

THE PROFESSIONALIZATION OF MEDICAL STUDENTS: A LONGITUDINAL ANALYSIS OF  
PROFESSIONAL IDENTITY FORMATION AND PROFESSIONALISM PERCEPTIONS IN SECOND AND  
THIRD YEAR MEDICAL STUDENTS

Jessica N. Byram

Submitted to the faculty of the University Graduate School  
in partial fulfillment of the requirements  
for the degree  
Doctor of Philosophy  
in the Department of Anatomy and Cell Biology,  
Indiana University

December 2017

Accepted by the Graduate Faculty of Indiana University, in partial fulfillment of the requirements for the degree of Doctor of Philosophy

Doctoral Committee

---

James J. Scheurich, Ph.D., Chair

---

James J. Brokaw, Ph.D.

November 9, 2017

---

Leslie A. Hoffman, Ph.D.

---

Mark F. Seifert, Ph.D.

---

Krista J. Hoffmann-Longtin, Ph.D.

© 2017

Jessica N. Byram

## DEDICATION

Mom, you are the hardest working and most resilient person I know. You showed me the value of hard work, always put the needs of others before your own, and have supported and encouraged me in every step of life. Thank you for being genuine, hilarious, and for making me the person I am today. I am eternally grateful to have you as my mommy dearest!

## ACKNOWLEDGEMENTS

First, and foremost, I must thank my husband, Aaron, for his love, support, and sacrifice. He has stood by my side in every journey I decided to take. It has been a long road and I would not be the person I am today without him. Most importantly, I would not have the opportunity to experience one of the truest joys of life, being a mother. Kellen, Gabrielle, and I love you and are so very lucky to have you in our lives.

Next I must thank my medical student participants as none of this would have been possible without them. I want to thank these very special students for dedicating time and effort to this study despite their grueling schedules. They were open, reflective, and have helped to broaden literature on professional identity formation and professionalism perceptions. I have no doubt that each of these medical students have very bright futures as wonderful and caring physicians.

I must thank my chair, Dr. Jim Scheurich, for his guidance and encouragement to step out of my comfort zone and find my niche. I must also extend a special 'thank you' to Dr. Mark Seifert. I am truly privileged to have been able to work with such a talented, humble, and caring educator. I am grateful for his mentorship, dedication, and support both as an educator and a researcher. Dr. Seifert, you are truly an inspiration! I would also like to thank my other committee members: Dr. Jim Brokaw, Dr. Leslie Hoffman, and Dr. Krista Hoffmann-Longtin. I am genuinely honored to have the opportunity to work with such an amazing group of individuals who were each able to provide their unique perspectives and expertise to this work. Finally, I would also like to thank Dr. Ron Shew. While not a part of my committee, he was always there when I needed someone to talk to (and when I needed a good laugh!).

Next, I must thank my friends and fellow anatomy education track graduate students. Foremost, I am deeply indebted to my friend, Courtney Lloyd (Traser). I won the lottery being in

this doctoral program with her – I had companionship, commiseration, and have gained a lifelong friend. If one thing is for certain, Courtney will go on to do great things. Next I must thank my other fellow graduate students, Naomi Schmaltz and Shannon Helbling, for supporting me and allowing me to share my ideas with them. For their thoughtful and productive feedback, I am truly grateful.

Finally, I must thank my family. To my sister, Kari, thank you for being so incredibly intelligent and for making me strive to be smarter than you. To my father and step-mother, thank you for your love and support. Lastly, to my children, Kellen and Gabby, you are the light at the end of this tunnel. You have made the last four years enjoyable, exciting, and exhausting. I would not change a single moment with you. I look forward to this beautiful life we have ahead of us.

Jessica N. Byram

THE PROFESSIONALIZATION OF MEDICAL STUDENTS: A LONGITUDINAL ANALYSIS OF  
PROFESSIONAL IDENTITY FORMATION AND PROFESSIONALISM PERCEPTIONS IN SECOND AND  
THIRD YEAR MEDICAL STUDENTS

Background: Recent literature on professional identity formation (PIF) conceptualizes the developmental process into stage theories that remove critical context. This study employed a longitudinal approach to PIF that explored the processes through which professional identity is formed in second (MS2) and third (MS3) year medical students and how their perceptions of professionalism transformed and influenced their PIF.

Methods: Nine medical students (n=9) from Indiana University School of Medicine completed this study spanning MS2 and MS3. Participants completed three semi-structured interviews and submitted 10 audio diaries at two-month intervals between interviews. Participants also completed the Professionalism Assessment Tool (PAT) at the beginning of MS2 (PAT1) and end of MS3 (PAT2). Interviews and audio diaries were analyzed using the constant comparative approach and a Wilcoxon signed-rank test was used to determine significant differences between mean domain scores of PAT1 and PAT2.

Results: This study found several processes of PIF within five themes: Exploring Self in Medicine, Connecting to Image of Medicine, Embodying Role, Internalizing Values, and Exploring Specialty Choice. Processes of participating in patient care and selecting a specialty have the most profound impact on PIF and resulted in medical students feeling like members of the medical community. Analyses revealed participants' perceptions of professionalism became more complex with clinical experiences and their perceptions of their ability to enact those behaviors transformed across the study period. Furthermore, the participants' perceptions of

professionalism set the foundation for the values they desired to demonstrate as part of their professional identities.

Conclusions: This study presents a cohesive picture of how PIF occurs across MS2 and MS3 and how professionalism influences this important developmental process. These results indicate PIF is best cultivated within a medical curriculum where students are able to utilize processes to foster its development. Since professionalism serves as an important foundation to professional identity and a comprehensive understanding is needed for medical students to appreciate a physician's role in society, the curriculum must be structured in a way to promote a complex, reflective understanding of professionalism that is based on values, actions, and who one wants to be as a physician.

James J. Scheurich, Ph.D., Chair



## TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION .....	1
Problem Statement.....	4
Purpose of the Study.....	5
Research Questions .....	7
Study Design .....	7
Key Terms and Definitions .....	8
Overview of the Dissertation .....	11
CHAPTER 2: REVIEW OF THE LITERATURE .....	12
Identity Theory and Identity Formation .....	12
Theories of Socialization .....	17
Professionalism and Medical Professionalism.....	22
Professional Identity and Professional Identity Formation .....	28
Professional Identity Formation Throughout Medical Education .....	33
Professionalism and Professional Identity at Indiana University School of Medicine.....	43
CHAPTER 3: METHODOLOGY .....	48
Research Design.....	49
Study Setting .....	50
Methods.....	53
Data Collection.....	56
Data Analysis.....	64
Ethical and Trustworthiness Considerations .....	70
Theoretical Assumptions .....	72
CHAPTER 4: RESULTS.....	74
Participant Information and Records.....	74
Themes of Professional Identity Formation .....	76

Professionalism Transformation .....	137
Influence of Professionalism on Professional Identity .....	161
Chapter Summary .....	164
CHAPTER 5: DISCUSSION AND CONCLUSIONS .....	166
Discussion of Themes of Professional Identity Formation .....	167
Discussion of Professionalism Transformation.....	196
Discussion of the Influence of Professionalism on PIF .....	203
Limitations .....	207
Future Directions .....	211
Conclusions .....	213
APPENDIX A: INTERVIEW PROTOCOLS.....	216
Interview 1 .....	216
Interview 2 .....	217
Interview 3 .....	218
Appendix B: AUDIO DIARY PROMPTS .....	219
Audio Diary 1.....	219
Audio Diary 2.....	219
Audio Diary 3.....	219
Audio Diary 4.....	220
Audio Diary 5.....	220
Audio Diary 6.....	221
Audio Diary 7.....	221
Audio Diary 8.....	221
Audio Diary 9.....	222
Audio Diary 10.....	222
APPENDIX C: PROFESSIONALISM ASSESSMENT TOOL (PAT) .....	223

LITERATURE CITED ..... 226

CURRICULUM VITAE

LIST OF TABLES

Table 3.1. Timeline and Progression of the Study ..... 51

Table 4.1. Participant Demographics ..... 75

Table 4.2. Audio Diary Length in Minutes..... 76

Table 4.3. Themes of Professionalism Transformation and Descriptions ..... 156

Table 4.4. Mean Scores for Each Domain in PAT1 and PAT2..... 158

LIST OF FIGURES

Figure 3.1. Overview of Thematic Analysis of Professional Identity Formation..... 68

Figure 4.1. Themes of Professional Identity Formation..... 77

Figure 4.2. Process Model of Connecting to Image of Medicine ..... 86

Figure 4.3. Process Model of Exploring Self in Medicine ..... 92

Figure 4.4. Process Model of Embodying Role in Medicine..... 107

Figure 4.5. Process Model of Exploring Specialty Choice ..... 114

Figure 4.6. Process Model of Internalizing Professional Values and Characteristics..... 119

Figure 4.7. Process Model of Internalizing Professional Values and Characteristics of the  
Good Doctor..... 136

## LIST OF ABBREVIATIONS

AAMC	Association of American Medical Colleges	MS3	Third-year medical student or Third year of medical school
ABIM	American Board of Internal Medicine	NCN	Neuroscience and Clinical Neurology
ABMS	American Board of Medical Specialties	OR	Operating Room
ACGME	Accreditation Council for Graduate Medical Education	OSCE	Objective Structured Clinical Examination
CCE	Clinical Clerkship Evaluations	PAT	Professionalism Assessment Tool
CPE	Citizen and Professional Engagement Domain	PIE	Professional Identity Essay
EM	Emergency Medicine Department	PIF	Professional Identity Formation
EMR	Electronic Medical Record	PIR	Upholding Principles of Integrity and Respect Domain
H&P	History and Physical Examination	RCCI	Relationship Centered Care Initiative
ICM	Introduction to Clinical Medicine	REDCap	Research Electronic Data Capture
ID	Isolated Deficiency	RRA	Reliability, Responsibility, and Accountability Domain
IRB	Institutional Review Board	RO	Relationships with Others Domain
IU Box	Indiana University Box Cloud Storage	Step 1	Step 1 of USMLE Licensing Examinations
IUSM	Indiana University School of Medicine	TLAC	Teacher Learner Advocacy Committee
LLA	Lifelong Learning and Adaptability Domain	USMLE	United States Medical Licensing Examination
MD	Medical Doctor		
MS2	Second-year medical student or Second year of medical school		

## CHAPTER 1: INTRODUCTION

The fundamental purpose of medical education is to take ordinary students and transform them into competent physicians who are able to capably practice medicine and fulfill the needs of society. Traditionally this educational process has focused on the acquisition of knowledge and skills necessary to practice as a physician, but recently medical educators have begun to shift their attention toward the process of “being a physician,” i.e., the development of professional identity (Boudreau et al., 2014). Not only are medical students expected to accrue the fundamental knowledgebase, but they must also become internally comfortable with their social role as a physician-to-be (Cohen et al., 2009). As medical students navigate through medical education they are confronted with experiences that will enrich, challenge, and mature their professional identities (Jarvis-Selinger et al., 2012).

Medical students begin medical education with vague notions about what it means to be a physician. Although they may have decided on this career choice early in their lives, many enter medical education unclear of the physician they want to be when they complete this arduous process (Niemi, 1997). As medical students begin to process their experiences in medical education through their own unique, personal filter, they start to transform into the physicians they will eventually become (Jarvis-Selinger et al., 2012). Medical students are tasked with developing on a personal level while also forming an identity that is consistent with others in the medical community (Cruess et al., 2014). To some degree, medical students must negotiate which aspects of their personal and social identities, formed before they matriculated into medical school, will be maintained or abandoned as they adopt the norms, characteristics, and attitudes of medical professionals (Jarvis-Selinger et al., 2012; Cruess et al., 2014).

Medical schools and academic medical centers are powerful socializing agents where medical students begin to interact and participate with others in the medical community.

Students interact with physicians, observe them communicating with patients, and begin to consciously or unconsciously adopt some of the behaviors, characteristics, and values of these physicians (Haas and Shaffir, 1977). As role models, physicians become exemplars for medical students to structure their understanding and enactment of medical professionalism and begin to internalize these professional characteristics as a part of their professional identities (Kenny et al., 2003).

While many aspects of medical professionalism are learned primarily through interaction with and observation of role models, institutional bodies have come under increasing pressure to ensure medical students are achieving minimum standards of professionalism upon graduation. The inclusion of professionalism as a core competency has catapulted physicians' behaviors and moral character to the forefront of medical education (Boudreau et al., 2014). Medical educators have called for professionalism to be explicitly taught and assessed in the curriculum to counter the informal processes through which it is communicated to medical students and to mitigate the potential for future professionalism lapses in practicing physicians (Inui, 2003; Hafferty and Castellani, 2009).

Much of the focus on professionalism in medical education has centered on the best approaches to teach and assess it within the curriculum (Lucey and Souba, 2010). Some educators have suggested that the objective of teaching professionalism is to support medical students as they develop their professional identities (Cruess et al., 2015). That is, learning how a physician should act will create the foundation for whom the student will be as a physician. Others advance that lapses in professionalism are simply outward manifestations of a lack of internalization of the professional values and norms into a physician's professional identity (Holden et al., 2012).



This increased focus on professional identity in medical education has inspired researchers to investigate which aspects of the medical curriculum influence professional identity formation in medical students. In the early stages of medical school, students struggle with the vast knowledge they are expected to learn and contend with their lack of confidence in their own medical knowledge and skills (Haas and Shaffir, 1977; Lingard et al., 2003; Pitkala and Mantyranta, 2003; Monrouxe, 2009a). As medical students build the competence necessary to function as physicians, these skills become a foundational component of their professional identity (Haas and Shaffir, 1977; Pitkala and Mantyranta, 2003; Cruess et al., 2015). When medical students transition from the classroom to the clinic, role models become powerful facilitators of professional identity formation (PIF) as students observe, imitate, and practice behaviors and clinical skills of the physicians they observe (Kenny et al., 2003; Monrouxe et al., 2011; Helmich et al., 2012; Jarvis-Selinger et al., 2012).

