline takes shape. A writer's thinking and planned products may change as an outline is formed. Multiple products may emerge as an outline is massaged. The best publication strategy for a project may be a set of complementary papers, rather than just one big report. Of course, authors must avoid the "*least publishable unit*" (LPU) ethical trap that results in "*salami science*". This happens when authors use the smallest amount of information that can produce a publication in a peer reviewed journal (Abraham 2000).

Manuscript writing begins after an author is satisfied the outline is complete and needs no more revision. The first draft should include all outlined sections, tables, figures, references, and supplementary material for worldwide web publication, if any. The paper need not be written from beginning to end (you may start anywhere) but a draft needs to be composed as a complete document.

When the first draft is finished it is important to get feedback about the complete manuscript from colleagues. Never ask for feedback about separate parts. Ask colleagues, especially experienced scholars, to read and evaluate the paper critically. Solicit ideas about how the paper may be improved and revise as needed. Acknowledge the feedback and assistance in a footnote or via another mechanism.

Klinger et al. (2005) point out that the disciplined scholarly work involved in planning and writing a manuscript also means an author must address a set of questions, often without awareness. What is the reason for publishing, i.e., intrinsic or extrinsic motives? What is the scope of the manuscript – breadth, depth, and length? How is this report connected to a broader field or intellectual context? What are the target and backup journals – intended audience and its interests? Will coauthors participate in this work? If coauthors are involved one should decide and make public very early which persons or team members deserve authorship credit. The *Uniform Requirements* give advice about granting authorship credit. Browner (2006) has published a checklist for this purpose.

Academic writing is a strategic activity because it involves planning and organizing, usually in several rounds. Writing is also tactical because a finished paper comes from the practical work of outlining, writing, and revising just described. Mrs. Fenstemacher also taught her students that authors should write and present reports to readers that (a) tells them what you set out to do, (b) tells them what you did, (c) tells them what you found, (d) discusses what you found, and (e) does not forget about style. Mrs. Fenstemacher's advice is as timely today as it was nearly 50 years ago.

Many writing aids are available to scholars and should be consulted regularly. The most popular and enduring guide to writing is Strunk and White's (2006) *Elements of Style*. This short book is *required reading* for academic authors. Other popular textbooks about academic writing have been authored by Becker (1986), Huth (1999), Richardson (1990), and Swales and Feak (2004). Advice about writing for a general audience of laypersons is provided by Kendall-Tackett (2007). Academic writers are also advised to have a Thesaurus and Dictionary on hand for quick consultation.

Manuscript quality

Composing a quality manuscript is not an accident. The finished product results from planning and preparation; organization; thoughtful outlining, often in several drafts; disciplined writing; and critique from colleagues. Each step along this path should be careful and deliberate, an opportunity to learn and mature – not just to finish a project quickly. Chance has no role in writing a good paper.

Higher education scholar John Smart (2005) has identified seven attributes of exemplary manuscripts reporting quantitative research. These manuscript features are directly applicable to many papers that are submitted for publication to health professions education journals. High quality quantitative manuscripts demonstrate the characteristics highlighted in Box 3.

> **BOX 3**
> **Characteristics of quality quantitative manuscripts**
>
> 1. Exhibit balance among sections of the manuscript (i.e., length, emphasis);
> 2. Are thoroughly grounded in the appropriate research literature;
> 3. Are theory based;
> 4. Are attentive to measurement issues (i.e., data reliability, validity of inferences and arguments);
> 5. Report complete results of statistical analyses;
> 6. Distinguish between the statistical and practical significance of their findings, and;
> 7. Have important implications for both future research and current practice and policy.

This list of exemplary manuscript attributes found in Box 3 is important because it conforms directly with criteria that journal referees and editors use to judge if a paper is publishable. They also strongly agree with the criteria and standards for assessment of scholarship presented in Table 2 (Glassick et al. 1997). There are no secrets here. Authors who think about these criteria as manuscripts are planned, outlined, and written have a higher probability of getting their work published than peers who work impulsively.

The American Educational Research Association (AERA) has also published *Standards for Reporting on Empirical Social Science Research* (2006) that speak directly to prospective authors in health sciences education. Without addressing the style of manuscript organization (e.g., IMRaD) the AERA *Standards for Reporting* teach that a quality manuscript reporting an empirical study must address eight general issues, shown in Box 4.

Effective professional writing is stylish but not flowery. Good scientific and professional writing uses appropriate vocabulary, respectable grammar, language that communicates directly, and a style that is suitable to the topic, audience, and journal outlet. Such writing is seen in concise, declarative sentences that obey rules of composition (Swales and Feak 2004). Literary enhancements including alliteration and metaphor are only used in empirical journal articles to clarify, not embellish, arguments. But for qualitative research reports sociologist Laurel Richardson (1990) argues persuasively, "*Metaphor is the backbone of social science writing, and like a true spine, it bears weight, permits movement, links parts together into a functional, coherent whole – and is not immediately visible*". I agree. This contrasts with quantitative research reports that use literary devices sparingly. Attention to these points will result in a written presentation that communicates a lot of information in relatively few words.

Experienced writers also know that a manuscript's appearance is important. To be good it must look good. Mrs. Fenstemacher always insisted, "*You never get a second chance to make a first impression!*" Authors should pay close attention to manuscript details before submitting work for publication consideration: margins, appropriate font size, sentence structure, pagination, clarity of tables and figures, accuracy of citations, and other finepoints. This calls for meticulous copy editing before manuscript submission. Ask yourself: Is this a truly professional presentation? How can the paper be improved?

