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Research article

Hands in medicine: understanding the impact of competency-based education on the formation of medical students' identities in the United States

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Abstract

Purpose: There have been critiques that competency training, which defines the roles of a physician by simple, discrete tasks or measurable competencies, can cause students to compartmentalize and focus mainly on being assessed without understanding how the interconnected competencies help shape their role as future physicians. Losing the meaning and interaction of competencies can result in a focus on 'doing the work of a physician' rather than identity formation and 'being a physician.' This study aims to understand how competency-based education impacts the development of a medical student's identity. **Methods:** Three ceramic models representing three core competencies 'medical knowledge,' 'patient care,' and 'professionalism' were used as sensitizing objects, while medical students reflected on the impact of competency-based education on identity formation. Qualitative analysis was used to identify common themes. **Results:** Students across all four years of medical school related to the 'professionalism' competency domain (50%). They reflected that 'being an empathetic physician' was the most important competency. Overall, students agreed that competency-based education played a significant role in the formation of their identity. Some students reflected on having difficulty in visualizing the interconnectedness between competencies, while others did not. Students reported that the assessment structure deemphasized 'professionalism' as a competency. **Conclusion:** Students perceive 'professionalism' as a competency that impacts their identity formation in the social role of 'being a doctor,' albeit a competency they are less likely to be assessed on. High-stakes exams, including the United States Medical Licensing Exam clinical skills exam, promote this perception.

Keywords: Competency-based education; Perception; Physicians; Medical Students; United States

Introduction

Competency training in the medical field is based on defining specific areas in which future doctors need focus and experience. Medical competence has been defined as 'the habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individuals and communities being served' [1]. Competency-based education has been defined as: 'competency-based education (CBE) is an approach to preparing physicians for practice that is fundamentally oriented to graduate outcome abilities and organized around competencies derived from an analysis of societal and patient needs. It de-emphasizes time-based training and promises greater accountability, flexibility, and learner-centeredness' [2,3].

The University of Florida College of Medicine (UFCOM) has a competency-based curriculum. At UFCOM, student performance and evaluation is based on six core competen-

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cies: professionalism; patient care; medical knowledge; practice-based learning; interpersonal and communication skills; and systems-based practice. The competencies and how they will be measured are described in each course and clerkship syllabus. Course directors list measurable learning objectives for each competency as part of each course and clerkship. Students are made aware that they will be evaluated based on how they perform in these areas. This study aims to examine the intersection between CBE and identity formation. Our research question is: "How does competency-based education impact the development of a medical student's identity?"

Methods

Study design

This was a cross-sectional study where the qualitative data was analyzed using a theoretical thematic analysis approach [4].

Creation of ceramic models

The first author (CG) who just finished her first-year as a medical student at the UFCOM, Gainesville in 2013 undertook this research project as part of the 'Medical Student Research Program' (MSRP). During the MSRP, UFCOM medical students are invited to apply for a scholarship that will support them for a 10-week individual research experience during the break between first and second year, under the mentorship of a faculty member. CG has multiple years of experience in pottery and set-out to integrate her art skills with her MSRP project. She created three ceramic models collectively called 'hands in medicine'. The models were used as 'sensitizing objects' to help the students reflect on the meaning of competencies. Reflection requires students to break away from routine actions to pause and make sense of events. Various sensitizing objects or themes have been described in medical education to promote reflection including artwork, poetry and film [5,6]. Here the ceramic models/sensitizing objects were used to promote reflective thinking by the medical students as they described the impact CBE had on the formation of their identity as future physicians. For this study, three of the six UFCOM competencies (medical knowledge, patient care, and professionalism) were picked for the ceramic model development. The authors picked these competencies as the curriculum placed significant longitudinal emphasis on these competencies through all four-years. The hands represented the three different training competencies medical students encounter during their training (Fig. 1). The model titled 'alive by death' was a partially dissected cadaver hand and was made to represent the 'medical knowledge' competency emphasized more in the preclinical years of study. The model named 'listening touch' depicted a hand holding a stethoscope and represented the 'patient care' competency taught as part of the introduction to clinical skills sessions. The third model, called 'building blocks,' was a doctor shaking a patient's hand and was meant to symbolize the 'professionalism' competency of building rapport with patients.

Fig. 1. Photograph of ceramic models as they were presented to participants (courtesy of Glenn Sapp).