The feedback that medical students receive from clinical faculty is also an essential component of PIF, as it serves to reinforce the learner's sense of competence and his/her ability to act appropriately within new roles (Ibarra, 1999; Pratt et al., 2006; Wald, 2015). This process of becoming a doctor begins with practice and imitation and is often felt by medical students as "pretending" to be a physician (Pitkala and Mantyranta, 2003; Frost and Regehr, 2013). However, as they increase in competence and begin to feel more secure in their roles, they become legitimate participants in the medical community (Lave and Wenger, 1991; Wenger, 1999). As medical students begin to internalize this new identity as a physician, they cease to *act* like a physician and commence *being* a physician (Jarvis-Selinger et al., 2012; Frost and Regehr, 2013).

In traditional medical curricula, the first two years of medical education, the pre-clinical years, can be summarized as rigid structures of lecture and laboratory time where students are

introduced to the basic sciences, but have very limited opportunities to practice being a doctor. Beginning in the third year, the start of the clinical years, students move from being mostly passive recipients of theoretical knowledge to becoming active participants in the clinical realm as clerks (Lempp, 2009). Professionalism and other non-cognitive aspects of medical education are typically evaluated within a formal competency-based curriculum that requires medical students to demonstrate proficiency in the competency areas. Many institutions have incorporated reflective writings into the formal curriculum to foster professionalism in students, but rarely does a framework exist to educate medical students about professional identity or to support their formation of professional identity (Holden et al., 2015).

### **Problem Statement**

A recent report on the status of medical education has proposed that professional identity should become a major focus in medical education and should be presented as a formal aspect of the curriculum (Cooke et al., 2010). In response, medical educators have called for the development of programs directed at promoting and guiding the formation of professional identity in medical students (Cruess et al., 2014, 2015). It has further been advocated that PIF be formally assessed using adaptations of methods currently in use for assessing professionalism (Cruess et al., 2016). Arguably, there are a set of professionalism behaviors that can be visualized and assessed. However, professional identity is how one defines oneself as a member of a profession and is an internal component of self that cannot easily be evaluated by others (Olive and Abercrombie, 2017). Furthermore, the assessment of professionalism poses many challenges due to the subjective nature of many of the assessments (Lynch et al., 2004) and the complexities of measuring professional attitudes and values (Lucey and Souba, 2010). Assessment tools for PIF modeled after professionalism assessments would be equally as

challenging. Furthermore, in assessing PIF in medical students, medical educators could be conveying that there is one correct way to form a professional identity when in reality PIF is a complex process that involves both individual and social processes (Kegan, 1982). Moreover, it implies that a concrete professional identity is attained following completion of medical school. Rather, professional identity is constantly being renegotiated throughout one's career as new experiences occur and prompt changes in how one views oneself as a professional (Kegan, 1982; Pratt et al., 2006).

Before medical educators catapult into the realm of curriculum development and formal assessment of PIF, educators need more than just a basic understanding of which elements in the medical curriculum influence PIF. Medical educators need to understand *how* professional identity is formed in medical students in order to know how to craft a curricular format that fosters this developmental process in medical students. In other words, medical educators need to understand the processes through which experiences are internalized as a component of one's professional identity. Currently, no such framework exists to explain the processes of professional identity formation in medical students. In addition, while professionalism occupies an important role in the medical curriculum, no studies have investigated how medical students' perceptions of professionalism influence their professional identities.

### **Purpose of the Study**

The primary purpose of this study was to investigate how medical students form their professional identities across the second and third years of medical school and how their experiences in medical school influence this process. A well-developed professional identity is necessary for physicians to function and practice medicine and a foundational professional identity should be established upon graduation from medical school (Crues et al., 2014).

Therefore, if one of the goals of medical education is to assist students in the development of a functional professional identity, medical educators must understand not only which factors influence the development of such identity but also the processes by which these factors induce transformation of one's professional identity.

To understand what factors influence medical student PIF, many studies have applied stage theories of PIF that provide medical educators theoretical constructs for measuring student developmental progress (Niemi, 1997; Beran et al., 2011; Jarvis-Selinger et al., 2012; Cruess et al., 2016). While Niemi (1997) offers exploration and commitment to a career in medicine as processes, none of the other stage theories offer specific processes for how professional identity is formed. Numerous other studies have investigated which elements of medical education influence medical students' professional identity (Kenny et al., 2003; Pitkala and Mantyranta, 2003; Monrouxe, 2009a; MacLeod, 2011; Frost and Regehr, 2013; Wong and Trollope-Kumar, 2014), but only a few have examined the processes by which these elements are internalized as a component of professional identity. No study has examined the critical period where medical students transition into a clinical role during the third year. Pratt et al. (2006) identified several processes that were used to modify professional identity in medical residents when the residents found themselves doing work that did not match with who they thought they were as a physician (e.g., a surgery resident patching his professional identity with components of a generalist physician identity until he begins to perform surgeries). Considering the dramatic shift in role that occurs in the third year of medical school, it remains unclear whether this role change induces a transformation in professional identity and whether similar PIF processes are utilized by medical students that were employed by the residents in the Pratt et al. (2006) study.

## **Research Questions**

To address the gap in the literature relating to how professional identity is formed in medical students, this study investigated three interrelated concepts as questions. While many studies have discussed professional identity in medical students, there is little empirical research that focuses on the processes through which professional identity is formed in medical students. Furthermore, no studies have examined PIF in medical students longitudinally as they transition out of the preclinical curriculum and into their clerkship rotations. Finally, this study investigated medical students' perceptions of professionalism and the role of professionalism in the formation of professional identity. Therefore, this study (a) investigated how medical students form professional identities, (b) explored medical student perceptions of professionalism, and (c) evaluated how professionalism influences professional identity formation. The following research questions were addressed based on the perceptions of the participants in this study:

The primary research question is:

- Through which processes are experiences in the second and third years of medical school integrated as components of a medical student's professional identity?

Sub-questions for the study include:

- How does medical student understanding of professionalism evolve during the second and third years of medical school?
- How does professionalism influence the formation of professional identity in medical students?

## **Study Design**

To answer these questions, the researcher employed a qualitative approach to data collection and analysis. The use of this approach allowed the researcher to develop a framework

based on student experiences to better understand the processes which stimulate PIF in medical students during the second and third years of medical school. To accomplish this, data collection occurred throughout the second and third years of medical school. Data collection consisted of one-on-one, in-depth, semi-structured interviews, and audio diary recordings. Participants were asked to share their experiences and to discuss how these experiences influenced transformations in their professional identities. In addition, they were asked to share their experiences with professionalism, discuss their understanding and perceptions of professionalism, and to consider the impact of professionalism on their professional identity. A self-reported measure of professionalism behaviors, the Professionalism Assessment Tool (PAT) (Kelley et al., 2011), was completed at the beginning and end of the study and was used as a quantitative measure to elucidate how participants' perceptions of their professionalism behaviors transformed over time. In addition, the PAT was used qualitatively to direct questions regarding the importance of professionalism behaviors to the participants' professional identity.

## **Key Terms and Definitions**

### *Identity*

Identity is defined as the meanings that are ascribed to one by self and others (Altheide, 2000). It involves one's responses to the question: Who are you? The "you" can be singular or plural and, thus, includes definitions of self or "who you are" in relation to a group or category. One's identity can therefore be multidimensional and can include components such as an individual or personal identity (definition of self at the level of the individual), a relational identity (the individual's role relative to others), and a collective or social identity (identification of an individual within the groups or social categories to which they belong) (Vignoles et al., 2011). Identity formation is the process whereby one begins to acquire a sense of self on an

individual level and in relation to others (Côté and Levine, 2002). One's identity is constantly forming and undergoing change with new experiences and the need to redefine one's self within new roles (Erikson, 1968).

### *Professionalism*

Professionalism is traditionally defined as the qualities expected of a professional. Professionals have been defined as those who work in a field that addresses particular issues for a society and are granted authority to decide who enters training and who will practice in the profession (Martimianakis et al., 2009). These arrangements comprise an implied social contract which protects the society from professionals who put their own interests above the interests of their clients. In this context, medical professionalism also implies a social contract between physicians and the patients and the society they serve to ensure that patients' needs supersede their own (Hilton and Slotnick, 2005). The American Board of Medical Specialties (ABMS) defined professionalism as a belief system in which professionals declare shared competencies and standards that will be upheld in their work and what society and patients should expect from medical professionals. At the heart of these declarations is a promise to serve patient interests above own, maintain and advance knowledge and skills of good medical practice, and to acquire interpersonal skills necessary to effectively communicate with patients (ABMS, 2012).

### *Professional Identity*

Professional identity is a negotiation of one's own personal values with the values and norms of the profession. Professional identity is just one facet of an individual's identity that enables one to confidently practice within a professional role and to convey their competence to others (Wilson et al., 2013). As applied specifically to physicians, Cruess et al. (2014) have proposed that "a physician's identity is a representation of self, achieved in stages over time

during which the characteristics, values, and norms of the medical profession are internalized, resulting in an individual thinking, acting, and feeling like a physician” (p. 1447).

### *Professional Identity Formation*

Professional identity formation (PIF) is a complex developmental process whereby one begins the definition of self within a professional role (Ibarra, 1999). Jarvis-Selinger et al. (2012) offer PIF as “an adaptive developmental process that happens simultaneously at two levels: (1) at the level of the individual, which involves the psychological development of the person, and (2) at the collective level, which involves the socialization of the person into appropriate roles and forms of participation in the community’s work” (p. 1185). One’s professional identity forms over time with new experiences and feedback that allow the budding professional to make meaning from their integration into a professional role (Ibarra, 1999). Therefore, other multidimensional aspects of one’s identity (person, social, etc.) must be negotiated as one begins to internalize characteristics of their newly developing professional identities (Cruess et al., 2014).

### *Professionalization*

Professionalization is the process through which novices are socialized into a profession and is analogous to professional socialization (Haas and Shaffir, 1982). Socialization is the process whereby individuals engage and participate in social groups and begin to absorb the values and behaviors of those within the group they seek to become a member (Hafferty and Franks, 1994). Socialization into a profession, or professionalization, includes the process of beginning to identify as a member of the profession, gaining knowledge and skills necessary for practice, and adopting the values, attitudes, and beliefs of the profession (Haas and Shaffir, 1982). Therefore, professionalization includes aspects of PIF and professionalism.



## **Overview of the Dissertation**

Chapter 2 includes a review of the relevant literature of this study, including theories of identity and identity formation; socialization of medical students and its influence on identity formation; medical professionalism; professional identity and formation of professional identity; PIF in medical education; and finally, a brief description of professionalism and professional identity in the curriculum at Indiana University School of Medicine. Chapter 3 focuses on methodology and includes a description of the participants, the data collection methods, and strategies for data analysis used in the study. Chapter 4 will present the results of the study, and finally, Chapter 5 will present the discussion and implications, study limitations, and future directions.

## CHAPTER 2: REVIEW OF THE LITERATURE

This chapter provides the context for a study investigating how professional identity is formed as medical students transition to the clinical years of medical school. This study examined the processes through which experiences were integrated as components of medical students' professional identities. Additionally, this study investigated how medical students' perceptions of professionalism transformed throughout their second and third years of medical school and how professionalism influenced their PIF. To provide context for this research, relevant literature in this chapter is divided into five sections. 1) Identity Theory and Identity Formation, 2) Theories of Socialization, 3) Professionalism and Medical Professionalism, 4) Professional Identity and Professional Identity Formation, and 5) Professional Identity Formation Throughout Medical Education. The chapter concludes by discussing the competency-based curriculum through which professionalism in medical students are assessed at Indiana University School of Medicine (IUSM).

### **Identity Theory and Identity Formation**

The process of creating an identity and modifying an existing one is referred to as identity formation (Côté and Levine, 2002). Throughout one's life, components of one's identity are formed and transformed through interactions with others as one begins to define themselves within social roles (De Fina et al., 2006b). Individuals can have multiple dimensions of their identity and these will be continually modified as they make sense of themselves within a community of others (Côté and Levine, 2002).

Identity formation is best understood at three interrelated levels: personality, interaction, and social structure. Personality involves the domain of human functioning, traditionally referred to as the self. Interaction refers to the patterns of behaviors that

characterize contact amongst people, and the level of social structure refers to the political and economic systems that define the normative structure of a society. Using this taxonomy, the term collective, or social identity designates an individual's position within a social structure while personal identity represents the more tangible aspects of personality rooted within individual experiences and interactions. The notion of ego identity refers to the more fundamental characteristics of personality and relationship to self and, secondarily, to others (Côté and Levine, 2002; Vignoles et al., 2011).

Much of the foundational knowledge of identity formation is based on Erik Erikson's theory of psychosocial development (1968). By focusing on psychosocial development, Erickson recognized that there are social and personal, as well as, psychological dimensions of identity. At each stage of identity formation the individual encounters crises that arise from inconsistencies between personal and social milieus that must be resolved to make sense of one's self (Côté and Levine, 2002). One's personal identity is formed throughout childhood and adolescence and is intrinsically related to his/her social environment. Later, one creates a workable social identity and when that identity is formulated on commitments of integrating the person into a particular culture, the ego identity is established. Ego identity is further nurtured on role validation and a sustained commitment to the community. During identity formation, Erikson argued that the sense of self in time and space, personal character and behavioral attributes, as well as recognition of role within a community come together to form a coherent self. The absence of this cohesion between the dimensions of identity results in an identity crisis or identity diffusion (Erikson, 1968).