Manuscript submission and sequelae

Once a manuscript has been completed and has been read and critiqued by colleagues, the paper is ready for submission to a scholarly journal. The submission process is simple and straightforward and is described in detail in each journal's instructions to authors. Most journals now receive manuscript submissions and correspond with authors via a website. This means that submission-ready manuscripts including tables, figures, figure legends, references, and any other items need to be prepared as word processor files

that can be uploaded to the website as attachments. Some journals insist that the complete manuscript must be submitted as a single document. Other journals prefer to receive a manuscript in separate parts. In either case the journal's instructions must be followed.

Supplementary materials usually accompany a manuscript submission. Most journals expect each author to sign and submit a statement that the scholarly work is original, is not being submitted elsewhere, has not been published previously, and that the author accepts responsibility for the accuracy and truth of the manuscript's contents. Journals also want assurance that the research being reported has been approved by a university or medical school Institutional Review Board (IRB) regarding protection and safety of human subjects. Research that is exempt from IRB oversight because it poses no risks to humans must be identified clearly. Most journals expect a cover letter describing the purpose and scope of a research study, features of the manuscript, and other details to accompany a manuscript submission.

The manuscript review process is generally uniform for most scholarly journals. The process begins after a paper has been received at the journal editorial office. Each paper is screened quickly for its propriety to the journal's scholarly goals, format, and style. Many journals will return a manuscript immediately if the submission is flawed, improper, or does not conform with instructions to authors. After passing the initial screen the manuscript is assigned a number for tracking, clerical filing, and sometimes to code its content and methodology. An editor then reads the manuscript and either rejects the paper outright or sends it out for further review by journal referees. In either case the editor will notify the corresponding author (usually via email) about the status of the manuscript in the editorial process and when a decision can be expected. Most health professions education journals provide an initial editorial decision in six to eight weeks.

Journal editors and editorial boards are an author's ally, not an adversary. Editors are eager to receive high quality manuscripts. They genuinely savor great papers. But truly great papers are very rare so journal editors and referees frequently work with authors to boost the quality of papers that are weak at first submission. Editors and referees give valuable advice and feedback about most papers that cross their desks.

A bit of advice is in order here. An author or a research team should **never** submit a manuscript for journal editorial review that is incomplete, a rough draft, or sloppy. Such behavior is simply unprofessional. A submitted manuscript must be one's "*best shot*" at the publication target.

Figure 1 shows that only about 5% of first submission manuscripts are accepted outright for publication in *Medical Teacher* (or other journals) without revision. The majority of manuscripts submitted to *Medical Teacher* (about 80%) are rejected for many different reasons that are detailed in the next section of this *AMEE Guide*. Approximately 5% to 20% of papers submitted to *Medical Teacher* are returned to authors with "*revise and resubmit*" (R & R) instructions after a first submission. The accept, reject, and revise and resubmit rates for *Medical Teacher* are basically representative of other academic journals in health professions education.

Journal editors and editorial boards are an author's ally, not an adversary.

Receiving a R & R letter from a journal editor about a submitted manuscript accompanied by detailed critiques from anonymous referees is a sign of encouragement, not a death sentence. This is a clear indication that the editor and several academic peers believe the paper has publication potential after improvements are made. Suggestions about improvements in a manuscript can address many topics: length, organization, writing quality, data analyses, data presentation, references, and many more. The point is that authors who receive such a letter with critiques should not feel abused or discouraged. Instead, they should study the critiques carefully, revise the manuscript in response to as many critical comments as possible or necessary, and resubmit the manuscript promptly. With few exceptions, authors find that following referees' advice greatly improves manuscript quality.

Table 4 (overleaf) presents excerpts from an author's response to a journal editor's R & R letter. This response was composed by my colleague, internist Diane B. Wayne, MD, about a manuscript that was later published in the *Journal of General Internal Medicine* (Wayne et al. 2006). Note that Dr. Wayne restates the critical comments individually, responds to each critical comment directly, and tells the editor the specific locations in the revised manuscript where changes can be found. Note also that an author need not agree with all reviewers' comments and suggested revisions. Authors are free to present reasoned counterarguments about not making suggested revisions. The final result is a manuscript revised to conform with most, but not necessarily all, referees' suggestions along with a detailed letter to the journal editor explaining completed revisions. The journal editor is now ready to reach a final decision about accepting or rejecting the manuscript.

Once the manuscript is accepted, authors are required to sign and return a copyright release form to the journal or its sponsoring organization and the paper advances to production and printing.

September 27, 2005

Brent C. Williams, MD, MPH
Deputy Editor, Journal of General Internal Medicine

RE: Manuscript # 1586

Dear Dr. Williams,

Thank you for your preliminary acceptance of our manuscript entitled, "Mastery Learning of Advanced Cardiac Life Support Skills by Internal Medicine Residents Using Simulation Technology and Deliberate Practice." In this letter we have responded to all of your comments as well as those of each of the three reviewers.

Editor's Comments
1) Mastery vs. competence. The issue of the use of terms "mastery" and "competence" has been defined in the introduction on page 6.
. . .
4) Table 1 has been shortened as per your instructions
. . .
8) Translate regression coefficients in plain language. We have added a sentence to the text on page 14. On average, each additional 15 minutes of practice time . . .

Reviewer 1 Comments
1) Timeline of the study is unclear. Over what period of time were the Educational sessions and posttests conducted? Did the time vary among the learners? We have clarified the time for testing and training on page 8 under Procedure
. . .
4) Participant sample size is less than ideal. We agree with this statement but believe that the study conclusions are valid. To enlarge our sample size, enrollment of further groups of residents is underway at our institution.

