

Translate Your Education Work Into Scholarship: A 5-Step Approach

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As graduate medical education (GME) educators and researchers, we are often asked: *How do I translate my education work into scholarship?* Despite growth in medical education research training programs, publishing venues, funding opportunities, and methods resources, many educators struggle to share their scholarship with a wider audience. Often encouraged to publish their education work, educators may receive well-meaning advice from successful clinical research colleagues. This advice may unintentionally misguide educators due to the distinct differences between education and clinical research.¹ For example, double-blind randomized study designs are not the gold standard for exploring most education research problems,² patient-oriented outcomes may not be available or an appropriate endpoint,³ and grant-supported research is the exception rather than the rule for education scholars. Educators often have limited research resources, time-intensive education or administrative roles, heterogeneous clinical learning environments, and small numbers of learners, or “n,” to power studies. In addition, education problems often involve phenomena that are not well understood and require unfamiliar methods for exploration. With a thoughtful approach, educators can overcome these challenges and transform education work into scholarship to advance the field and their careers.

Novice and experienced researchers can strengthen their chances of publication in the *Journal of Graduate Medical Education* (JGME) and other venues by considering these 5 steps *prior* to initiating their scholarly project: (1) Precisely define the education problem the project will address; (2) Determine how addressing this problem will have the potential to change education practice, and for whom; (3) Identify the gap that must be addressed in order to make progress on the problem; (4) Allow the nature of the

gap to guide the approach or design of the education scholarship; and (5) Select a potential publication venue and draft an introduction, according to the author instructions, for the category that best fits the scholarly project. Here, we offer recommendations for each step, with specific guidance for writing education scholarship for JGME.

Step 1: Define the Education Problem You Are Most Interested in Addressing With Your Project

JGME publishes work that addresses problems relevant to GME. Although studies may explore theories, questions, and hypotheses that move GME forward, there should be an underlying problem that must be solved. For publication in JGME, that problem should be relevant to resident and fellow education in more than one specialty. Explicitly framing the initial study topic as a problem will be more likely to engage the audience and allow the results to be applied to education practice. Although many education projects *can* be translated into studies, first consider whether the problem addressed by the project is relevant and of strong interest beyond a single setting. This is key to determining which projects are best suited for wider dissemination, such as publication. Dr Lorelei Lingard’s problem-gap-hook heuristic describes one framework for identifying and refining an education problem that is relevant and important to the audience.⁴ No matter what method is used to identify the problem, this step always benefits from a thoughtful literature review to better understand the problem and what has previously been done to explore and address it.⁵

When defining the education problem, it can be helpful to brainstorm with a group of invested individuals to refine the problem as clearly as possible. How do we know this is a problem? Why is it a problem? Are there facets to this problem, and if so, what sub-problem is the logical next step to study? What outcome(s) should be considered when addressing

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Editor’s Note: The online supplementary data contains resources to determine the scholarship approach based on identified gap.

this problem and who will be affected by those outcomes? How may they be affected? Put simply: what is the problem affecting GME (or other health professions educators, for other venues) and what is currently unknown about the problem that would help us address it? JGME editors find that articles framed through the lens of a problem are more likely to capture the reader's attention and highlight the necessity and impact of the scholarship, for a more compelling and persuasive story. The TABLE provides examples of how education work can be reframed into education problems and also addresses steps 2 through 4.

Step 2: Determine How Addressing This Problem Will Have the Potential to Change Education Practice, and for Whom

Once you have clearly defined the pressing education problem, the next step is to consider how addressing this problem may change future education practice. While generating new knowledge and understanding is an essential part of scholarship, for JGME, the potential relationship to future education practice also should be clear, even if not likely to occur immediately. How will this new knowledge or understanding potentially benefit GME trainees, leaders, faculty, and others? Who will care about what you learn from the work? This step also benefits from broad input from a group of invested parties, to clarify *how* this project will or might change education practice and *for whom*. Findings should either have the potential to change education practice, or inform theory and understanding in a way necessary for future change. Whether the new information can be applied now or potentially in the future, the connection between project outcomes and future practice is important.

Step 3: Identify the Gap That Must Be Addressed in Order Make Progress on the Problem

After having a clear sense of the problem, current understanding, and affected individuals, the next logical step is to consider the gap between what is known and what needs to be known to solve the problem. Both the literature search and problem-gap-hook approach will illuminate what needs to be understood, developed, or implemented in order to approach the problem. Identifying the gap is often an iterative process during which outside input again is helpful. Because the evidence or knowledge gap may change over time, keeping up with emerging information is required as the project unfolds. Note that, while being “first” is exciting, confirmatory work and work that extends new information to

different settings, subjects, or problems are also helpful. A caveat to the value of confirmatory work is that studying education questions, considered adequately answered in the field, holds low interest.