In response to the simple dichotomous nature of Erikson's psychosocial development theory (identity versus identity crisis), James Marcia (1966) developed the identity status paradigm. The basic description of this paradigm is that identity is formed on dimensions of

exploration and commitment; that is, the thoughtful deliberation of goals, roles, and values, and possible use of those commitments to future courses of action. Marcia's conceptual framework depicts four identity statuses: identity diffusion, identity foreclosure, identity moratorium, and identity achievement. (1) Identity diffusion is where one exhibits low understanding of past choices and little commitment to present or future goals; (2) Identity foreclosures demonstrate low levels of past choice but high levels of future commitment, and commitments are likely formed on the basis of authority figures; (3) Identity moratorium is where one actively explores choices but has yet to form commitments; and (4) Identity achievement is an expression of firm commitment to future roles through active exploration of alternatives. The identity status paradigm is the most commonly employed framework for investigating identity formation, at least partly, because the statuses describe a greater variety of issues with identity. However, despite its popularity, this framework is not without its critics. The notion of "identity achievement" during identity formation is often viewed as problematic when a portion of the population could be identified as functioning within the foreclosed identity status (Côté and Levine, 2002). Further, there is the seeming contradiction that an identity is "achieved" even though the theoretical framework is based on the assumption that identity continues to develop throughout one's lifespan.

While Marcia's identity status paradigm (1966) offers additional stages of identity development relating to the processes of exploration and commitment, the stages are typically only applied to adolescents and young adults as they begin to evaluate their role in society. Kegan (1982) introduced a 5-stage model and processes of identity development that individuals may move through and between, beginning early in childhood as tensions arise and so as to maintain balance between self and the environment. Stage 1 is referred to as the Impulsive Balance and it occurs when one is able to recognize objects separate from self, but objects are

still subject to one's perception of them. The capacity for one to take impulses and perceptions as objects of their own meaning moves them into Stage 2, also known as the Imperial Balance. Stage 2 is characterized by construction of role, whether it be taking on the role of another person or simply the differentiation between appropriate roles. During the transition to Stage 3, or Interpersonal Balance, one feels reciprocal obligation and need to coordinate one's desires with those of others. Stage 3 is characterized by the acknowledgement of interpersonal relationships and shared values and expectations of the community. Movement into Stage 4, or Institutional Balance, is exemplified by an acknowledgement of autonomy and a personal or internal processing of self within the institution. Finally, Stage 5, or Inter-individual Balance, involves the acknowledgement and surrender of self, outside the confines of personal, social, and institutional relationships. Individuals are able to move back and forth through the various stages throughout their lifespans as they adapt and make meaning of each new experience.

Marcia's (1966) work, specifically, is considered a process-oriented approach to identity formation. Marcia established commitment and exploration as important processes in identity formation and the degree to which one has explored and committed serves as the basis for his identity statuses. Since then, other identity theorists have expanded upon the processes of commitment and exploration and have contributed additional processes of identity formation (Grotevant, 1987; Luyckx et al., 2011). Grotevant (1987) established a process model of identity formation that considers the influence of individual characteristics (personality, cognitive ability, and current identity) and contexts of development (culture/society, family, peers, and school/work) to the identity formation process. While Grotevant focuses on exploration as the primary process of identity formation, he further extrapolated exploration as an interaction between the following processes: consideration of expectations and beliefs, exploration as information gathering, investment toward the action, competing forces or alternatives, and

evaluation of the exploration process. The identity process model also offered assimilation (integrating new information into an existing identity) and accommodation (transforming existing identity to include this new information) as additional processes that may occur during exploration (Grotevant, 1987). Luyckx et al. (2011) similarly elaborated upon evaluation as a process that affixes identity and identity formation as an interactional process between self and others. Evaluation is seen as an active appraisal of one's commitment and exploration of new information.

Kegan's (1982) stage theory of development and Marcia's (1966) identity status paradigm have served as popular models of identity formation and been applied to numerous professional fields, including medicine, in an attempt to understand how individuals make sense of who they are as professionals (Forsythe, 2005; Luyckx et al., 2011). Medical students are tasked with making sense of themselves within the elite community of medicine. After a student enters medical school, they adopt the new social identity of "medical student," which then becomes blended with their personal identity developed from their unique life experiences. The medical student's social identity becomes affirmed through relationships with others in the medical community and certain aspects of their personal identities will be validated or challenged. Changes in identity may subsequently occur when there is an incongruence between existing personal and social identities and the perceived role of the medical student (Goldie, 2012). As students gain mastery of biomedical and clinical knowledge and begin to interact more with patients and the community of medicine, they begin to internalize what it means to be a physician and develop the identity of a physician, that is, a professional identity (Jarvis-Selinger et al., 2012).

## Theories of Socialization

The basis of identity formation is embedded in one's definition of self within a community of others (Côté and Levine, 2002). Socialization, as a sociological concept, refers to the process whereby individuals engage and participate in social groups and begin to absorb the norms, values, and language of those within the group they are in or of which they seek to become a member (Hafferty and Franks, 1994). The concept of socialization has been further elaborated into theories of social learning that focus on learning as social participation (Wenger, 1999). Situated learning is one perspective that contends that learning is inextricably linked to context and to the social processes and practices involved in the participation with and within a community (Mann, 2011).

In situated learning, participation refers to more than just an engagement in activities with particular people. It is a process of being and practicing within a social community and constructing identities in relation to those communities. This level of participation shapes not only who we are, but what we do, and how we interpret what we do (Lave and Wenger, 1991). Wenger's (1999) "communities of practice" encompass all the institutions in which individuals participate, practice, and begin to make meaning within the context of those communities. Within these communities of practice, participation has broad implications for learning. For individuals, it means that learners must engage and contribute to the practices of their communities. For communities, it means they must refine practices to ensure new membership. "Legitimate peripheral participation" refers to a process by which new members become part of a community of practice by participating in communities of practitioners. Once they have achieved mastery of knowledge and skills, the novices are then able to move toward full participation in the community (Lave and Wenger, 1991).

The profession of medicine is a community of practice in which medical students are socialized as they learn how to practice medicine (Pratt et al., 2006). The socialization of medical students includes the processes through which they develop their professional selves and acquire the culture that is central to the medical profession. In essence, medical students learn to act like doctors through interactions with healthcare professionals, peers, and patients (Brosnan, 2009). However, this situated learning is more than just observation and imitation; medical students must become active participants in the medical institution to learn from it and with members of the medical community (Pratt et al., 2006). While medical students spend much of their first two years in the classroom, a dramatic shift in socialization occurs when the students move out of the classroom and are given greater responsibility for patient care. This shift typically occurs during the clerkship phase of medical school where the students enter the clinic and become integral members of the healthcare team (Haas and Shaffir, 1977). The process of socialization varies for each medical student depending on existing aspects of identity (Cruess et al., 2015).

Early studies of medical student socialization portrayed this phenomenon as a relatively straight-forward process in which students progressively adopted the values, norms, and roles of physicians and then were gradually assimilated into the medical profession (Merton et al., 1957; Becker et al., 1961). Subsequent work has revealed socialization to be a complex process that is often coupled with extreme anxiety about meeting exaggerated expectations. Students become increasingly aware of the complexity of medical knowledge, the foundation on which physicians create their professional autonomy, and strive to develop a growing level of competence (Hafferty, 1998). To counter increasing uncertainty and to avoid appearing incapable, medical students develop a “cloak of competence” to use during clinical performances. However, as they persevere through these socializing experiences, students



begin to identify more closely with the medical profession, begin to adopt a professional role, and become more confident using the symbols of the profession (Haas and Shaffir, 1977).

One of the most prominent symbols used by a medical professional is medical jargon. Learning the language of medicine is the beginning of the process of identifying as a member of the medical community and key to participating in it (Monrouxe, 2013). One's identity is constructed socially through interactions, values, and ideologies, and social practices are conveyed through discourse (De Fina et al., 2006a). Discourse is crucial to physicians as they must report patient histories, communicate with other health professionals, patients, and students, and it is the way physicians convey their professional knowledge and competence (Lingard et al., 2003). Medical students learn how to talk like a physician from others in the medical community, and they also learn about the community of medicine by interacting and communicating with its members (Kenny et al., 2003).

Through interactions with faculty, medical students learn values, norms, and attributes of the medical community and their identities are constructed within the discourse of medical institutions (Monrouxe, 2010). Medical students are socialized to the classic medical ideology, which states that medicine is purely scientific, and therefore, physicians should remain emotionally neutral, and should seek to espouse their technical expertise with certainty (Apker and Eggly, 2004). However, contemporary medical students also experience discourses that often compete with the dominant medical ideology, including patient-centered approaches to medicine and the development of more compassionate, caring, and empathetic physicians. Students being socialized to medicine are then forced to negotiate a balance between competing discourses to make sense of what is important to them and who they want to be as physicians (MacLeod, 2011). Nevertheless, the power of discourse in medicine has created a

system that continues to perpetuate a dominant note of competence and objectivity in medicine (Apker and Eggly, 2004; MacLeod, 2011).

Due to the complex nature of socialization and the numerous interactional, discursive, and institutional factors that medical students are socialized into, any consideration of medical socialization must be situated within the medical schools the students have matriculated to and to the current culture of medical education (Brosnan, 2009). Not only do intrinsic aspects of medical institutions, such as interactions with faculty and the curriculum, have an impact on the socialization of medical students, but also pressures on physicians to meet societal, political, and organizational expectations. Over the last few decades, major sociopolitical changes have transformed the medical education landscape. Changing healthcare needs have raised societal expectations of physicians, which has led to an unprecedented political monitoring of medical education in order to improve the quality of outcomes related to the curriculum (Lempp, 2009). In this era of managed care, medical students receive conflicting information about how to manage patient care and needs while simultaneously contending with lessons that medical care must be rationed to contain costs and lower expenses. How medical students internalize these conflicting messages will impact how they define themselves as physicians (Harter and Kirby, 2004).

Because medical institutions are the sites where medical students are socialized to the communities of medicine, it is well known that these educational settings are the locations where targeted learning, identity formation, and transformation occur. During socialization within medical education settings, students learn basic biomedical knowledge from formal aspects of the curriculum, such as course offerings, but they also learn more informally from interpersonal interactions with faculty and peers. Medical students receive implicit messages about the role of the physician and proper doctor-patient relationships from interactions with

and observation of clinical faculty (Harter and Kirby, 2004). Relationships between medical students and faculty, particularly clinical faculty, preceptors, and attending physicians, can have powerful effects on students' professional choices and behaviors and how they construct meaning from their experiences (Haidet and Stein, 2006; Haidet et al., 2008). As role models, clinical faculty are central to the process of medical socialization because much of medical students' professional character development, attitudes, and values are learned in the experience of practice and observation. Role models serve as exemplars of physicians and physician behavior, and medical students learn how to talk medicine by interacting with and observing interactions between clinical faculty members (Kenny et al., 2003).

Even though much of what medical students learn about the role of the physician is through interactions with physicians, much of the current focus on educational reform targets the formal aspects of the medical curriculum. What is often disregarded in this restructuring process is the reform that can occur at the level of the institutional culture. A large proportion of what is taught in medical school, and much of what is learned, does not take place within formal course offerings, but within the institution's informal and hidden curriculum. As defined by Hafferty (1998), the hidden curriculum is "a set of influences that function at the level of organizational structure and culture" and often stands in stark contrast to what is taught in the formal curriculum. The hidden curriculum is often blamed for what is perceived as a moral decline during undergraduate medical training, expressed as an increase in cynicism, emotional detachment from patients, and an unwavering acceptance of medical hierarchy even in the face of questionable ethics and unprofessional behavior. Medical students often receive conflicting messages about the nature of medicine and the degree to which they internalize these lessons can have a profound impact on how they identify with the medical profession (Hafferty and Franks, 1994). In other words, medical students who are unable to resolve discrepancies

between formal professional discourse and what is exhibited in the clinical environment may incorporate professional identity characteristics that are opposed to those medical educators intended to instill (Langendyk et al., 2015).

### **Professionalism and Medical Professionalism**

Historically, a profession has been defined as a group of professionals who apply esoteric knowledge to particular cases and have instructional systems in place to train a select few individuals. They possess and enforce a code of ethics and behavior that each member of the profession is expected to uphold (Martimianakis et al., 2009). Professionalism is social and relational in nature and reflects the enactment of socially embedded norms that define what it means to be a professional above and beyond the knowledge and skills of practice (Holtman, 2008). Professionalism can also be viewed as an enactment of a role which tends to draw attention away from the traits and behaviors of individuals and toward the function professionals play in general. Professionals are assumed to act in the public interest and, therefore, their actions are held under the scrutiny of public and professional bodies (Martimianakis et al., 2009). The nature of professionalism then is constantly being renegotiated based on the needs of society (Hilton and Slotnick, 2005; Martimianakis et al., 2009).

Medical professionalism is a construct that is central to the identity of a physician (Martimianakis et al., 2009). While esoteric medical knowledge forms the cornerstone for professional autonomy of physicians, cognitive competence by itself is not sufficient for professionalism. Medical professionalism also includes a “social contract” that requires the physician to fulfill a commitment to patients and society as a whole and to serve the interests of patients above their own self-interests (Holtman, 2008). As a way of demonstrating the worthiness of trust that has been bestowed upon them by society, physicians must also

manifest and model the socially defined attitudes, values, and behaviors expected of members of the medical profession (Cohen, 2007).

While the expectations of professionalism are socially defined, numerous medical organizations have attempted to define medical professionalism in the context of the social contract. While definitions of professionalism vary slightly, each evolves around general virtuous qualities of the person and how that person should act in the field of medicine (Inui, 2003). The American Board of Internal Medicine (ABIM) was among the first medical organizations to explicitly define the values and behaviors of medical professionalism in their 1995 publication entitled, "Project Professionalism." The organization attests that "professionalism aspires to altruism, accountability, excellence, duty, service, honor, integrity and respect for others" (p. 5). These elements of professionalism are further defined to ensure that physicians encompass a commitment to patient interests above their own, that they fulfill the social contract with patients, society, and the profession, and that they adhere to professional and ethical codes of conduct (ABIM, 1995).

Castellani and Hafferty (2006) contend that medical professionalism is far more complex than currently defined by most medical societies due to personal, social, and commercial forces, and the nature of medical work. Further, the authors argue for seven competing clusters of professionalism with the most prominent being "nostalgic professionalism." Nostalgic professionalism is the conventional, mainstream professionalism advocated by groups, such as the ABIM and the Accreditation Council on Graduate Medical Education (ACGME), and has become the dominant discourse of medical professionalism. Other clusters of professionalism realign certain aspects of professionalism based on the ideals of work, such as academics, research, entrepreneurialism, and activism that may not necessarily be recognized by medical professional bodies. Castellani and Hafferty (2006) conclude that more than one discourse of

professionalism exists and the definitions of professionalism need to be expanded to include additional ways of practicing professionalism.