Participants and recruitment

Fifty-eight medical students attending the UFCOM were invited to participate in the study. There were 11, 19, 12, and 16 students from medical student (MS)1, MS2, MS3, and MS4 grades each. CG hosted each reflection session with all participants. Each session had a 5-minute introduction that consisted of a standardized explanation of what competency each model represented. The competencies were only named and not explained in detail. This left the meaning open to each student's understanding of their significance based on their personal experience with the curriculum. They were then asked to write their reflections down while answering two questions crafted to help answer the research question: (1) looking at these models, explain why you identify best with a particular competency model (or models) at this stage of your training and (2) looking at these models, how does medical school training in different competencies affect the development of your identity as a future doctor? All data collected was anonymized with only year in medical school recorded as identifying information; denoted MS and year in training. To define MS year designation: MS1s were beginning their first year; MS2s had completed their first year and were starting their second year; MS3s were at the beginning of their clerkships; and MS4s were in their sub-internship year.

Data analysis

Qualitative data analysis was undertaken using Braun and Clarke framework for thematic analysis [4]. Using her extensive experience in qualitative research the second author (ZZ)

guided the process of the thematic analysis. Both researchers independently read through the reflective writing texts identifying, coding, and reporting themes and sub-themes. They discussed results and agreed on over-arching themes and sub-themes. Inter-rater reliability of identified themes and comments assigned to themes were calculated using methods described by Huberman [7]. Inter-rater reliability was 100% after discussion among the researchers. The researchers also asked a participant to perform a member check to ensure that the themes captured all-important issues.

Ethical approval

Institutional review board (IRB) approval was sought from the University of Florida IRB office (Protocol #2014-U-585).

Results

Professionalism depicted in the model of the doctor shaking a patient's hand was the most frequently picked competency by MS1, MS2, and MS4 students as the competency that most impacted their identity formation (Fig. 2). MS3s picked 'patient care' as the most important competency. Three main themes emerged: impact of curriculum, impact of experience, and perception of the impact of CBE on identity formation. The themes and examples of comments are described below.

Impact of curriculum

This theme refers to the curricular competencies that the students related, based on which ceramic model they chose to reflect on. The students identified professionalism as the competency that had the most impact on how they viewed themselves as future physicians. Students mentioned that they learned about the importance of humanistic skills: "Several patients come with benign pathology and the pill they really need is an open ear, someone they can trust, someone who will listen to them." An MS2 commented: "Looking at these models I hope I will remember there is a common thread of the holistic touch of humanism."

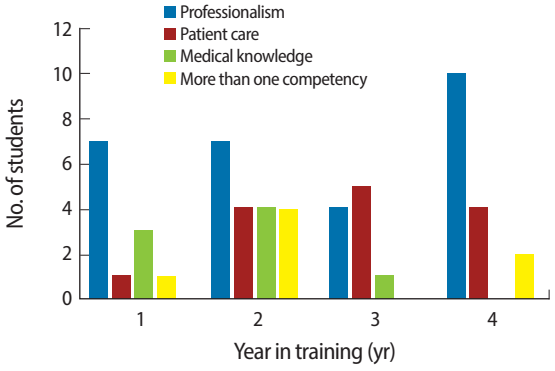

Fig. 2. Distribution of 'competency' model chosen by year of training.

Several students commented that their knowledge within each competency would grow over time, specifically "each competency is crucial to reach [the culmination of quality patient care] and must be continually developed throughout my time as a physician." Others commented on the structuring of the curriculum: "Medical school training currently emphasizes scientific competency first in the curriculum, followed by clinical inpatient competencies in third and fourth year. While these three areas act as separate entities during the initial years of training, I feel that they do influence each other in multiple ways." Another noted: "During school, [competency stages] are very segmented with only a little interaction between them." One student also commented on curricular workload: "I've found myself putting countless hours into learning facts and processes related to the body and disease." Some students noted that as they progressed they might develop an affinity for a particular competency based on the specialty they chose to pursue: "[Somewhere] towards the end of our training, we realize we have an affinity to one of these competencies over the other." And "I think as we go along with training we tend to identify with one more than the others and the focus on that competency tends to direct our goals for future profession (i.e., specialty)."

Discussing the impact of contact with patient an MS3 commented: "I particularly like how the positioning of ['listening touch'] invites me to be the patient, as though the sculpture is willing to listen to me … This is how I wish my patients to feel when they visit me. A true physician listens deeply to their patients, both in the exam of their body and in the exploration of the story of their life."