Step 4: Allow the Nature of the Gap to Guide the Approach of the Education Scholarship

Education scholarship includes many approaches, from designing a curriculum or enduring educational materials to instrument development to original research. The approach taken and scholarship format must be driven by the nature of education problem and gap. Often educators jump right from implementing a new activity to study design. This jump may be encouraged by well-meaning colleagues or clinical researchers who advise a specific study design without fully understanding the education problem or gap:

Educator: *“I have been working hard to implement this curriculum/education intervention/new instrument in our program.”*

Well-meaning colleague: *“That’s great! You should definitely write that up!”*

Educator: *“I’d love to—I don’t know where to start.”*

Well-meaning colleague: *“You could do a pre and post study! Or maybe a randomized trial!”*

This jump from an education project to a study design, without considering steps 1 through 3, can result in a misalignment between the nature of the gap in the education problem and the *logical next step* approach for scholarship. In addition, it often misses a review of what’s already been done, thus potentially resulting in time spent on a project that is not publishable because the question has been settled. While education scholarship can use standard research designs, not all education scholarship will use these designs. The online supplementary data TABLE displays examples of gaps that need to be addressed in order to solve education problems, scholarship approaches well-suited to the gap, resources for how to conduct scholarship, and examples of JGME articles using similar approaches.

We encourage educators to aim for *multiple wins*, or disseminating work through multiple steps, formats, and venues when there are discrete project aims⁶ (while avoiding “salami slicing,” or artificially creating multiple publications from one project). However, when breaking a project into discrete aims, ensure that each project undergoes the above steps.

TABLE

Examples of Education Work That May Be Translated to Scholarship by Applying the 5-Step Approach

Education Work Example	Step 1: Define the Problem	Step 2: How Will Addressing This Problem Change Education Practice, for Whom?	Step 3: Gap	4: Possible Scholarship Approach
<i>Carl is director for feedback and assessment. The ACGME Resident Survey shows faculty feedback below national norms; the program director asks Carl to improve these scores.</i>	In order to improve feedback, faculty must be competent in efficient and effective feedback practices.	Ensuring that faculty are competent in efficient, effective feedback practices would improve faculty feedback and learner performance.	Literature shows many practices. Feasibility is unknown. Best practices for effectiveness and efficiency are unknown.	Literature synthesis, review: Work with reference librarian to perform literature search and scoping review to describe feedback best practices
	We do not know how residents and faculty recognize and perceive feedback.	Understanding how residents and faculty recognize and perceive feedback will inform feedback interventions and learner and faculty development initiatives.	Literature shows a gap between resident and faculty recognition and perceptions of feedback.	Survey study: Survey residents and faculty about perceptions Qualitative research: Explore feedback definitions and experiences from residents and faculty views
	Residents and faculty do not perceive feedback encounters to be feasible in their clinical environment.	Faculty may learn feasible, sustained ways to implement feedback. If residents believe feedback is feasible, they may ask for it more.	Many effective approaches are known, but best strategies for sustained feedback are not clear.	QI study: 2-year PDSA cycles with several interventions to measure faculty and resident reports of feedback, time and effort required for feedback, and changes in resident performance
	Do faculty use known effective feedback strategies?	Faculty changing from using anecdotal or individual methods to best practices would improve resident performance.	There are many effective approaches, but literature suggests they are not used reliably by faculty.	Quantitative study: During faculty virtual meetings, implement role plays and discussions, measure faculty performance in role plays at 1 and 2 years along with resident performance changes
	Will a new curriculum (teaching sessions, videos, and program director individual feedback on narrative comments) improve feedback to residents which is sustained?	Curriculum can be shared with other programs, to benefit faculty, residents, program director, nursing, and other health personnel.	Many curricula exist, but it is unclear if sustained changes to residents' behaviors occur as a result.	Program evaluation: Determine what outcomes are credible to stakeholders and look at sustained changes and feasibility over time, from stakeholders' views
<i>Anna has developed expertise in generative artificial intelligence (AI). The surgery residency director asks her to incorporate AI into resident recruitment.</i>	The current uses for AI in selecting applicants for interviews are largely unknown.	Understanding current AI applications in residency selection could immediately change practices for program directors, faculty, and student applicants.	In this fast-changing field, it is unclear what approach is feasible and fair.	State of the art literature review: Perform a time-based review of the current state of knowledge about AI-assisted recruitment and directions for future study

TABLE

Examples of Education Work That May Be Translated to Scholarship by Applying the 5-Step Approach (continued)