In response to such definitions that focus on values, attributes, and behaviors, the American Board of Medical Specialties (ABMS) sought to define medical professionalism in light of the social contract and in consideration of the concern that societal needs are constantly changing (Wynia et al., 2014). ABMS defines professionalism as a belief system in which medical professionals declare what patients and society can expect regarding competency standards and ethics and to ensure professionalism meets the stated expectations. Within this framework, behaviors can then be articulated into varying competencies (ABMS, 2012). Wynia et al. (2014) argue that while the list-based definitions of professionalism are functional for teaching and measurement purposes, they risk obscuring the purpose of professionalism and diluting it to a few desired traits or behaviors that can simply be checked off a list.

Even as medical organizations offer explicit definitions of medical professionalism, student experiences in medical education and their own internal code of ethics powerfully impact their perceptions and understanding of professionalism (Karnieli-Miller et al., 2010). Monrouxe et al. (2011) conceptualized four discourses of medical professionalism (individual, collective, interpersonal, and complexity) and argued that an individual can communicate an understanding of professionalism at each level. Individual discourses of professionalism are related to a set of personal attributes, while collective professionalism focuses on the values of the social and moral contracts with patients and society. Interpersonal discourses highlight professionalism as an interaction between individuals. And, finally, professionalism as complexity, recognizes professionalism as a dynamic construct that is negotiated based on context.

To investigate how medical student conceptions of professionalism differ at various levels of medical education and to understand how those discourses were internalized, Monrouxe et al. (2011) recruited pre-clinical and clinical medical students from three different medical schools to obtain their perceptions of professionalism. At the beginning of the focus groups, participants found it difficult to articulate their understandings of professionalism but after given time to reflect, 19 dimensions of professionalism were identified, including professionalism as personal attributes, competence, presentation, and contextual. It was determined that discourses of professionalism differed between pre-clinical and clinical students and between schools having different approaches to teaching, learning, and assessing professionalism. For example, students from one school with clinician-led small-group experiences in the clinic had the most nuanced understandings of professionalism. Conversely, students who were simply told about professionalism offered discourses that were dominated by aspects of self-presentation and rule following. The authors concluded that students have many influences that impact their understanding of professionalism, including their own personal backgrounds and experiences as well as their formal and informal experiences with professionalism. However, it remains to be elucidated how one's understanding of professionalism is incorporated into professional identity and how professionalism influences the formation of professional identity in medical students.

Since both formal and informal aspects of the curriculum influence understanding of professionalism, it has been suggested that medical professionalism be taught formally in the medical curriculum rather than allowing professionalism to be developed through informal transmission of professional values (Monrouxe et al., 2011). Recent lapses in professional behavior by physicians and the perceived conflicts of interest and loss of physician autonomy due to the ascendancy of managed care have spurred medical educators to incorporate

professionalism as a formal aspect of the medical curriculum (Hilton and Slotnick, 2005). The purpose of teaching professionalism in the medical curriculum is to ensure that learners understand the cognitive base of professionalism, adopt the values of the medical profession, and demonstrate the behaviors expected of a medical professional (Crues et al., 2014). While more formal aspects of the curriculum are often used to convey difficult concepts, such as medical ethics, many of the normative and behavioral aspects of professionalism are learned through socialization and interpersonal interactions with and between physicians, faculty, patients, and peers (Holtman, 2008).

Medical ideologies and values are transmitted to medical students through observations of and interactions with individuals in the medical community. Furthermore, it is often what students learn from the informal and hidden curriculum regarding professionalism and professional values that directly contradict what is taught in the formal curriculum (Karnieli-Miller et al., 2010; Daaleman et al., 2011). Students with superficial understandings of professionalism often struggle to reconcile negative experiences with professionalism against the static policy documents they received during their formal training in professionalism (Monrouxe et al., 2011). Such students may be at risk for modeling unprofessional behavior themselves (Rabow et al., 2010). How medical students contend with experiences that challenge their perceptions of professionalism can have a profound impact on how they internalize professionalism as a part of their professional identities (Hilton and Slotnick, 2005).

Historically, physicians were assumed to have developed the qualities and characteristics of a good doctor simply through the process of medical training. However, scientific advancements in medicine and the perceived loss of virtuous character traits and values have resulted in opinions that professionalism and character formation must be explicitly taught (Kenny and Shelton, 2006; Pellegrino, 2006). What it means to be a good physician is



based on socially defined character traits and expectations of physicians with regard to the social contract. Conceptions of the good physician influences not only the definitions of professionalism but how medical students perceive what it means to be a good doctor. While much of the current focus in medical education is attainment of technical competency and medical knowledge, patients want physicians to truly care about them, listen to their concerns, and use their medical knowledge to create an individualized approach to treatment (Kenny and Shelton, 2006).

The character traits that are commonly described of the good physician are portrayed as both moral and intellectual and include being: (1) altruistic: having a commitment to uphold patient interests above self-interests; (2) trustworthy: being honest regarding diagnosis, treatment, and prognosis, disclosure of limits of one's medical knowledge and experience and the limitations of medicine in general, and avoiding conflicts of interest; (3) compassionate and empathetic: having the ability to enter into the predicament of the patient's illness (Pellegrino, 2006); (4) lifelong learner: maintaining competence in medical knowledge, technical skills, and medical innovations (Bebeau, 2006); (5) caring: listening and valuing patient feelings; and (6) respectful: being considerate of patients interests and their privacy (Mann, 2006). Pellegrino (2006) argues that what makes a true professional is the appropriate combination of intellectual and moral characteristics. He argues that authenticity and trust in the profession is lost, for example, when a physician is technically competent but lacks morals or conversely, when a physician is a genuinely moral person but lacks technical competence.

One goal of formally incorporating professionalism in the medical curriculum is to impart the characteristics, values, and beliefs of the medical profession. Kenny (2006) argues that personal character is generally well-developed upon admission to medical school but the values and characteristics of a good physician are learned in medical school and residency.

Others have suggested that professionalism influences identity development through a process of renegotiation of existing values and beliefs previously held before matriculation into medical school with those professional values of a physician (Daaleman et al., 2011; Vivekananda-Schmidt et al., 2015). Medical students must learn how to act like a professional and are expected to become medical professionals and embody the professional identity of a physician (Monrouxe et al., 2011). Therefore, it is important to consider professional identity formation alongside professionalism in the curriculum to give students opportunities to negotiate professional aspects of their future identities (Cruess et al., 2014). The danger in teaching professionalism absent of professional identity is to risk conveying a surface professionalism which treats professionalism as something that physicians can simply take on and off (Stern, 2005).

### **Professional Identity and Professional Identity Formation**

During the past few decades, medical educators have focused attention on the nature of medical professionalism and how to assess it, while comparatively little attention has been directed at professional identity. However, some suggest that the objective of teaching professionalism is to support students as they develop their own professional identity (Cruess et al., 2014, 2015). Others contend that medical educators should shift attention from professionalism and how one “acts” like a physician toward professional identity and the internalization of “being” a physician (Jarvis-Selinger et al., 2012; Frost and Regehr, 2013; Boudreau et al., 2014). In their report on the status of medical education, Cooke et al. (2010) proposed that professional identity be at the forefront of medical education and explicitly taught within the curriculum. While the literature on PIF in medical education continues to grow, the concept is not new to medicine. In the classic study on medical student socialization,

Merton et al. (1957) stated that it is the fundamental purpose of medical education to “shape the novice into the effective practitioner of medicine, to give him the best available knowledge and skills, and to provide him with a professional identity so that he comes to think, act, and feel like a physician” (p. 5).

Professional identity most simply is how one defines himself/herself as a member of a profession. It involves internalizing a set of characteristics, values, and norms that are universally accepted as a member of a profession. Professional identity influences not only who they are as a person, but who they are and how they practice as a professional (Forsythe, 2005). Professional identity formation is a transformative process through which one integrates the knowledge, skills, and values of a professional with one’s own unique identity and core values (Holden et al., 2012; Holden et al., 2015). Professionals use the tools and materials which are made available to them during training to form their professional identities. However, the process through which a professional identity is formed is both experiential and personal (Frost and Regehr, 2013). It is the development of a professional identity that enables the physician to practice with proficiency and provide patients and society confidence in the medical profession (Monrouxe, 2009a). Professional identity reflects a very complex process that is best understood by applying aspects of three important, overlapping domains: (1) identity formation, (2) socialization, and (3) professionalism.

The vast majority of medical students matriculate into medical school during a critical time in identity and moral development and are often required to blend existing identities with new identities being formed (Cohen et al., 2009). Students are challenged to make sense of who they are on a personal level within a new social environment and in the context of the medical profession. Professional identity formation occurs as medical students adopt more demanding roles within the profession and find meaning and purpose within their new roles (Frost and

Regehr, 2013; Monrouxe, 2013). While much of one's personal characteristics have formed by this time, for those still in the more formative stages, identity formation may be more susceptible to cultural influences of the learning environment (Cruess et al., 2014). Those who have developed distinct social and personal identities before medical school may construct their professional identities differently as they negotiate which aspects of their existing identities to maintain or repress (Frost and Regehr, 2013). While the process of PIF is a highly individual and dynamic one, each individual wishing to interact in the profession must adopt a professional identity consistent with the medical profession in order to practice within the medical community (Cruess et al., 2015).

As medical students begin to interact with and are socialized to the communities of medicine, they begin the transformation from a novice to a physician, and as a result, they begin to acquire, repress, and negotiate which aspects of their identity they want incorporated into their new professional identity (Cruess et al., 2014). The concepts of situated learning (Lave and Wenger 1991) and communities of practice (Wenger, 1999) translate well to the transformation of a medical student and to their development of a professional identity. Medical students begin first as an observer and then move to a position of legitimate peripheral participation. Once they have adopted the identity, norms, and practices of the medical community and are able to adhere to the expectations of patients, society, and their peers they then finally move to a position of full participation (Cruess et al., 2014).

Medical students are offered a chance at participation in the medical community as they move out of the classroom and into clinical settings during the third year of medical school. As medical students acquire the new role of a clerk, they must adopt new skills and adhere to the rules of conduct within that role (Jarvis-Selinger et al., 2012). Individuals must also display an image that is consistent with the role. Failure to do so may result in diminishment of one's

effectiveness in that role or even loss of the right to enact the role. By first acting the role, one gains inclusion into the profession, and with experience one gradually begins to internalize the identity of that profession. Ibarra (1999) argues that during times of career transition, as professionals identify role models, experiment with unfamiliar behaviors, and evaluate their progress, they are constructing “possible identities” or “possible selves” until their new professional identities can be refined through more experience. Through both internal and external feedback of role performances with a possible self, professionals are then able to gauge their effectiveness and internalize desired aspects into their professional identities. These role performances may be critical components of a developing professional identity in medical students as they are given a platform in the preclinical years of medical school to “try out” possible professional identities. These possible identities may then be refined before entering the clinic during the clinical years, and particularly in residency, where they become a more functional member of the healthcare team with increased responsibility of patient care.

During identity formation, professionals often imitate or emulate role model behaviors to test the effectiveness of those role performances with how one perceives themselves within that professional role (Ibarra, 1999). Medical students choose role models not only on the basis of their outward manifestation of physician role, but also for their intrinsic personality traits and clinical mastery (Cohen et al., 2009). Role models generally exert their influence in two ways: (1) by engaging learners to actively acquire knowledge and skills through observation, imitation, and practice; and (2) by unconsciously patterning their own behaviors that result in tacit knowledge acquisition by the learner. While the unconscious patterning of unprofessional behavior exhibited by role models might be replicated by students, the knowledge acquired through conscious observation of respected physicians is equally as powerful (Cruess et al., 2015). It is then proposed that the final step of role model influence on professional identity is

the practice of critically reflecting on what has been modeled and understanding how this practice influences one's professional character (Kenny et al., 2003).

While role models can have a substantial impact on medical student professional identity, experiences in medical education have an equally powerful impact on professional development of future physicians. These include clinical and non-clinical experiences as well as encounters with patients and families (Cruess et al., 2015). However, the meaning behind each of these experiences is processed through each individual's unique filter developed from a complex blend of personal and professional identities (Cruess et al., 2014). Personal reflection on experiences, as well as, reflecting with role models, allows the medical student to explore the new knowledge and assimilate the experiences into their developing professional identity (Cruess et al., 2015; Green, 2015).

Through their experiences in medical school, students learn about the role and societal expectations of physicians. Through interactions with the formal curriculum and clinical faculty, medical students begin to internalize the elements of medical professionalism that relate to this social contract. Professionalism is foundational to the practice of medicine in that it serves as the basis for the professional trust between physicians, their patients, and society as a whole. While an increased emphasis on professionalism in medical education is in part a response to recognition of unprofessional behaviors of physicians, it has also been suggested that these observations of unprofessional behavior are simply observable manifestations of poor PIF (Holden et al., 2012). While many behavioral aspects of professionalism are primarily learned through observation of role models, the manner in which medical students internalize professionalism as a part of their professional identity can have a profound impact on who they become as a physician (Hendelman and Byszewski, 2014).

## **Professional Identity Formation Throughout Medical Education**

Professional identity formation is both a personal and social process that is intimately linked to attainment of the knowledge and skills required to practice as a physician. Professional identity emerges through participation and learning with the medical community and from it (Mann, 2011). Individuals form their identities through social interactions and define themselves based on individual qualities and on affiliations and group memberships. Medical education institutions serve as powerful socializing entities where students learn how to act like a doctor and embody the identity of a doctor. In essence, medical education institutions serve as the foundational structures whereby medical students begin to develop their professional identities as physicians (Apker and Eggly, 2004).