Reviewer 2 Comments
. . .
4) Methods. The authors might consider clarifying whether the post-test scenarios were the same or were modified in order to clarify potential biases. To minimize this issue, we used two outcome measures: Post test A and Post test B. This is described in the results section in the middle paragraph, page 13.
. . .
7) Assessment of changes in patient care outcomes, ACLS guidelines and long-term retention of skill. As these are underway, we have added the following sentence at the bottom of page 17. "Further work at our institution is ongoing to expand the mastery model to include other required procedures, document compliance with published guidelines in actual ACLS events, and assess long term retention of skill following initial simulator training."

Reviewer 3 Comments
2) Why did 8 residents not reach mastery? Was it cognitive, procedure related or both? The answer to this is not known. However, the residents easily reached the [minimum passing standards] MPSs with minimal additional training.

Again, thank you for your consideration of this paper.

Diane B. Wayne, MD
Corresponding Author

Manuscript review

How are medical education manuscripts judged? What are the criteria and standards that govern decisions about the publishability of papers submitted to academic journals? Who are the people that make publication decisions?

The criteria used to judge the fitness of a medical education manuscript for journal publication are transparent and public. One set of criteria is contained in the *Review Criteria for Research Manuscripts*, published by the Association of American Medical Colleges (Bordage et al. 2001). This

The criteria used to judge the fitness of a medical education manuscript for journal publication are transparent and public.

document lists and describes 13 criteria that are used to evaluate medical education research manuscripts, shown in Box 5.

These 13 criteria are used as checklist items to evaluate papers submitted to the annual Conference on Research in Medical Education (RIME) sponsored by the AAMC. Papers accepted for presentation at the RIME Conference are published simultaneously in an annual supplement to *Academic Medicine.* Smart and ambitious authors should craft their research manuscripts to address each of the review criteria.

The *Review Criteria for Research Manuscripts* also lays bare the review process pathway, how publication decisions are made, and several matters on professionalism in scholarly publication. These seven sections are described in Box 6.

Appendices to the *Review Criteria* document include a checklist of the review criteria, a list of resources for reviewers, and a set of sample review forms from seven journals that publish medical education research reports. Together, this set of written materials is a comprehensive roadmap for scholars worldwide who aim to publish their work to reach the academic medical community. Nurses, dentists, paramedics, physiotherapists and professionals in other health fields will also benefit from study, use, and adaptation of the AAMC *Review Criteria*. The procedures, criteria, and standards used to evaluate scholarship in diverse healthcare professions are much more similar than they are different.

Review criteria for research manuscripts may be clear, public, and straightforward but their use and interpretation depends on fallible human judgment. The principle of peer review is the *sine qua non* of academic work, the idea that the quality and publishability of a manuscript is best judged by one's colleagues. But colleagues disagree, sometimes widely. For example, in a cross-disciplinary investigation of peer review for manuscript and grant submissions Cicchetti (1991) reports the degree of reviewer agreement is about 30%. This result is amplified in another article by Fiske and Fogg (1990) titled, "But the reviewers are making different criticisms of my paper! Diversity and uniqueness in reviewer comments." Reflecting on this state-of-affairs I noted earlier, "*The literature about the reliability of peer review is sobering. Today's best evidence indicates that (a) inter-rater agreement concerning the quality of manuscripts and grant applications is modest at best, and (b) reviewers achieve greater consensus over rejection than acceptance*" (McGaghie 1999).

What this means in practical terms is that subjective judgment is always part of manuscript evaluation despite the use of objective review criteria. Scientists and scholars approach their work from a variety of perspectives. They read, weigh, and judge research and writing done by other people by gauging the work using different rules and methods. Scholarly tastes are not identical and differences are revealed frequently in peer reviewers' manuscript evaluations. However, no better alternative to peer review for judging the quality of academic work or its products has yet been proposed.

Why are medical education manuscripts accepted and rejected? In a recent study of the medical education research review process Bordage (2001) observed, "*The main strengths noted in accepted manuscripts were (a) importance or timeliness of the problem studied; (b) excellence of writing; and (c) soundness of the study design*". Bordage (2001) also reports, "*The top ten reasons for [manuscript] rejection were: (a) inappropriate or incomplete statistics; (b) over-interpretation of results; (c) inappropriate or suboptimal instrumentation; (d) sample size too small or biased; (e) text difficult to follow; (f) insufficient problem statement; (g) inaccurate or inconsistent data reported; (h) incomplete, inaccurate, or outdated review of the literature; (i) insufficient data presented; and (j) defective tables or figures.*" Bordage concludes his article with the statement, "*While overstating the results and applying the wrong statistics can be fixed, other problems that the reviewers' identified (ignoring the literature, designing poor studies, choosing inappropriate instruments, and writing poor manuscripts) are likely to be fatal flaws warranting rejection*".

Review criteria for research manuscripts may be clear, public, and straightforward but their use and interpretation depends on fallible human judgment.

Recent publications in the nursing (Sullivan 2002) and respiratory therapy (Pierson 2004) professions echo these findings from academic medicine. This underscores the similarity of form and purpose of educational scholarship across the academic health professions.

Journal editor Lynn Worsham (2008) reports "*what editors want*" from academic authors who submit manuscripts for publication. Worsham advises:

- "Familiarize yourself with the types of articles that a journal publishes and only submit work appropriate for that journal.

- Pay close attention to the tone and style of work published in the journal and try to duplicate it in your own work.

- Follow, religiously, the style guide used by the journal.

- Only submit work that you believe to be final, publishable copy. A poorly proofread manuscript wastes your time and mine.

- Placing your work in the context of articles previously published in the journal is good scholarly practice and helps make your article a better 'fit' for the journal.

- Follow the journal's submission rules – exactly.

- Develop a healthy attitude toward rejection. You know from the outset that competition is fierce, so maintain a positive attitude."

