FROM THE EDITORS' DESK

Scholarship in Medical Education: Examining our Purpose and Progress

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On behalf of the JGIM editorial team, we are pleased to present the 2015 Medical Education Theme Issue. The process of preparing this issue of the Journal of General Internal Medicine focusing on medical education has been rigorous and rewarding. Authors represent the full spectrum of medical education, from students to senior faculty. This theme issue includes original research, perspectives, a systematic review, and a medical humanities piece. Articles are clustered along five themes: Collaboration within Health Systems, Careers in Primary Care, Critical Thinking, Assessing Competency, and the Learning Environment. Each theme is discussed in an accompanying editorial.

To gain perspective on how medical education is maturing and progressing, we further classified each research study reported in this issue of JGIM according to its purpose. The framework that we used to classify each study was based on whether its primary purpose was description, justification, or clarification.¹ Descriptive studies are observational, and answer the question, “What was done?” Justification studies compare methods and seek to identify whether one method is better than another. They seek to answer the question, “Did it work?” Clarification studies identify why or how an intervention worked the way that it did and seek to answer, “Why did it work?” The classification of the purpose of research can prompt authors to broaden the range of questions asked about a particular topic being studied. Considering the purpose of research assists in designing not just one, but rather a series of studies that builds knowledge and contributes to the field being investigated. This scheme is useful for designing a line of inquiry which, over time, will advance our knowledge of medical education. Observational studies can lead to formulation of a model or conceptual framework that can be used to subsequently predict attitudes or behaviors investigated through justification and or clarification studies.

The framework can provide a template for designing a program of research within a given area.

The majority of the studies reported in this issue are descriptive or observational in nature. These studies describe attitudes, perceptions, or relationships with implications for educational practice. For decades, we have conducted studies examining the relationship of clerkship length and clerkship setting (whether inpatient or outpatient) on measures of student achievement. There was a fair amount of research on the effects that this has had on student mastery of the core concepts of internal medicine. In addition, the influence of the sequence in which internal medicine was completed in relation to other clerkships was also questioned, as well as the presence or absence of formal didactic sessions during the internal medicine clerkship. In a well-designed observational study in this issue, Cuddy et al. report that clerkship length and the order in which the internal medicine clerkship is taken have an effect on achievement of internal medicine concepts as measured by shelf exam performance.²

One justification study in this issue of JGIM, by Hemmer et al., compared the behaviors of teachers who attended evaluation sessions to those who did not attend to see whether there were differences between them in using RIME terminology. The authors found that teachers who attended evaluation sessions used RIME terminology more frequently and provided more accurate grade recommendations than teachers who did not attend the sessions. The authors concluded that formal evaluation sessions appeared to provide frame-of-reference training for faculty assigning grades and assessing student progress and may provide more valid and reliable workplace assessments.³

Clarification studies that elucidate how or why something works are generally less common, and are represented by two studies in this issue of JGIM. These studies challenge existing theories or conceptual frameworks. They advance theories of education providing further direction for research testing theories or conceptual frameworks. Soones et al. describe the factors that residents identified as being important to their practice of interprofessional team-based care in the clinic.⁴ Specifically, they studied whether working in high-quality functioning teams or curricula had a greater impact on residents' perceptions of their preparation for interprofessional practice. The authors used qualitative methods to identify

resident physicians' perceptions of the factors affecting experiences of team-based care within continuity clinics and the impact of these teams on residents' education. Results were analyzed based on a conceptual framework that used four components for understanding people's experiences in organizations or teams: structural, human resources, political, and symbolic. The authors report that residents' experiences practicing team-based care were influenced by principles described in the literature, but that including residents in interprofessional teams may not be enough to teach residents how team-based care can enhance their overall learning and future practice. The study revealed attitudes that resident physicians have about interprofessional practice that are important to recognize and acknowledge as part of these experiences, especially if these attitudes may need to be addressed for interprofessional team-based collaborations to provide high-value care. What constitutes the right mix of education and experience of interprofessional teams remains to be elucidated.

The other clarification study challenges a well-accepted dual-process model of critical thinking in medicine. This model posits that diagnostic errors are a consequence of cognitive biases that originate in System 1 processes: the intuitive mode, the rapid error-prone memory retrieval system. In theory, the slower, more deliberate System 2 analytic mode detects and corrects those biases that lead to errors. This theoretical framework is widely taught; many undergraduate medical school curricula include orientations to theories of critical thinking and offer a background in the psychology of metacognition. The study by Montiero et al. reported in this issue suggests that instructing resident physicians to reflect on the most likely diagnosis and giving them more time in the analytical mode does not increase the likelihood that the correct most likely diagnosis will be reached.⁵

Classifying medical education research according to its purposes illuminates three levels: the individual study level, the body of studies focusing on the topic, and the entire enterprise of medical education research. Studies that have made the greatest contributions to our knowledge are characterized by a cycle of observation, formulation of a model or hypothesis to explain the results, and predictions of what will happen that are based on the model. Predictions are tested through subsequent studies, and the model refined. Thinking about studies in this issue of JGIM using this classification scheme offers a way to illuminate programs of study, advancing what is known from many high-quality observational descriptive studies.

The classification scheme that we adopted represents only one of myriad ways to classify the purpose of research.⁶ Aristotle may have been the first to distinguish the kinds of questions that together form a domain of inquiry. He proposed that knowledge resides in answers to questions and that the questions we ask are exceedingly important in identifying the knowledge that we build. There have been many thoughtful and considered ways of classifying the kinds of questions that may be posed for research.

We hope that this collection of medical education-themed articles will stimulate conversations within our community of educators as we continue to work to improve the educational value of our training programs. We trust that these articles will, in some meaningful way, pave the way for the next generation of medical education research studies.

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