As students begin medical school, they likely have pre-existing notions about what it means to be a good doctor, but may still be unsure of who they want to be as a physician (Kenny, 2006). In traditional curricula, the first two years of undergraduate medical education, the pre-clinical years, clinical interactions with patients are minimal and the vast majority of time is spent learning large amounts of biomedical and clinical knowledge. However, both clinical and non-clinical aspects of the curriculum have an influence on the development of professional identity and how medical students make meaning from their experiences (Monrouxe, 2009a). The third year typically signals the start of the clinical years where students rotate through clerkships of medical specialties. This marks a significant time in medical education where students experience a dramatic shift in role as they become immersed in the clinical setting and are expected to demonstrate skills of clinical reasoning and integration of clinical and biomedical knowledge (Pitkala and Mantyranta, 2003). Students graduate from medical school after four years and are granted a medical degree (MD) after successfully completing licensing examinations. Depending on specialty choice, newly minted MD's will

spend an additional three to seven years in residency training programs to refine and enhance medical knowledge and skills. Medical residents occupy a unique position in the medical hierarchy in that they are no longer students, but are not yet fully trained physicians (Apker and Eggly, 2004). Despite these obvious role transitions in medical training, PIF is a continuous process that occurs through all levels of medical education, and professional identity continues to be transformed in practicing physicians. The following sections will highlight the use of different approaches to investigate PIF at various levels of medical education and training.

### *Stage Theory Approaches to PIF in Medical Education*

Jarvis-Selinger et al. (2012) adapted Kegan's stages of identity development (1982) to conceptualize how medical students make sense of their evolving identity as a physician. Starting at Stage 2, medical students begin medical school without a clear understanding of what it means to be a physician and while they may be able to act like a physician, they lack the more internalized aspects of "being a physician." Moving into Stage 3, medical students begin to internalize social expectations and behaviors of physicians, but in so doing are dependent on authority figures for reassurance and direction. At Stage 4, students have built a personal system of values that is used to evaluate their role and competence within the medical community and finally see themselves as embodying the physician. Jarvis-Selinger et al. (2012) contends that as the future physician completes each successive training level (i.e., medical student, clerk, resident) they are likely to encounter experiences that will challenge aspects of their professional identity and result in a transition to earlier stages within each level of training. The training of a physician is then understood as a discontinuous process where one must construct, deconstruct, and reconstruct identities as roles, perspectives, and responsibilities change. While this study allows insight into how professional identities can transform



throughout medical education, the use of Kegan's (1982) framework does not advance which processes are utilized during professional identity formation.

Kegan's (1982) theory has also recently been adapted into a professional identity essay (PIE) to elicit a respondent's conceptualization of their professional role and measures their current stage in Kegan's framework (Kalet et al., 2017). Kalet et al. (2017) modified the PIE for use in medical education and administered it to matriculating first-year medical students. The vast majority (eighty-two percent) of students were aligned into Stage 3 or were transitioning to Stage 4. These stages are characterized by an understanding of expected role based on observing others and following norms for gaining a greater understanding of one's self within that role during the transition phase. Students were then given their PIE stage score, a description of the modified Kegan stages, and were asked to reflect on their score. Most students reacted positively to their scores and had an awareness of themselves as novices (Kalet et al., 2017). However, stage models of PIF have been criticized for being overly simplistic and not encompassing the full breadth and depth of identity formation (Pratt et al., 2006).

In much the same manner in which Kegan's (1982) framework has been applied to medical student PIF, Marcia's identity status paradigm (1966) has also been used as a theoretical framework to understand identity formation in medical students. Niemi (1997) used the paradigm to examine medical students' degree of commitment to medicine and exploration of alternative career options at the end of the pre-clinical years of medical school. Nearly half of the students were classified as diffuse or having uncertainties about their role and professional identity. Beran et al. (2011) investigated third-year medical students and determined that at the end of that year no students were classified as diffuse, but nearly half had a commitment to medicine without truly exploring this career choice. The majority of students had expressed an interest in entering medicine as a child, while approximately one-third developed an interest in

adulthood. This suggests that developing a professional identity is at the core of students' preparation into medicine, and while the process is continuous, decision-making relating to one's professional identity may occur as early as childhood. However, the use of Marcia's paradigm has also been criticized because it does not explicitly take into account the social and cultural context within which students learn (Helmich et al., 2012). Rather, it focuses on two processes of professional identity formation, exploration and commitment, and the degree to which one has utilized those processes with regard to professional choices.

Cruess et al. (2016) proposed making PIF an educational objective that is formatively assessed to ensure medical students are meeting society's expectations of physicians. A pyramid of PIF for medical students was adapted from Miller's pyramid of assessing clinical skills, competence, and performance (1990). "Knows" is at the base of the pyramid as it is essential for professionals to have a sound knowledge-base. Next, "Knows How," is an evaluation of competence, while the next rung, "Shows How," is an evaluation of performance. At the apex is "Does," which assesses what a professional does while functioning independently in clinical practice (Miller, 1990). The amended pyramid for PIF assesses whether a medical student: 1) knows the behaviors expected of a physician; 2) knows how to appropriately employ professional behaviors; 3) demonstrates professional behaviors in front of others; and 4) consciously demonstrates expected behaviors alone (Cruess et al., 2016). In addition, Cruess et al. (2016) argue that because professional identity is a state of being, rather than doing, the apex of this pyramid should be occupied by another level: "Is". At this level, medical students would consistently be demonstrating professional attributes and values of a physician internalized into their professional identities.

While stage theories may be useful for understanding conceptual milestones of development, they reveal very little about the context of development or which processes move

individuals through those stages and ultimately, how professional identity is formed. In addition, stage theories convey PIF as a static or incremental phenomenon when the process is actually dynamic and transformative with new experiences (Slay and Smith, 2011). To address shortcomings, other approaches have been devised that seek to situate PIF in the context of the developmental process.

### *Narrative Approaches of PIF in Medical Education*

Narrative approaches to professional identity formation focus on storytelling as one of the fundamental methods for making meaning of experiences. Narrative approaches allow participants to voice their experiences and not only describe how they make sense of the experiences, but how specific aspects of those experiences influenced the development of their professional identities (Monrouxe, 2009a). Narrative approaches are thought to be particularly well-suited for studying medical students who learn early in medical school the importance of effective communication in providing quality medical care (Vågan, 2009).

Reflective writing is the most common form of data collected in narrative analyses of professional identity. The process of reflecting critically on one's values, attitudes, and experiences is an integral component of developing professional identity and making meaning of one's self (Cruess et al., 2014; Wald, 2015). In reading reflective narratives of students in a required preclinical course, Wong and Trollope-Kumar (2014) highlighted the importance of role models in PIF. Students revealed that these individuals supported and nurtured aspects of their professional identity. Additionally, students articulated a level of contention when characteristics of their identities, inspired by the formal curriculum (i.e., perceptions of professionalism and ethics), were altered by harsh encounters with negative role models. While students claimed reflective writing allowed them a different perspective to objectively evaluate their sense-making processes and an outlet to contend with ethical dilemmas, it is unclear as to

whether the stories genuinely reflected student experiences due to the formal nature of the writings.

Other potential mediators of PIF have been investigated. Vågan (2009) examined medical student perceptions of their professional identities with regard to communication and relations with patients. The results indicated that students who struggled to communicate with patients out of a sense of deficiency in knowledge and skills enacted conversational styles of a lay person or a facilitator of communication. The students also suggested that their role as a communicator with patients was dependent on how the patient approached the roles of the students in the conversation. For example, some patients were more likely to treat them as more senior, or even physicians, while others treated them as someone with whom they could hold a private conversation. Vågan (2009) concluded that early interactions with patients did not seem to be a strong force in the professionalization of students because pre-clinical medical students do not have the knowledge to feel comfortable in their role. Further, ambiguities between the conversational approaches of students and patients may hinder identity development due to a lack of shared understanding of role. This study was performed with first-year medical students who had recently been socialized to medical discourse, which may explain their inability to communicate in the role of a physician (Haas and Shaffir, 1977).

Monrouxe (2009a) conducted a longitudinal, narrative analysis of the development of medical student professional identities over the first two years of medical school using unsolicited audio diaries as the primary method of data collection. The audio diaries encouraged participants to make meaning of their experiences both to the researcher and themselves. As participants shared their experiences and made sense of what it meant to be a doctor, six dominant discourses reflecting societal ideologies about physicians, and two discourses contesting the dominant discourses, were found within the narratives. The dominant discourses

included the certainty of medicine, the role of the physician in treating illnesses, and emotional detachment from patients. The non-dominant discourses reflected a shift toward patient-centered approaches to medicine and the acknowledgement of limits of one's own knowledge and the biomedical knowledge which medicine draws upon. The study illuminated how medical students struggled with their future roles in light of new experiences and that making sense of inherited ideologies can have an impact on PIF. The use of unsolicited audio diaries, however, created a relative imbalance in the data between participants, with particular dominant discourses being more prevalent.

While the Monrouxe (2009a) study demonstrated how discourse influences professional identity, the medical students were only tracked through the first and second years of medical school when they have minimal contact with patients. Because medical students experience a dramatic increase in patient interactions and a distinct change in role during the third year, Pitkala and Mantyranta (2003) investigated third-year medical students regarding their perceptions of their professional development through analysis of learning diaries completed throughout the year. Students were initially concerned about lacking trustworthiness in the eyes of their patients, but their experiences in the clinic increased their confidence in their professional role. While positive and negative experiences with faculty impacted student perceptions of professional roles, students claimed that patient feedback had a much more profound influence on their self-image as a future physician. However, it is unclear whether the importance of patient feedback on professional identity was elucidated due to the nature of the reflective writing for grading purposes and student desire to write what they thought their instructors wanted to hear. Further, while this study confirmed role models as important mediators of professional identity, the authors did not elaborate on how the role models inspired changes in professional identity.

Residency is a unique time in medical education where resident physicians are no longer students but are not yet fully trained physicians. Apker and Eggly (2004) examined resident communication within a practice called “morning report,” where one resident gives case presentations to other residents and senior physicians. They investigated how this ritualistic practice influenced resident professional identities. Morning reports allowed residents to ascribe the role of physician in front of an evaluative audience and to enact the clinical competence expected of physicians. Most residents created a professional identity consistent with the dominant discourse of medicine while those who deviated from the dominant ideology experienced tension. These findings indicated that the communicative practice of morning report contributed to PIF by giving residents the opportunity to demonstrate how they should communicate and which discourses are appropriate to express as a physician. It remains unclear whether similar communicative practices influence professional identity in pre-clinical and clinical medical students.

#### *Other Qualitative Approaches of PIF in Medical Education*

Other approaches to understanding PIF do not use preexisting theoretical frameworks to analyze their data because current theories are presumed inadequate to explain how professional identity is formed or constructed by individuals (Pratt et al., 2006). Rather than using preexisting theoretical frameworks, interpretations are grounded in the data collected in the study (Vivekananda-Schmidt et al., 2015). This ensures that the voices of the participants are the focus of the material used to interpret the findings (Konkin and Suddards, 2012).

To understand how professional identities transformed through undergraduate medical education, Vivekananda-Schmidt et al. (2015) conducted a cross-sectional study to investigate the perceptions of medical students within each year of medical school. The analysis revealed that the ability to practice, participate, and be recognized in a professional role influenced

student professional identity. However, there were distinct differences in how students processed influential experiences and how those experiences were interpreted and internalized. Even though similar experiences were processed by participants in unique ways, the experience itself was what induced the reflection of the progress needed to become an effective professional. Weaver et al. (2011) also found practice to be an important process of professional identity in first- and third-year medical students as it allowed them to do the work of a physician and also feel part of the profession. However, the cross-sectional nature of these studies does not allow for elaboration on how practice influences changes in professional identity throughout medical education.

Pratt et al. (2006) followed groups of medical residents through their training in surgery, radiology, and internal medicine and determined that residents enter residency with a generalized professional identity, but utilized this to a variable degree in their developing professional identities. By examining how professional identity was formed by these three groups, Pratt et al. (2006) found that changes in identity were intertwined with changes in role and responsibilities, particularly when ideas about who the residents thought they were as physicians did not match the work they did. These comparisons between the work performed and their identity were referred to as “work-identity integrity assessments” and discrepancies between the two were referred to as “integrity violations.” Integrity violations, such as in a surgery resident who views himself as an action-oriented professional but is assigned to doing paperwork, resulted in different identity customization processes that tailored one’s identity to fit the work they were doing. Customization processes included enriching, patching, and splinting and were utilized by the residents based on the work they were doing. Identity enriching was described as a process where one’s understanding of their professional identity deepened but the basic tenets remained the same. Identity patching described a process

whereby a different identity (medical generalist) was used to patch deficiencies in one's understanding of who they were as a professional. Lastly, identity splinting was defined as a process where a prior identity was utilized until one begins doing the work one thought they would do as a professional. As their new professional identity becomes stronger, the splint can be cast aside. Finally, emerging professional identities were validated through formal and informal feedback of self and others (through hearsay) and also by adopting characteristics of role models that matched the perceptions of their own professional identities. This research demonstrated how role and responsibilities reinforced identity development in medical residents and is the only study to examine the processes by which elements of professional identity are internalized. It is not known whether the same identity customization processes are drawn upon by medical students as they form their professional identities during the critical transition to a new role in the clinical years of medical school.

Medical residents have a generalized professional identity that was formed during their medical education and training within each of their specialties leads to the formation of a professional identity that is consistent with their roles and responsibilities (Pratt et al., 2006). To understand a nontechnical aspect of PIF in surgeons, Cope et al. (2017) investigated which attitudes and values were integrated into the professional identity of surgery residents and attending surgeons. Since surgical training occurs in the context of an apprenticeship between attendings and trainees, data was collected from interviews and observations inside the operating theater. The authors determined that attitudes of perfectionism, accountability, neuroticism, and leadership were learned during surgical training. The authors imply that some negative behaviors, such as mild paranoia and neuroticism, may be learned during training rather than being intrinsic aspects of the physicians who chose the surgical specialty (Cope et al.,



2017). While this study suggests that certain values and behaviors are learned during training, the data does not illuminate how they are internalized into the surgeon's professional identities.