The lessons about manuscript review are becoming clear. Health professions education scholars should attend to Smart's (2005) seven attributes of a high quality quantitative research report, the AERA (2006) reporting standards, *Fenstemacher's Law of Writing*, the AAMC *Review Criteria for Research Manuscripts* (Bordage et al. 2001), results from the Bordage (2001) study, and Worsham's advice. Health science education researchers who take counsel from these reports and statements increase the likelihood that their manuscripts will be accepted for journal publication.

Finally, inexperienced scholars often ask, "*Who are the people who judge manuscripts submitted to health professions education journals?*". The answer is simple. Reviewers are seasoned, experienced scholars with a track record of publications in the field. These are the peers who are responsible for peer review. Go to any academic conference and you can meet these women and men face-to-face. Peer reviewers' motives are also plain – to improve the knowledge and practice base in health professions education and contribute to career development of young scholars. That's why attending to and learning from feedback given by peer reviewers is so important. Harold Sox, editor of the *Annals of Internal Medicine* puts it bluntly, "*Failure to take a good review seriously is a recipe for failure*" (Sox and Halm 2007).

Writing in English

All scholars, even those with many publications authored over a long time-span, struggle with written expression. This is true for educational, clinical and laboratory scientists, textbook authors, essayists, and academic authors who write for popular, laymen's magazines. Like any other academic skill set, scholarly writing skills are acquired slowly from focused, deliberate practice

with feedback sustained over a long period of time (Ericsson 2004, 2006; Ericsson et al. 1993). Maintenance and improvement of writing skills depends on continued deliberate practice throughout one's scholarly career. If academic writing was easy, like riding a bicycle, many more people would do this work.

English is now the language of science, technology, and professional practice for the academic community worldwide. Political scientist Samuel Huntington observes (1996), "... [English] is the world's lingua franca, or in linguistic terms, the world's principal Language of Wider Communication (LWC)". Proficiency in written and spoken English is now an expectation, a common denominator, for scientists and scholars who aim to publish professional work and writing in medical education. Writing in English is very difficult, even for persons with English as the primary language. Health science education scholars for whom English is a secondary or tertiary language have an even tougher challenge because their ideas and data need to be written in a foreign language that reflects a different culture. The destination, *getting published in health professions education*, is the same for all but the roads to reach the destination are difficult to travel.

Many scholars have noted that use of a lingua franca like English is simply a means of international discourse. It neither suggests a cultural hierarchy nor dismisses national differences. Huntington (1996) continues, "*English is the world's way of communicating interculturally ... intercultural communication ... presupposes the existence of separate cultures. A lingua franca is a way of coping with linguistic and cultural differences, not a way of eliminating them. It is a tool for communication not a source of identify and community*". On pragmatic grounds, English as the language of science and technology is just a necessary convenience. Huntington concludes, "*The use of English for intercultural communication thus helps to maintain and, indeed, reinforces peoples' separate cultural identities. Precisely because people want to preserve their own culture they use English to communicate with peoples of other cultures*".

To illustrate, psychologist Richard Nisbett (2003) contrasts East Asian languages with Western languages where English is indigenous in the book, *The Geography of Thought: How Asians and Westerners Think Differently – and Why*. Nisbett notes that Western language and thought place less emphasis on context, more on static objects that can be grouped into categories. By contrast, Asian languages tend to value thought integration and focus on relationships. Nisbett (2003) writes, "*East Asian languages are highly 'contextual.' Words [or phonemes] typically have multiple meanings, so to be understood they require the context of sentences. English words are relatively distinctive and English speakers in addition are concerned to make sense that words and utterances require as little context as possible*". Nisbett continues, "*Western languages force a preoccupation with focal objects as opposed to context. English is a 'subject-prominent' language*". No doubt these linguistic features contribute to the highly structured and tight IMRaD organization for quantitative Western journal articles. No doubt this also contributes to the Strunk and White (2006) mantra in their book *Elements of Style*, 4th ed. [cited earlier as *required reading* for health professions education scholars]:

Proficiency in written and spoken English is now an expectation, a common denominator, for scientists and scholars who aim to publish professional work and writing in medical education.

" *Vigorous writing is concise. A sentence should contain no unnecessary words, a paragraph no unnecessary sentences, for the same reason that a drawing should have no unnecessary lines and a machine no unnecessary parts. This requires not that the writer make all sentences short or avoid all detail and treat subjects only in outline, but that every word tell*".

The rest of this section presents some ideas about the writing in English problem drawn from experience leading writing workshops at AMEE and other meetings and the work of other scholars. Two lists of suggestions are then given to colleagues who struggle with writing in English. The two lists are simple, practical, and reinforce the idea that focused hard work and especially deliberate practice (Ericsson 2004, 2006) is the key to writing in English that leads to success in the form of health professions education publications.

The first set of suggestions is received from Benfield and Feak (2006) in an article titled, "*How authors can cope with the burden of English as an international language*". These writers state, "*. . . the following is our 'take home' message.*

1. *Contributions from EIL [English as an International Language] authors in English are welcomed and sought by the best peer-reviewed journals.*

2. *EIL authors should not compromise achieving full expression of their thoughts.*

3. *EIL authors should carefully evaluate the credentials and experience of any language professional they might retain. They must not assume that any well-educated native English speaker merits their trust and payment.*

4. *EIL authors should seek the assistance of a peer with good English-writing skills, if at all possible.*

5. *The review of EIL manuscripts by a qualified language professional should precede review by a qualified peer.*

6. *EIL authors are encouraged to create regular opportunities in their own communities to use English at least once a month.*

7. *The goal of creating an ideal budget-neutral authors editorial service for EIL authors is realistic if startup funding to work in that direction could be found*".