Education Work Example	Step 1: Define the Problem	Step 2: How Will Addressing This Problem Change Education Practice, for Whom?	Step 3: Gap	4: Possible Scholarship Approach
	It is unknown whether interviews and rank order lists would change and how if AI were used in residency selection.	AI could change selection processes of program directors, faculty, and applicants, as it could affect program composition and careers.	There is some evidence that AI could save time, but less is known about how AI will change selection and ranking, avoid bias, and select applicants that align with program values.	Original research: Blinded review of applications by humans and AI, compare human and AI recommendations for interviews, final rank list, final Match, and resident performance during residency Original research, qualitative: Perform content analysis on AI narrative candidate summaries to compare themes, concepts, and values to those in human-generated narratives, with focus on program-valued factors and outcomes of interviews
	How does the recruitment experience change with involvement of AI in analyzing, selecting, virtual interviewing, and creating rank lists?	AI could be used to improve the current stressful application process, which could benefit program directors, current residents, and faculty, applicants, and program coordinators.	There is little information regarding how recruitment participants experience involvement with AI.	Program evaluation: Determine and measure outcomes important to all participants using quantitative and qualitative approaches
<i>Rhea has a new role as pediatrics program faculty lead for resident well-being, inclusion, and safety, in a diverse learning environment. She is considering developing and implementing multiple interventions.</i>	Which potential factors and barriers—program culture, current faculty composition, conflicting regulations and requirements—should be considered before creating an inclusive and safe learning?	Determining methods that minimize barriers to fostering an inclusive learning environment is crucial for learner performance and well-being and could be adopted by other programs to benefit residents and faculty.	Literature describing threats to safety exists but is disseminated in journals in multiple fields. A broad understanding of what is known about learning environment inclusivity and safety is not readily available.	Scoping review: Perform a review of literature within and outside of medical education that seeks to synthesize the state of understanding of factors that contribute to inclusivity and safety in communities and systems
			The literature provides some guidance, but there are gaps in understanding what works in clinical learning environments in order to optimize safety and inclusivity.	Modified Delphi study: Using consensus methods, identify experts in inclusivity, equity, and safe learning environments who work in clinical environments. Conduct a modified Delphi study to develop consensus best practices for safe, inclusive, equitable, clinical learning environments.

TABLE

Examples of Education Work That May Be Translated to Scholarship by Applying the 5-Step Approach (continued)

Education Work Example	Step 1: Define the Problem	Step 2: How Will Addressing This Problem Change Education Practice, for Whom?	Step 3: Gap	4: Possible Scholarship Approach
			Programs may not understand or appreciate how the learning environment is currently experienced by trainees.	Qualitative study: Interview residents using a constructivist paradigm and phenomenology approach to understand their experiences of the safety and inclusivity of the learning environment

Abbreviations: ACGME, Accreditation Council for Graduate Medical Education; QI, quality improvement; PDSA, Plan-Do-Study-Act.

Note: Fifth step not shown in this table.

Step 5: Select a Potential Publication Venue and Draft an Introduction, According to the Author Instructions, for the Category That Bests Fits the Scholarly Approach

Education scholarship can be written up in different ways for different journals for various submission categories. Although some journals, like JGME, may recognize a mismatch between education scholarship and the selected article category and recommend that the authors revise for a different category, other journals will reject a project submission based solely on poor fit for the category. Early in the planning stage, it is helpful to consider the best target publication venue(s) for a given project and review submission categories that appear to fit the selected scholarship format. Each article category will have established criteria for rigor and quality. It is important to know specific submission criteria, for target article category, in the project design stage in case adjustments that enhance the value of your project are possible. For example, JGME rarely publishes stand-alone curricula or studies that focus on a narrow topic specific to one specialty. However, a rigorously created curricula that addresses a pressing specialty-specific need could be a great fit for a specialty-specific journal, curriculum repository (eg, MedEdPORTAL⁷), or journal that publishes instructional materials (eg, *Journal of Education and Teaching in Emergency Medicine*⁸). These venues have specific requirements for submission that are best considered in advance. Reviewing the author instructions for the selected article category, for the target journal or venue, can increase the likelihood of eventual publication.

Once a potential target journal or repository is selected, it is helpful to draft an introduction for the scholarship project according to the author instructions. This introduction can help to synthesize and refine steps 1

through 4 and ensure the target venue is a good fit. If the journal or venue format does not align with the project problem, gap, or approach, then, at this early state, either the project or the proposed dissemination venue (or perhaps submission category) can be adjusted.

For JGME, we request that the introduction for the categories of original research, educational innovation, and brief report addresses: (1) the importance and relevance of this issue to GME and readers; (2) the research gap or current understanding that is not known and needs to be known; and (3) the aim, objective, or purpose, and how it addresses this gap. Drafting the introduction early in the project will be useful in creating a well-defined, shared mental model to guide the study team. Also, the draft introduction can be useful for institutional review board submissions or grant applications.

Conclusions

Using a rigorous approach to clearly define the problem and its relevance, ensuring the project has potential to change education practice, letting the nature of the problem guide the format of the scholarship, and adhering to publication or venue guidelines will increase the likelihood of project dissemination. We hope readers will find these 5 steps helpful in determining which education projects to pursue and how to successfully translate their education work into scholarship.

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