### **Professionalism and Professional Identity at Indiana University School of Medicine**

Indiana University School of Medicine (IUSM) is currently the largest medical school in the United States. Medical students are trained at one of nine regional centers of medical education across the state of Indiana, with approximately half completing their first two years at the Indianapolis campus. As a consequence of a lower level of IUSM student satisfaction (compared to their national cohort on the American Association of Medical Colleges [AAMC] Graduation Questionnaire) with their medical education and exposure to what they perceived to be unprofessional behaviors by faculty, the University set out to address discrepancies between the formal and informal curricula to enhance the professional development of students (Brater, 2007).

In 1999, IUSM launched a competency-based curriculum, patterned after that implemented by Brown University School of Medicine, which included nine core competencies believed to embody the knowledge, skills, attitudes, and behaviors with which the medical students should graduate. These competencies and assessments thereof became part of the formal curriculum and achievement of these were graduation requirements. During the transition to this competency-based curriculum, IUSM also launched the Relationship-Centered Care Initiative (RCCI) in 2003 to address professionalism in the hidden and informal curricula (Cottingham et al., 2008). The RCCI was implemented to change the organizational culture of IUSM by creating a medical school community that fostered a relational environment that more closely reflected the values of the competency-based curriculum, including professionalism. As part of this, the RCCI included the creation of open forums where individuals could share their

experiences and discuss what aspects of the institution should be supported, as well as provision of additional faculty development programs to enhance professionalism within the medical community (Cottingham et al., 2008). The new organizational environment was designed to promote professionalism by incorporating it into the formal curriculum and by creating avenues for students to report unprofessional behavior, such as the Teacher Learner Advocacy Committee (TLAC) (Brater, 2007).

Professionalism education at IUSM currently takes place within a competency-based curriculum (Inui et al., 2006) consisting of the six ACGME Core Competencies (patient care, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism, and systems-based practice) which were adopted by the School of Medicine in 2014. Within the professionalism competency, students are expected to demonstrate six components of professionalism: (1) responsiveness to patient needs above own, (2) demonstrate compassion, respect, and responsibility for all individuals regardless of demographics, (3) apply ethical and legal principles to medical practice, (4) adhere to ethical principles governing medical practice, (5) advocate on behalf of patients and underserved populations, and (6) practice self-care and maintain a balance between personal and professional responsibilities (IUSM, 2014). The competencies were modified with a new curriculum in 2016 and the expectations within the professionalism competency were reformed to three objectives: (1) be responsive to the whole patient in a manner that supersedes self-interest by respecting the needs, dignity, privacy and autonomy of the patient and by employing strategies to reduce the effect of their own needs, beliefs, values, interests, vulnerabilities, conflicts and biases on patient care, (2) demonstrate compassion, honesty, integrity, respect, responsibility and self-discipline in relationships with all individuals, regardless of gender, age, culture, race, ethnicity, religion, sexual orientation, disability, socioeconomic status, native

language or role, and (3) adhere to ethical and legal principles governing medical practice, including maintaining patient confidentiality, gaining informed consent, the provision or withholding of care, identifying and managing conflicts of interest, complying with human subjects' research protections, identifying, analyzing and addressing unethical and unprofessional behaviors, and maintaining appropriate boundaries in relationships with patients (IUSM, 2017). The overall aim of the professionalism competency is to instill IUSM graduates with the values, skills, and behaviors that will guide them through their role as a physician (Inui et al., 2006).

Each course at IUSM has a professionalism objective and students are evaluated on their growth and development in professionalism throughout the entire four-year curriculum. Professionalism is taught and evaluated in the pre-clinical years primarily through two courses: Introduction to Clinical Medicine I (ICMI) and II (ICMII). Students are divided into small groups with clinical preceptors and are evaluated on professionalism during small-group sessions and during student interactions with patients. For the clinical years, students' professional behaviors are evaluated during each of the clerkships using a variety of techniques, including professionalism journals, clerkship evaluations, and group discussions. The professionalism journals collected during the Internal Medicine Clerkship were intended to bridge the gap between the formal and informal curriculum by giving students an opportunity to share their experiences. In turn, the narratives are used in professional development of faculty to create a mindfulness of how professionalism is conveyed to students during informal settings (Suchman et al., 2004; Inui et al., 2006). Hoffman (2014) discovered that the professionalism journals created an avenue for medical students to make meaning from their experiences with professionalism and may also be used by educators to track students' professional development.

Though the RCCI project at IUSM was implemented to create an environment to foster professionalism, explicit discourse on professional identity is lacking. While Inui et al. (2006) expressed the importance of professionalism to a physician's professional identity, the initiative emphasized changes to the organizational culture of the institution rather than a focus on the professional development of students. Further, even though reflective essaying has been established as a useful method for medical students to make meaning from their experiences and understand their developing professional identities (Cruess et al., 2014; Wong and Trollope-Kumar, 2014), it was not intended as such in these journal narratives at IUSM.

With the exception of Pratt et al. (2006), who investigated processes of PIF in medical residents, no other studies have explicitly examined the processes utilized by medical students to incorporate their experiences in medical education into their developing professional identities. Vivekananda-Schmidt et al. (2015) and Weaver et al. (2011) established practice as an important process of PIF but neither study was longitudinal nor able to elucidate how use of the process changes professional identity over time. Much of the existing literature on PIF in medical students overlooks how experiences in medical school are internalized as components of professional identity; rather, the research emphasizes the elements which influence PIF in medical students (Niemi, 1997; Apker and Eggly, 2004; Monrouxe, 2009a; Vågan, 2009; Jarvis-Selinger et al., 2012; Frost and Regehr, 2013; Wong and Trollope-Kumar, 2014). No studies have explored the processes which induce changes in professional identity in medical students as they transition from the pre-clinical years into the clinical years of medical school. Furthermore, no studies have examined how a medical student's understanding of professionalism influences their developing professional identity.

With professional identity becoming a more central topic in medical education and as medical educators call for a strategy to evaluate medical students' PIF (Cruess et al., 2016), it is

imperative that educators understand how various aspects of the curriculum elicit a transformation in PIF in medical students. Before professional identity is explicitly taught and assessed in the medical curriculum, research is needed to understand not only how professional identity is formed, but how to foster this developmental process in students. This current study addresses these gaps in the literature by conducting a qualitative, longitudinal analysis of medical students' PIF throughout the second and third years of medical school. In addition, this study examines students' perceptions of professionalism and how their experiences with professionalism influence PIF. The details of the study procedure are presented in the following chapter.

### CHAPTER 3: METHODOLOGY

Professional identity formation is a complex, nonlinear developmental process that is influenced by social, cultural, and personal factors, and therefore, strategies to investigate it must be longitudinal and embrace its complexity (Holden et al., 2015). The goal of this study was to investigate the processes through which experiences in medical school are integrated as components of medical students' professional identity. As a component of this, this study also investigated medical students' perceptions of professionalism and explored how professionalism influences the formation of professional identity.

The purpose of conducting a qualitative study was to investigate *how* medical students form their professional identities from their experiences during the second and third years of medical school. Professional identity formation is best understood by situating the phenomenon within the experiences and social interactions of the participants (Pratt et al., 2006). This study used qualitative methods to envelop the researcher in the lived experiences of medical students, which enabled meaning to be made from these experiences and an understanding of how they were internalized as aspects of their professional identities. While feelings and experiences can be quantified, the depth and richness of the experiences are lost in such methods. Qualitative methods enable a complex and detailed understanding of the transformation that occurs in medical students as they begin to embody the identity of a physician in the early phases of their training.

Data was simultaneously collected and analyzed using the constant comparative method (Glaser and Strauss, 1967) to create a process model of PIF that was integrated and consistent with the longitudinal data. From this, a cohesive picture emerged of the processes utilized by medical students to integrate their experiences into their developing professional

identities as they transitioned into the clinical years of medical school and assumed new roles in the clinical environment.

The following research questions were addressed based on the perceptions of the participants in the study:

The primary research question was:

- Through which processes are experiences in the second and third years of medical school integrated as components of a medical student's professional identity?

Sub-questions for the study included:

- How does medical student understanding of professionalism evolve during the second and third years of medical school?
- How does professionalism influence the formation of professional identity in medical students?

The results of this study will allow medical educators to better understand the processes which influence changes in professional identities as medical students transition to a clinical role and how their experiences in medical education are internalized during this developmental process.

## **Research Design**

The aim of this study was to investigate how experiences during the second and third years of medical school are internalized as components of professional identity and to understand how their experiences with and perceptions of professionalism influence this complex, developmental process. This study utilized a longitudinal qualitative research design with primary data collected via audio diary recordings of participants. Audio diaries were recorded every two months and occurred between three scheduled one-on-one interviews

throughout the second and third years of medical school (Table 3.1). The participants also completed the Professionalism Assessment Tool (PAT), a self-reported survey of professionalism behaviors, once at the beginning of the second year and again at the end of the third year. The PAT was used to supplement the qualitative data regarding the students' experiences with professionalism and was used to investigate how the medical students' felt their professionalism behaviors transformed during the study timeframe. Additionally, the PAT was used as a quantitative measure to elucidate any significant differences in student perceptions of their professionalism behaviors during the study timeframe. The qualitative data were analyzed using the constant comparative method (Glaser and Strauss, 1967) to ensure that the interpretations were integrated and consistent across the study timeframe.

### **Study Setting**

All of the participants in this study were medical students in the Class of 2018 at Indiana University School of Medicine (IUSM). Medical students in the legacy curriculum at IUSM completed their four years of undergraduate medical education at one of nine regional campuses centered at Indiana University campuses or at the campus of other universities in the following cities: Bloomington, Evansville, Fort Wayne, Indianapolis, West Lafayette, Muncie, Gary, South Bend or Terre Haute. The first two years, the preclinical years, consisted of taking biomedical science courses and two Introduction to Clinical Medicine courses, ICMI and ICMII. While the curricular format varied somewhat between regional campuses, specifically with regard to the timing of the courses, all IUSM medical students completed the same courses by the end of the first two years. The last two years, the clinical years, consisted of completing clinical clerkship rotations at clinics and hospitals associated with IUSM throughout the state.



Table 3.1. Timeline and Progression of the Study

PROCEDURE	TIMELINE
<b>Recruitment of Participants</b> - <b>Presentation given during NCN course</b>	August 25, 2015
<b>Professionalism Assessment Tool 1 (PAT1)</b> - <b>Completed before Interview 1</b>	September 2015
<b>Interview 1</b>	September 2015
<b>Audio Diary 1</b>	October 2015
<b>Audio Diary 2</b>	December 2015
<b>Audio Diary 3</b>	February 2016
<b>Audio Diary 4</b>	April 2016
<b>Interview 2</b> - <b>Before 3<sup>rd</sup> year clerkships (June 16)</b>	May-June 2016
<b>Audio Diary 5</b>	June 2016
<b>Audio Diary 6</b>	August 2016
<b>Audio Diary 7</b>	October 2016
<b>Audio Diary 8</b>	December 2016
<b>Audio Diary 9</b>	February 2017
<b>Audio Diary 10</b>	April 2017
<b>Professionalism Assessment Tool 2 (PAT2)</b> - <b>Completed before Interview 3</b>	May-June 2017
<b>Interview 3</b> - <b>After 3<sup>rd</sup> year clerkships (May 13)</b>	May-June 2017

Students complete a total of eleven required clerkships, one elective clerkship, and seven electives relating to their future interests in residency.

During the first two years, the study participants took the following courses: Gross Anatomy, Cell and Molecular Biology, Histology, Medical Genetics, Physiology, Biochemistry, Microbiology, Immunology, Neuroscience and Clinical Neurology (NCN), Pharmacology, Pathology, Evidence-based Medicine and Biostatistics, ICMI, and ICMII. In ICMI, students were divided into small groups with clinical preceptors and were introduced to aspects of the doctor-patient relationship with faculty and patients in a variety of settings. Students were also introduced to medical ethics and professionalism, as well as other intrinsic aspects of medicine, such as patient diversity, and dealing with death and dying. Students enhance their communication skills by learning to conduct patient interviews on real and standardized patients. Medical students conduct approximately eight interviews with patients who have agreed to let medical students interview them and are required to write-up the patient history following each patient interaction. During ICMII, students are again placed into small groups with preceptors and learn to perform physical examinations as they relate to aspects of disease and diagnosis. Students continue to go to the clinic and the frequency increases to approximately once per week. In addition to taking a patient history during patient interviews, students must also perform physical examinations on the patients. At the end of the second year and in order to pass ICMII, students must achieve a passing grade on an Objective Structured Clinical Examination (OSCE) where their history and physical examination skills are assessed by standardized patients. In addition, students must earn a passing grade on the United States Medical Licensing Examination (USMLE) Step 1 to continue on to the clerkship rotations in the third year.

In the third year of medical school, students complete clerkship rotations in medical specialties at clinics and hospitals throughout the state of Indiana. The eight required third-year clerkships include: Pediatrics, Psychiatry, Surgery, Obstetrics and Gynecology, Internal Medicine, Neurology, Family Medicine, and Anesthesiology. The clerkship rotations range from eight weeks (Surgery) to two weeks (Anesthesiology), with the majority lasting four weeks. Required fourth-year clerkships include Emergency Medicine, Radiology, and sub-internships in either Medicine, Pediatrics, or Family Practice. In addition, fourth-year medical students are required to complete seven elective courses from a choice of basic science or clinical science courses, including several in medical specialties (e.g., Dermatology, Ophthalmology, Otolaryngology, etc.).

## **Methods**

This section outlines the description of the participants, participant selection, data collection methods, and data analysis. Data collection for the study began at the end of August 2015 and continued until June of 2017. Qualitative methods were chosen in order to collect rich data about the participants' experiences and their perceptions of how they developed their professional identities throughout their second and third years of medical school.