Impact of experience

Students discussed the role of experience through the years of training in a competency-based curriculum and how working in the hospital helped them co-relate basic science information with patient care. Other students commented on anxiety associated with patient care early in medical school. An MS2 wrote, "I do not yet feel comfortable or as competent … I think this can be attributed to the fact that I spend so little time in the [clinical] settings." And "At this point, I don't have the knowledge to identify with the clinical aspects of medicine, but I do know about the way doctors should interact with their patients—with care, respect, and kindness." In contrast another MS2 commented: "The experiences I have had thus far in medical school have caused an emotional growth as well."

Perception of the impact of competency-based education on identity formation

Students commented on how CBE has affected their perception about their future roles. Several pointed out that their identity would be impacted positively by exposure to all competencies during medical school: "A doctor's job is not solely to be academic, clinical, or patient-oriented, but a nice mixture of all three. My identity as a future doctor is driven by the mixture of these three skills taught to me at UFCOM." An MS2 commented: "The emphasis that the school puts on different components of a medical education can definitely influence the emphasis I put on them in my own mind … I would also posit that my training as a doctor affects my identity outside of being a doctor, it permeates through all aspects of my life."

Several students commented on the negative affect of CBE: "[Each competency is] important but too much focus on one can cause difficulty in your future practice." An MS4 commented that "[Competency-based training] hurts me. It stresses standardized tests and depersonalizes patients. When residencies care most about step 1/step 2 and not your interpersonal skills then that's the physician population that the system rewards and cultivates for the future." One student commented: "Medical school cannot teach us the sculpture of physician holding patient hand. That is something we must all learn from our own hearts—a deep caring for others … ironically, the un-teachable part might just be the most crucial."

Discussion

The main finding of the study was that students view 'professionalism' as the most important competency that impacts the formation of their identity through medical school. This could stem from the fact that the UFCOM does emphasize this competency throughout its curriculum. The learning objective sections in the UFCOM clerkship syllabi, consistently lists professionalism as the first competency goal. Professionalism is also always the first competency to be evaluated on feedback forms. Therefore, in this study CBE helped students focus on specific graduation competencies, particularly 'professionalism,' which they viewed as the most important competency that impacted their future identity of well-trained, competent, and empathetic future physicians. It was interesting to note that the MS3s were the only group that picked the 'patient care' competency over 'professionalism.' As the MS3s were at the beginning of their clerkships, it is possible that transition into the clinical world prompted them to place more emphasis on patient care.

Competency-based education shapes the identities and experiences medical students have during their training [1,2]. It has been argued that CBE results in too much focus on assessment and overlooks the importance of stressing the interconnectedness of competencies [8]. This is not to suggest that CBE is redundant, but as Jarvis-Selinger et al. [8] point out, there is a need to incorporate frameworks within CBE to remind students about their holistic identity as a future care provider. For instance, in order to address 'professionalism' as a competency, medical education needs to address the emotional realm. As medical students progress, the curriculum should explicitly allow discussions with them about their feelings and perceptions about their identities as future physicians in order to counter an often hidden curriculum that encourages students to separate or distance themselves from their emotions [9].

In our study, students presented both a positive and negative viewpoint about the impact of CBE on their view of themselves as future physicians. The negative aspect was described as an alternate curriculum de-emphasizing the importance of the 'professionalism' competency, as some students pointed out that residency directors were more concerned about step scores.

Students discussed how they view their medical training as a longitudinal progression through stages of training, most notably preclinical to clinical years. Some saw these stages as distinct entities with little interaction between them, while other students felt that the stages influenced each other in many ways. These views imply that competency-based education runs the danger of being too segmented and compartmentalized. Students reflections on their growth, both medically and personally, through their medical training also revealed that growth occurred both in and outside the medical setting, which corroborates findings by Jarvis-Selinger et al. [8], who note that medical training does not take place in a vacuum and competency training is not enough. Medical educators should pay careful attention to professional identity formation by ensuring that curricula provide a continuum of opportunities for formative development focusing on understanding individual professional identity integrated with other core medical skills rather than a separate entity.

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Conflict of interest

No potential conflict of interest relevant to this article was reported.

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Supplementary materials

Audio recording of the abstract.
Raw data of the research.

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