The second list of suggestions is offered by Tompson (2006) from a publication titled, "*How to write an English medical manuscript that will be published and have impact*". Tompson teaches:

1. Write only one thought per sentence.

2. Use paragraphs wisely to group related thoughts and to make your paper easy to follow.

3. Eliminate unnecessary words.

4. Avoid redundant words and phrases.

5. Always try to choose the shortest, clearest word or phrase.

6. Write confidently, using the active voice whenever possible.

7. Avoid ambiguity.

8. Use the same grammatical structure in each sentence (parallel structure).

9. Ensure that verb tenses are consistent and correct.

10. Avoid unnecessary repetition of facts and data throughout your manuscript.

11. Always write your Abstract last, after you have analyzed your findings and defined their meaning.

12. The title is the most important word construction in your whole paper, so write a good one.

A final piece of advice reinforces a short statement from Benfield and Feak (2006). This concerns commercial editing agencies who sell their services at any stage of manuscript development: outline, first draft, revision, submission, R & R letter, revision, resubmission. Breugelmans and Barron (2008) warn EIL authors that many of the editing services control direct access between authors and language professionals. They caution that, "*This prevents authors from accessing the person(s) who edited their final manuscript and makes it more difficult for them to overcome the last hurdle. As a result, too many manuscripts that could eventually be published if the last hurdle is handled properly end up in a file drawer and never again see the light of day, which is a loss not only for the authors' publishing careers but for science overall*". In short, EIL authors who employ a commercial editing service should exercise *caveat emptor* (let the buyer beware) very carefully and only use a firm that serves their best interests.

We now move from advice about how to complete individual manuscripts to a broader discussion about conducting a satisfying and productive career as a scholar.

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Twenty-one skills to provide practical advice in planning a career in Health Professionals education

This Part of the *AMEE Guide* aims to provide practical advice about how to plan and manage a successful career in health professions education that has scholarship and publication as a key facet. It is presented as a set of 21 skills, beyond the 101½ lessons presented earlier by Robert Sternberg (2004) which are unspoken rules for career success in all academic fields. The list complements an excellent textbook chapter on "*career development for medical student clinical educators*" authored by Jozefowicz and Sierles (2005). The list also exposes a Western bias and is idiosyncratic, grounded in one scholar's personal experience.

1. **Know local rules**. Academic newcomers in any health profession need to understand the rules that govern career advancement. Schools, colleges, faculties, and institutes for health professions education are not the same. They vary widely about their expectations for faculty work in clinical practice, education, research and scholarship, administration, community service, public outreach, and other roles. Some schools have different "*tracks*" for clinicians, educators, and researchers as single career paths and in several combinations. Expectations about faculty work also vary by country and culture. Many health professions schools and colleges publish the rules that govern faculty career advancement in the form of a *Faculty Handbook*. But some schools and colleges do not have such a document which means that individual faculty must discover or figure out how they will be evaluated and judged professionally.

   Once the rules for faculty advancement and promotion are known, a faculty member can develop a career academic plan including objectives, activities, and timelines (Bogdewic 1986; Jozefowicz & Sierles 2005). Early in one's career, the plan should be reviewed and discussed with a supervisor (e.g., department chairperson, dean) frequently—for example, every six months. The review cycle can become annual as one's career matures. The purpose of the review is to gauge progress, receive feedback, and change career goals as needed. The goal is to make steady, measureable progress toward academic promotion and tenure, if it applies. Time between reviews is spent on usual professional work and managing one's portfolio.

2. **Manage a portfolio**. One's career is too important to be left to chance; casual, episodic attention; or to the stewardship of another person like a dean or another administrator. A proactive healthcare education scholar should build and manage a professional portfolio that describes and documents professional goals and activities, provides evidence about their quality or impact, and allows for frequent updates of one's academic profile. Creating and maintaining a portfolio is essential for career management, especially to anticipate academic promotion milestones. A professional portfolio is more than a *curriculum vitae*. It is a repository that contains tangible documents or other objects (e.g., videos, DVDs) that document a scholar's cumulative record of achievements and contributions to the academic community:

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publications, presentations at professional meetings, grants funded, administrative responsibilities, committee service, teaching in any form.

Several scholarly teams provide good advice about how to craft and use a professional portfolio for career advancement (Hafler et al. 2005; Simpson et al. 2004). The form of one's professional portfolio may be a simple accordion-type file containing a set of tabbed folders; a ring binder with divided sections; or a computer data base. Any of these approaches is satisfactory. Hafler and colleagues (2005) teach that the key is to, "*Begin as early as possible to systematically store evidence, but it is never too late to start. Hold early conversations with colleagues to explore the areas of your work that can be pursued with a scholarly approach*".

3. **Keep your purposes clear**. The title of this *AMEE Guide* is *Scholarship, Publication*, and *Career Advancement in Health Professions Education*. The title's intent is to assert that **education of health clinicians** is our primary goal. Scholarship and publication are among many ways to reach the goal. Health professions education is also advanced by lecturing about basic medical sciences, tutoring a PBL group, supervising students in a patient care setting, community service, public health advocacy, school committee service, work as an oral examiner, reviewing manuscripts for health science education journals, and many other roles. However, in accounting terms the "*bottom line*" is to **educate superb clinicians** – nurses, dentists, physicians, paramedics and many others who are better than the current generation of health care providers. All other objectives are secondary.