### *Participants*

The participants in the study were all medical students who were enrolled in their second year of undergraduate medical education (IUSM Class of 2018) and in good academic standing at any of the nine campuses of IUSM in August of 2015. Participants were recruited from the Indianapolis campus due to close proximity to the researcher for conducting interviews. It was decided that ten participants for a longitudinal study would be sufficient to generate rich descriptions about the participants' experiences developing professional

identities. With the goal of maintaining at least ten participants to complete the study, a total of thirteen participants (n = 13) were recruited to buffer against participants who decided to drop out across the study period.

The purpose of beginning this study of PIF with second year medical students is that they have completed most of their basic science coursework and are beginning to focus more on clinical aspects of medicine. However, they are still immersed within the basic science curriculum, and therefore, it is possible to see how the pre-clinical years of medical school influence PIF. Following these medical students through their third year, however, is the most critical aspect of the study. In order to understand PIF in medical students, the study was longitudinal in nature to appreciate how this developmental process transforms over time. Further, the third year of medical school marks a distinct transition in medical education as students are taken out of the classroom and placed into clinical environments where they now become critical members of patient care teams. It is the third year when medical students are put in situations where they can begin practicing doctoring and assume some of the roles and responsibilities of physicians. Tracking the participants' PIF throughout the third year is key to understanding how changes in role influences this process.

The choice of bounding participants to one institution was deliberate. Due to the complex interactional nature of socialization and institutional culture on PIF, participants' experiences must be situated within their medical school and any interpretations must take into consideration these social interactions (Brosnan, 2009). Even though there is diversity amongst the nine IUSM campuses with regard to curricular format (same courses are taught but occasionally at different times) and faculty, the institutional mission and culture are similar at each of the nine campuses. However, as participants began the third year, they were placed at

different clinics and hospitals across the state of Indiana to complete their clerkships and thus institutional effects varied by participant.

### *Participant Selection*

Prior to recruiting participants, the study was submitted for Institutional Review Board (IRB) approval and exempt status was granted in August 2015 (IRB Protocol #1508670595). To inform the second year medical students about the study, a presentation outlining the details and purpose of the study was given at the beginning of one of the required second-year courses, Neuroscience and Clinical Neurology (NCN). While attendance was not required for the first and second year courses, the lectures were recorded and uploaded directly onto Mediasite, an online video catalog (Sonic Foundry, 2015, v. 7.0.25). Presentations posted onto Mediasite could be watched at any time and by students from any IUSM campus. At the end of the presentation, students were informed that they may be receiving a recruitment email in the near future.

A list of second-year medical students (MS2s) enrolled in NCN and their email addresses were solicited from the course director. The recruitment email included an attached detailed study information sheet as well as a brief description of the study in the body of the email. A date by which the students should respond that they agree or decline to participate in the study was indicated at the end of the email. Recruitment emails were sent to a random group of students, 20 emails at a time, until thirteen students agreed to participate (emails were sent to 80 of 138 MS2s). No recruitment emails were sent to MS2s at the other eight IUSM campuses.

After the participants agreed to participate, each received a unique ID (letters A through M) to ensure their identity remained confidential. A folder was created for each participant using their participant ID on Indiana University's Box (IU Box) service as a secure location to share and store files online (Box, 2015). Participants were given the ability to upload documents into their folder, but only the researcher was permitted to download or modify the documents.

This ensured that the uploaded documents remained secure in the folder and could only be removed by the researcher. The participants were then sent an email providing them future directions to how the study will proceed. These directions included: (1) informing them of their participant ID to be used in future correspondence, (2) that they would be receiving an email invite from Doodle, an easy online scheduling platform (Doodle, 2016), to sign up for Interview 1, (3) that they would be receiving an invitation to an IU Box folder labeled with their participant ID to serve as a location for them to upload their audio diaries, and (4) that they would be receiving an email with a link to the Professionalism Assessment Tool (PAT) and that it needed to be completed before the first interview.

### **Data Collection**

Data for this study were collected using three qualitative methods: one-on-one interviews, audio diaries, and participant reflections of professionalism behaviors described in the PAT; and one quantitative method: participant responses to the two PAT surveys. The audio diaries allowed the participants to share their experiences developing their professional identities and making meaning from the process. The interviews gave the researcher an opportunity to probe deeper into the participants' responses regarding their developing professional identity and experiences with professionalism and to encourage the participants to expand upon the stories told in the audio diaries. Finally, the PAT was used as both a qualitative and quantitative data collection tool to investigate trends in participants' perceptions of their professionalism behaviors between the second and third years of medical school. Additionally, it also served as a prompt to guide participants' reflections on their understanding of professionalism behaviors and to reflect upon how their understanding of these behaviors progressed through the study timeframe.

## *Interviews*

Interviews are often a vital component of qualitative research (Creswell, 2013). For this study, interviews served the dual role of building relationships with the participants and also served as a platform to ask focused questions of the participants. The recording of audio diaries can arguably be viewed as impersonal, as the participants are talking to the researcher, but they are doing so through a recording device rather than in-person (Monrouxe, 2009b). Therefore, the interviews served as a time to reconnect with participants after long periods of audio diary submissions and to elaborate on certain aspects of the audio diaries. Interviews also enabled the researcher to ask participants directed questions about their experiences forming their professional identities and about their perceptions of professionalism.

Three semi-structured, one-on-one interviews were conducted. Each interview was approximately 45 minutes to one hour in length. The interviews were directed by an interview guide to ensure that the same questions were asked of each participant, but the semi-structured nature of the interviews allowed for some flexibility in questioning of the participants. The semi-structured interviews gave participants the opportunity to speak freely, and the researcher was permitted to ask additional questions based on participant responses. The interview prompts included open-ended questions to explore the participants' experiences developing their professional identities and their experiences with professionalism.

Interview 1 occurred within three weeks of participants agreeing to take part in the study (Table 1). Each interview began by creating an open forum for the participant to ask any questions they had about the study or if they had any questions for or about the researcher. The available platforms for recording their audio diaries were discussed and all had decided to record their audio diaries on their cellular phones. All participants felt confident in their ability to record the audio diaries on the cellular devices and were aware to upload the audio diaries to

the IU Box account created for them. Without any additional questions from the participants, the interview proceeded based on an interview guide. Eleven interviews were conducted in-person while one participant opted for an interview through video call (FaceTime) due to the proximity of the participant to the researcher. See Appendix A for the list of prompts utilized in Interview 1. The purpose of these open-ended questions in Interview 1 was to become acquainted with the participants on a personal level and to better understand the participants' perceptions of their professional identity and their understanding of professionalism at their current level of medical education.

Interview 2 occurred during a short break between the end of the second and beginning of the third year (Table 1). During this time, students were required to complete the USMLE Step 1 and had to pass the examination before being allowed to move onto their clerkship rotations. Most participants sat for Interview 2 following the completion of the Step 1 examination. Participants were offered in-person interviews or interviews through video calls (Skype or FaceTime) as many students were out of town during the break. Seven participants sat for in-person interviews and three opted for interviews through video calls. Interview 2 was guided by a list of open-ended interview prompts, but additional, individualized questions were asked in each interview based on responses to previous audio diaries and the need to elaborate on certain experiences and themes. Some prompts for Interview 2 were derived from Interview 1 to demonstrate development in certain areas, while additional prompts were derived from responses to significant themes in the first four audio diaries.

Finally, Interview 3 occurred after participants had completed their final third-year clerkship rotation (Table 1). Participants were again offered an in-person or video interview and all nine participants agreed to an in-person interview. Each participant had completed the second PAT survey before the final interview. Interview 3 was semi-structured and was guided



by a list of open-ended interview prompts based on the conceptual categories that had been created from the previously collected data (Appendix A). The final interview gave the investigator an opportunity to clarify any remaining uncertainties and to confirm the theoretical framework. At the end of the final interview, participants were asked whether they wanted to be involved in the member checking process once the results and discussion sections of the research had been completed. All participants requested involvement in the member check and were emailed copies of the results and discussion for feedback. Details and a definition of member checking can be found later in this chapter.

All interviews were audio recorded with permission from the participants using the Voice Record Pro application (Dayana Networks Ltd, 2016, v. 3.1.0). Following completion of each interview, the audio files were uploaded to a secure Box folder that had been created for each participant, and the file was removed from the recording device. All participants' responses remained confidential.

### *Audio Diaries*

The second form of qualitative data gathered was in the form of solicited audio diary recordings. Audio diaries allow the collection of rich and diverse data regarding experiences and elucidated how individuals make sense of those experiences. Audio diaries are purported to reduce potential researcher bias because they are one-sided conversations and there is limited potential for the researcher to influence the story that is told by the participant (Monrouxe, 2009b). Audio diaries lend themselves well to longitudinal qualitative research by the length of the studies they enable and the richness of the data that is collected. From a practical standpoint, given medical students' demanding schedules and perceived lack of free time, the telling of experiences using audio diary recordings, as opposed to traditional written narratives, is much less time consuming. In addition, the participants have fewer opportunities to rework

and edit their narratives compared to written accounts. However, participants still have the opportunity to edit what is stated in audio diaries, but it occurs in the form of sense-making rather than amendments that will be unseen by the researcher.

Audio diaries were previously utilized by Monrouxe (2009a) to investigate the developing professional identities of medical students during the first and second years of medical school. This approach allowed for rich data to be collected about the participants' experiences, but without the prescriptive and directed questioning from the researcher, such as in semi-structured interviews. However, because the audio diaries in the Monrouxe (2009a) study were unsolicited, in that participants recorded audio diaries on their own accord, participants submitted widely varying numbers and provided data that was unrelated to their experiences in medical education and to their developing professional identities (Monrouxe, 2009b). Therefore, certain participants who recorded more audio diaries may have overshadowed the voices of participants who recorded fewer audio diaries.

Audio diaries were selected as the primary method of data collection in this study because of the complexity of professional identity formation and the need for a data collection tool that could manage the longitudinal nature of this formative process. Audio diaries allowed the participants to share their experiences as they developed their professional identities and gave the participants a platform to make sense of their experiences. Audio diaries also enabled the collection of abundant, rich data without encroaching too heavily on participants' spare time. This is an important concern considering the length of the study and the demanding nature of medical education. To ensure that participants submitted a relatively equal number of audio diaries, this study scheduled the submission of ten solicited audio diaries at two month intervals between the interviews (Table 1). In addition, the participants were sent prompts to direct the nature of their responses toward their experiences developing professional identity,

their experiences with professionalism, and the ways their experiences with professionalism influenced their professional identity. Each audio diary included an additional one to two questions that were derived from relevant themes that emerged from participants' responses in previous audio diaries.

All participants decided to record the audio diaries using their cellular phones. Two cellular phone applications were recommended to students for recording the audio diaries based on the following criteria: (1) the applications were free, (2) audio files could be uploaded directly to a Box folder, and (3) the applications allowed for unlimited length of recording audio. The application recommended for android devices was Titanium Recorder (Muriel Kamgang, 2016, v. 1.5.1) and the application recommended for Apple devices was Voice Record Pro (Dayana Networks Ltd, 2016, v. 3.1.0).

Prompts for the ten audio diaries can be found in Appendix B. Prompts were sent to the participants in the form of an email. Participants were given a recommended deadline to complete the audio diaries within two weeks of the prompts being sent, but audio diaries uploaded after the recommended deadline were accepted. A reminder to complete the audio diary was sent after the first deadline had passed and an additional one-week deadline was recommended. A final reminder was sent after the deadline in the first reminder email had passed (three weeks after the original email was sent). No additional reminders were sent after that point. Table 4.2 provides the length of each audio diary completed by each participant and an average audio diary length.

Within two days of receiving notice of an audio diary submission, the audio diary was listened to, notes were taken, and initial codes were assigned to key statements from the audio diary. The participants were then emailed a notification that the audio diary was uploaded correctly and were given brief feedback on the audio diary. The feedback is not only important

as a means to keep contact with the participants and to acknowledge their participation, but also because of the personal nature of some of the messages, to provide ethical and humanistic support to any emotional experiences in a timely manner (Monrouxe, 2009b). Furthermore, maintaining contact with the participants with each audio diary allowed for the development of a personal relationship and situated the researcher within the interpretive process as the participants made sense of their experiences (Ellingson, 2014). Feedback to participants was generally formative, relating to the degree to which the participants elaborated and reflected on their experiences, specifically with regard to reflections on how their experiences influenced their developing professional identities and their understanding of professionalism. Any questions prompted by the researcher in the feedback were commonly addressed by the participants in the subsequent audio diary. The initial codes developed after the first listening of each audio diary will be discussed in more detail in the data analysis section of the methods.

#### *Professionalism Assessment Tool*

The Professionalism Assessment Tool (PAT) is a self-reported measure of professionalism behaviors that has been validated with pharmacy students (Kelley et al., 2011). The tool was designed to measure attitudinal and behavioral aspects of professionalism while also minimizing the ceiling effect (due to a tendency to rate oneself at the top of the measurement scale) that is associated with self-reported instruments. The measure is purported to minimize ceiling effects by using a rating scale modified from Miller Pyramid's clinical performance-level labels (Miller, 1990). These levels include "Knows, Knows How, Shows, Shows How, and Teaches," rather than the traditional Likert-type item responses of "strongly disagree to strongly agree." The structure of the PAT includes a 33-item inventory of professionalism behaviors that are divided into the following five domains: (1) Citizenship and Professional Engagement (CPE), (2) Reliability, Responsibility, and Accountability (RRA), (3) Relationships with

Others (RO), (4) Upholding Principles of Integrity and Respect (PIR), and (5) Lifelong Learning and Adaptability (LLA) (Kelley et al., 2011). The majority of items could be applied to professionalism in a general sense for many professional fields, while a few items are directed entirely at medical professionals (e.g., “being sensitive to the needs of patients” and “protecting patient confidentiality”). While the PAT was validated for the evaluation of pharmacy students’ self-reported professionalism behaviors, it is possible the PAT may be used to gauge areas and levels of professionalism development of any medical professional over time (Kelley et al., 2011). The PAT was utilized in this study as a form of quantitative and qualitative data to understand how the participants’ perceptions of their professionalism behaviors transformed over time. A description of the rating scale, performance-level labels, and a copy of the PAT can be found in Appendix C.