4. **Set goals**. Health professions education scholars, individuals and teams, need to set clear goals to frame and channel their work. Scholars need to address research goals selectively, in priority order, recognizing that time, energy, and resource limits prevent attention to all academic objectives. Productive scholars keep focused on particular research goals and resist distraction. This is especially important during the early formation of scholars where one's research skills and academic identity must undergo progressive development from deliberate practice, feedback, and involvement in a scholarly community (Walker et al. 2008). A key sign of progressive development in scholarship is the ability to set and stay focused on one's academic goals.
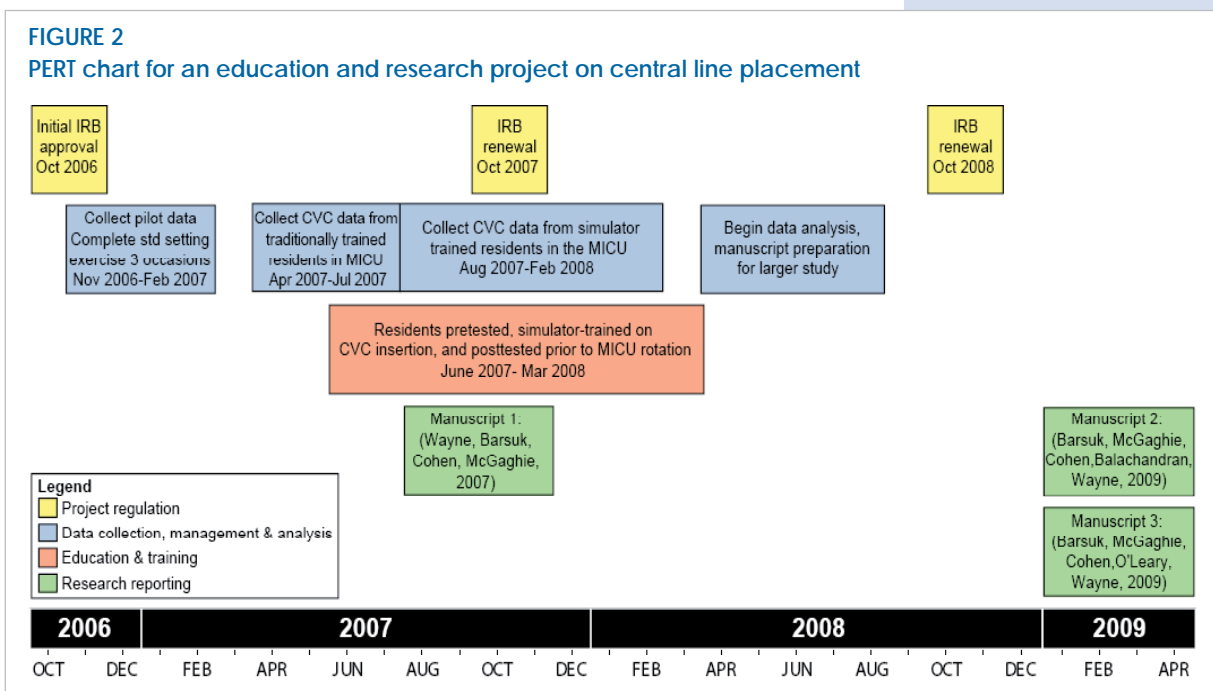
Preparing a research agenda is a good way for health professions education scholars to express research priorities and distribute research tasks. A research agenda is also useful because it identifies potential goals that are "*off limits*", lines of research that *will not* be addressed. Recent examples are simulation-based research agendas published in the specialty of emergency medicine (Bond et al. 2007; McGaghie 2008). These agendas clearly show that simulation for education and training, evaluation and testing, and for special topics (e.g., care processes and organizational design) are research priorities in emergency medicine. Of note, simulation for selection among trainee candidates (Ziv et al. 2008) is not a research agenda item in emergency medicine.

5. **Plan and organize before starting a project**. Success in scholarship and publication, just like other professional endeavors, stems from a thoughtful plan. Given scholarly goals that include production of tangible products (e.g., journal manuscripts, book chapters, educational videos), assignment of responsibility (e.g., inclusion and order of authors), and deadlines are essential for success. The reasons for planning and organizing a project are simple. If you don't have goals, a roadmap, and assignments of responsibility, you will never know if you have reached your destination.

A good way to write out and organize scholarly goals is to use *Program Evaluation and Review Technique* (PERT) planning and management tools (Milosevic 2003). Creation of a PERT chart for an academic project like a doctoral dissertation encourages a writer to identify tasks, milestones, a timetable, and other planning variables. Computer software contained in Microsoft *Project*™ and other programs can contribute to this work.

Figure 2 presents an example of a PERT chart that describes an education and research project on using medical simulation to evaluate and enhance internal medicine residents' clinical skills at central line placement. Northwestern University internists Jeffrey H. Barsuk and Diane B. Wayne share project leadership with local funding from an Augusta Webster, MD, research grant. The PERT chart spans a more than two year period and displays project regulation, data processing, and education and training activities with milestones. One project activity, IRB renewal, recurs on a regular (i.e., annual) cycle. Other activities including data analysis and writing individual manuscripts are singular events. The chart also shows that tangible products in the form of manuscripts that report research results are a clear project goal. This simple chart (others are more complex) provides a visual aid that contributes to project planning and organization.

> Success in scholarship and publication, just like other professional endeavors, stems from a thoughtful plan. If you don't have goals, a roadmap, and assignments of responsibility, you will never know if you have reached your destination.

FIGURE 2
PERT chart for an education and research project on central line placement

6. **Monitor and document progress**. Preparation of an academic plan cast as a PERT chart or displayed some other way makes it easy to monitor one's progress and make adjustments as needed. Individual scholars and academic teams should review goals, timetables, and assigned responsibilities frequently (e.g., monthly meetings) to monitor progress, document successes, identify and address problems, and use feedback constructively. Project teams, for example, may find it necessary to change or rotate leadership, reassign authorship credit, or redistribute academic resources (e.g., clerical help) at an unexpected time or stage of project fulfillment. Such an event can be difficult and painful for the team and team members. Having a detailed project plan will not eliminate distress in these situations but will make it easier to navigate the transition.

7. **Engage a scholarly theme**. Research and scholarship in health professions education will have greater utility and impact when focused on a consistent theme that underlies a cumulative research program. Scattered, one-shot, disconnected studies are less likely to inform best practices in health science education than investigations that contribute to a thematic research line. Psychologist Alan Kazdin (2003) teaches, "*Through scientific research one can describe and explain phenomena of interest and do so in ways that are cumulative*" (emphasis added). Kazdin continues, "*There is a flow to research and a seamless process. A given study is in a sequence and historical tradition in the area of investigation; within the study itself is a process that does not quite have a clear beginning and end. For example, the write-up of a study is not the end of a sequence of tasks in research. The well-described and presented write-up ought to point rather clearly to the next studies, and hence it constitutes a new beginning*".

An excellent example of a research program addressing a cumulative, scholarly theme is work on descriptive student evaluation in medicine clerkships pioneered by Louis Pangaro and colleagues, summarized by Carnahan and Hemmer (2005). Pangaro defined and has amplified the **R-I-M-E Framework** for student evaluation in medical clerkships in a series of publications over ten years (Hemmer & Pangaro 1997; Lavin & Pangaro 1998; Pangaro 1999; Hemmer et al. 2000; Battistone et al. 2002; Durning et al. 2003; Durning et.al. 2007). This framework encourages documentation of medical student clinical progression from "*Reporter*" to "*Interpreter*" to "*Manager/Educator*" (RIME). Pangaro's RIME Framework is now in widespread use for medical student evaluation in North America and elsewhere (Ogburn & Espey 2003)

8. **Read widely and in depth**. Scholarship is enhanced when an author's fund of knowledge (and experience) is both wide and deep. Thus it helps not only to routinely read books and journals that are pertinent to one's field (e.g., *Medical Teacher*, *Journal of Dental Education*, *Nursing Research*) but also in professional and popular domains that surround but may not be directly related to one's work. These domains include biography, poetry, popular culture, comic strips, religious works, crossword puzzles and many others.

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Publication in any academic field is enriched when authors can draw upon a broad and deep knowledge reservoir. Effective writing is grounded in powerful reading in one's field of specialization and throughout a broader literature.

9. **See and anticipate opportunities**. Be alert to scholarly opportunities where issues like *conflict* (e.g., PBL vs. traditional curricula), *gaps* (e.g., unavailability of rigorous measures of clinical reasoning), *obsolescence* (e.g., medical clinical clerkships as an educational activity), or *underlying assumptions* (e.g., institutional prestige as a proxy for educational excellence) need to be addressed. Education in the learned professions has never been without scholarly opportunities that lead to publications. Research and writing options are everywhere.

10. **Be assertive**. Journal editors and professional association (e.g., AMEE) program committees are always receptive to proposals about good ideas for such items as review articles, thematic journal issues, novel approaches to publication, symposia, and stirring up controversy. Do not be passive about a good idea. Write it up and float a proposal to a journal editor or program committee chair for a professional meeting. The worst possible outcome is for the recipient to say no.

11. **Engage mentors**. A mentor is an indispensable asset when one is learning to become a productive scholar. Your mentor is usually a scholar in your own discipline or specialty, but this is not a requirement. Such a person gives practical and professional guidance about projects that are worth pursuing, the direction and quality of one's work, how to behave in professional situations, and how to *"climb the academic ladder"*. A mentor's advice to a protégé frequently involves transmission of *"tacit knowledge"* about professional life. This is knowledge that defies formal instruction, is expressed in some form of protégé action, is relevant to protégé goals and values, and pertains to intrapersonal or interpersonal aspects of job performance (Sternberg et al. 2000; Sternberg & Horvath 1999). Recent research by Gail Rose (2003) indicates that effective mentors have two *essential skills*: (a) clear communication, and (b) providing specific feedback. Effective mentors also have three basic *personal qualities*: (a) integrity, (b) giving guidance, and (c) accessibility for relationships. Berk and colleagues (2005) amplify these traits by pointing out that effective mentors have other characteristics including content expertise, willingness to share resources, and contributing to development of a protégé's professional network. Young scholars are encouraged to find and use one or more mentors to advance their academic careers.

12. **Associate with challenging colleagues from different fields**. Deliberately try to place yourself in work and social situations with colleagues who will challenge you intellectually and professionally. These colleagues need not be in your own academic specialty or field of study. Good-natured scholarly argument involving vigorous disputation and "talking in footnotes" is one of the joys of academic life. Young scholars should also heed psychologist Robert Sternberg's (2004) advice to *"stay away from*

Young scholars are encouraged to find and use one or more mentors to advance their academic careers.

exploiters and parasites". Sternberg states, "*Exploiters look at relations with you totally in terms of what they can get out of the relationship. Usually, they are in positions of greater power than you are. Parasites include exploiters, but also people who are in positions of equal or lesser power. What exploiters and parasites have in common is their viewing relationships as wholly instrumental and one-directional – that is, in terms of what they can get out of you*".

13. **Practice "team science"**. Contemporary science is rarely done by solitary scholars working alone. Instead, team science is becoming normative and is the source of high productivity and widespread impact. Team science depends on forming and maintaining professional networks and sharing academic credit. As pointed our earlier, productive scientific teams have attributes including shared goals, high standards, member equality, and shared activities that distinguish them from mediocre teams. Productive scientific teams are also more likely to gain "*hothouse*" qualities where more ideas and energy are produced than consumed and high achievement becomes routine. Health professions education scholars should acknowledge the utility of team science and strive to build and maintain research teams that produce quality publications and personal satisfaction for team members.

14. **Always have something "in press"**. This is fatherly advice I received 35 years ago from one of my mentors, Donald Campbell. Campbell advised his graduate students by stating, "*. . . to 'make it' as an assistant professor [achieve tenure] you need to publish at least three data based, peer-reviewed articles per year [in top journals] for five or six years. More is better*". Presentations at meetings don't count because they are impermanent, intangible, and are not indexed for posterity. Always having something "in press" (accepted for publication but not yet in print) is a sign that a young scholar is doing good work. With practice and experience this mindset becomes habitual.

15. **Know cyclic deadlines**. Some publishing opportunities recur on annual cycles. Two cycles are prominent in medical education, the field that I know best. The first is the annual call for papers, abstracts, and symposia for the Conference on Research in Medical Education (RIME) of the Association of American Medical Colleges (AAMC). This call is typically issued in mid-December of each year, the submission deadline is in mid-February, acceptance and rejection decisions are received in early May, and RIME Conference presentations are delivered in early November. Research and review papers accepted for presentation at the RIME Conference are published automatically in a supplementary issue of the journal, *Academic Medicine*. This is a real incentive for medical education scholars. The second cycle is the call for papers for the annual "*medical education*" issue of the *Journal of the American Medical Association*, *JAMA*. This call is issued in January of each year, the submission deadline is about April 1, and the journal issue appears in early September. Similar cycles exist in many other health professions. Young scholars in particular need to anticipate and respond to these opportunities.

16. **Acknowledge competition and quotas**. Publication in scholarly journals is competitive. Journals have annual page limits which means they must impose publication quotas. Thus manuscripts submitted to most journals vie for available space based on the rigor of their reported science, quality of written presentation, and conformity with stylistic rules. Potential journal authors should be aware of the acceptance rate for every journal they target. Examples include approximately 20% for *Medical Teacher*, 30% for *Physical Therapy*, and less than 8% for *JAMA*. These are sobering reminders that submitting a manuscript to a quality journal is no guarantee of success, and that the likelihood of success is increased with thoughtful planning, organization, and solid science.

17. **Get IRB approval**. In the U.S. every research study that involves human subjects must be approved by an Institutional Review Board (IRB) before the research begins. IRBs evaluate research proposals to insure that studies meet ethical standards and that human research subjects provide *informed consent* before they participate in the study. Many journals now require proof of IRB approval of a study before a research report on study outcomes will be reviewed for publication. Informed consent is not needed to insist that students and postgraduate fellows undergo education and evaluation in a required curriculum or curriculum innovation. Instead, informed consent is needed to publish data derived from trainees, even if trainee identity is disguised or not disclosed (Henry & Wright 2001). Other countries may have different rules. Be certain to get prior approval for your research if it is necessary and to follow research rules carefully.

18. **Set high personal standards**. Medical education scholarship is done in many ways. Examples include controlled studies, ethnographies, sociological analysis, historiography, psychometrics, survey research, policy analysis, expository essays, and many more. Each scholarly tradition has rules of evidence and methodological rigor, a way of "*doing it right*" (Kazdin 2003). Thus each of these approaches to scholarship (and its products) is judged by journal editors and referees on its own terms using appropriate standards. Potential authors need to endorse and use the highest possible methodological standards for the studies they plan and conduct. The probability of success in publishing is increased greatly if the work being reported is done with care and rigor.

19. ***Never* plagiarize**. Taking credit for the work of other scholars, or using the intellectual capital of other scientists without attribution is wrong and intolerable. Health professions education scholars must never plagiarize or tolerate such behavior from peers. To tolerate plagiarism is to condone it. Neither form of behavior has a place in the community of scholars.

20. **Address conflict and tension**. Conflict and tension are occasional by-products of academic work. The likelihood of conflict and tension is increased when academic work yields scholarly products like journal articles, innovative curricula, or teaching methods and devices that carry credit and impact personal visibility and career advancement. Professional conflict can be reduced, but never eliminated, via

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transparency about potential problems such as parsing authorship credit, facing organizational pressure to write only for "*high impact factor*" journals, and balancing one's service load (i.e., teaching, clinical care) with research and writing time. Early, open discussion with colleagues and administrative leaders about such potential sources of conflict and tension is the best way to minimize negative outcomes.

21. **Enjoy your work, colleagues, and achievements – in perspective**. Practicing a profession and advancing a career are primary sources of life satisfaction that complement one's home and family life and avocational interests. Healthcare education scholars can take pride that their work has value and meaning, contributes to social health and welfare, and advances knowledge about human learning and compassionate healthcare practice. We are privileged to work with engaging, intelligent, and informed colleagues from a variety of academic fields. We are grateful for opportunities to serve others through clinical practice, teaching, research, scholarship, and writing. Health professions education scholars celebrate accomplishment without fanfare, knowing that today's achievements are stepping stones toward tomorrow's opportunities.

Conclusion

Scholarship, publication, and career advancement in health professions education, like any academic specialty, usually attends to short-run goals and immediate achievements. However, knowledge of professional history from the work of Kenneth Ludmerer (1985, 1999) and other scholars, reflection on the contemporary state-of-affairs in the health professions, and anticipation of inevitable technological and professional advances encourages a long-run perspective on health professions education practices. We are bound by the context of our time, captured by the problems of the day, and respond to pressures with reaction, not reflection. Yet a longer view also aims to shape and channel the education, research, and scholarly agenda for the next generation of healthcare educators. Health professions education is enriched when its scientists and scholars take time alone and with others to look beyond today's agenda items toward a longer horizon.

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