A survey which included the PAT was created and administered using REDCap, a secure web application for building and managing surveys and research databases (Vanderbilt University, 2016, v. 6.10.13). The PAT utilized the same 33 items within each of the five domains and the same rating scale and performance-level labels as validated by Kelley et al. (2011). The survey was emailed to each participant through REDCap and a link within the email allowed the survey to be identified using participant IDs.

Participants were asked to complete the PAT before participating in the first interview. Completing the PAT before the interview allowed the participant to begin thinking about some of the professionalism behaviors expected of medical professionals. During Interview 1, participants were asked to discuss their responses to the PAT and indicate where they thought they had areas of strengths or weaknesses in their understanding of professionalism behaviors. Of those professionalism behaviors listed in the PAT that participants felt were personal strengths, the participants were asked how and where they learned those behaviors. Finally,

participants were asked to elaborate on the importance of the professionalism behaviors in fostering professional identity (see final prompts in Interview 1 Protocol in Appendix A).

After the conclusion of their final clerkship rotation, participants completed the same PAT again. PAT2 was completed before Interview 3 when the participants were asked to discuss their responses during the final interview. Participants were asked where they thought they had progressed the most in their professionalism behaviors and which aspects of their medical education contributed to that growth. Those perceptions were compared against statistical analyses comparing PAT1 and PAT2. The PAT was again used as a prompt to probe the importance of professionalism and how it influenced their developing professional identities. Participants did not have access to their responses from the PAT1 and, therefore, were blinded to their previous responses.

### **Data Analysis**

Rather than fitting the data to a pre-defined theoretical framework, a framework describing the processes medical students utilized to form their professional identities during the second and third years of medical school was developed using qualitative methods. In devising this framework, the researcher began by creating codes and then organized them to conceptual categories. Coding refers to a process where similar incidents or actions are grouped into categories according to their meaning (Merriam, 2009). The data is jointly coded into categories and analyzed throughout the data collection process using the constant comparative method. This process ensured that the researcher was constantly comparing findings within the data and allowed for additional questions to be asked of participants based on the data and so as to generate theory that is integrated and consistent with the data. In the constant comparative method, the data are constantly compared, codes and categories are modified as

necessary, categories are reduced to smaller sets of higher level concepts, and then the process is repeated until categories become theoretically saturated. Following theoretical saturation, the researcher possesses categories which become the major themes of the analytical framework (Glaser and Strauss, 1967).

The constant comparison method of data analysis was utilized during the data collection process and continued after data collection had ceased. Notes were taken during the first listening of the audio diaries to provide feedback to the participants. Preliminary codes were assigned to significant segments of audio after the audio diaries had been uploaded into the data analysis program (to be discussed in detail later). These codes assigned the segments as they related to professional identity, professionalism, and influences of professionalism on professional identity. As more audio diaries were collected and interviews were conducted, the preliminary codes were continually modified as they related to conceptual categories that were being created. After the third interview was coded and the final categories were created, the codes were modified a final time to ensure that the codes aligned into categories. Finally, the categories were aligned into overarching themes that create a consistent picture of PIF and a framework of how the participants' perceptions of professionalism transform over the second and third years of medical school. The constant comparison method ensured that the longitudinal data was integrated by having participants elaborate on emergent concepts from previous audio diaries in future audio diaries and interviews.

All interview and audio diary audio data were uploaded into a OneNote (© Microsoft, 2016) notebook for data analysis. The notebook had a folder created for each participant where all audio files were saved and which served as a database where all the files were stored. For the audio files to be played within the OneNote program, they had to be converted to a file type that was compatible with the Microsoft program. Files were converted using a Free Online File

Converter that converted the files to a .wmv file (QaamGo Media GmbH, 2012). Once the files were converted, the audio files were listened to within OneNote and codes were applied to significant segments of audio. The codes were automatically linked to the segment of audio at the time the code was typed. This allowed the researcher to click a play button next to the code and listen to the exact segment of audio linked to the code. OneNote also allowed data searches across folders and generated search reports where codes could be compared. It was determined that the audio files would be coded within OneNote because the transcription method is time consuming and working from the audio files is more authentic as the voices of the participants are maintained and all of the codes are saved within a single document (Tessier, 2012). Concurrently, the researcher took personal notes, recording any personal impressions or reactions to the data throughout the research process. This provided documentation of the researcher's thoughts and potential biases during the analysis process.

In following the constant comparative method, after new audio files were loaded into the program, preliminary codes were assigned and compared to the notes that were taken during the first listening of the audio diaries. Codes and categories created within the program were constantly compared, recoded, and categorized as new transcripts from audio diaries and interviews were added to the dataset. At the end of the data collection period and once all of the audio files had been coded, the researcher conducted a final comparison to ensure consistency of codes across the dataset. Key word searches within the OneNote program allowed the researcher to group related codes and listen to them to ensure consistency. Related codes were condensed into categories and then organized into the theoretical framework. Codes which exemplified categories were tagged and then were later transcribed verbatim for use in the Results chapter.



Figure 3.1 summarizes the data analysis process of coding, aggregation of codes into broader categories (processes), and then organization of processes into themes of professional identity formation.

Finally, responses from the PATs were analyzed in SPSS Statistics v. 24 (IBM, 2016) using the Wilcoxon Signed-Rank Test. This test was used to reveal significant differences between PAT1 (completed at the beginning of the second year) and PAT2 (completed again at the end of the third year). This non-parametric test is often utilized for paired data using an ordinal scale when the population is not normally distributed. Significance was reported at the 0.05 level.

A Wilcoxon test was conducted for each of the five domains (e.g. Citizenship and Professional Engagement, Relationships with Others, etc.) between PAT1 and PAT2. Each item was coded into an ordinal variable (e.g., Knows = 1, Knows How =2, Shows = 3, Shows How = 4, Teaches = 5) and the scores for each of the five domains were compared between the two surveys. The five domains in PAT1 and PAT2 were compared individually for each participant and mean domain scores for PAT1 and PAT2 for each participant were compared across the entire cohort. Significant differences between the domains on individual PAT1 and PAT2 were discussed with participants in the final interview. Significant differences in each domain for the entire cohort will be presented in the Results chapter.

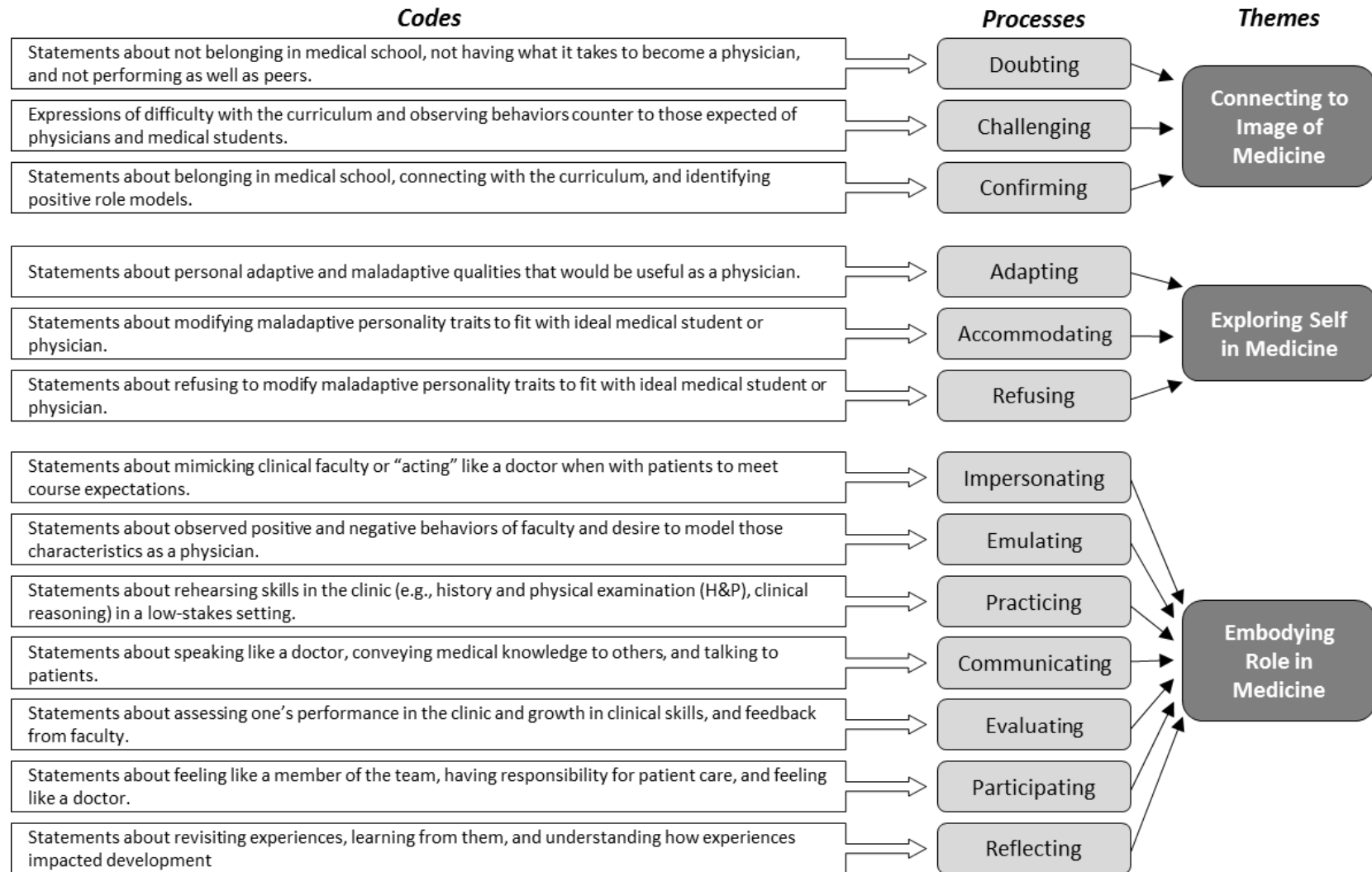


Figure 3.1. Overview of Thematic Analysis of Professional Identity Formation

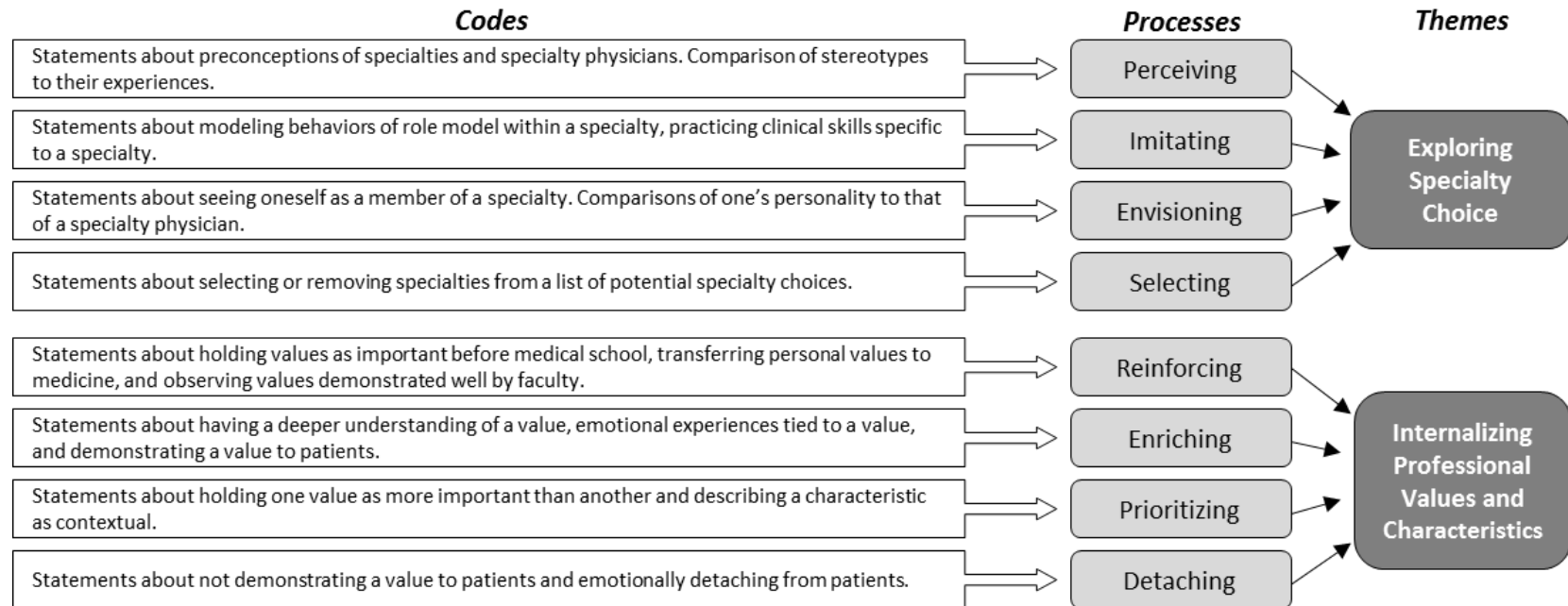


Figure 3.1. Overview of Thematic Analysis of Professional Identity Formation, Cont.

## **Ethical and Trustworthiness Considerations**

All good research is designed to produce reliable and valid data to ensure trust in the results. The term, trustworthiness, is commonly used in qualitative research instead of the traditional terminology of reliability and validity (Merriam, 2009). Several strategies were employed to ensure the credibility and trustworthiness of the results.

### *Clarifying Researcher Bias*

Clarifying personal biases and experiences of the researcher allows insight into why the study was designed the way it was and how the data were interpreted (Lincoln and Guba, 1985). As such, the researcher notes that she has experience teaching within the medical curriculum, but contends that the extent of her knowledge about the medical education curriculum is restricted to many of the biomedical courses offered within the first two years of medical school. Though it is important to note that the researcher had some involvement with the IUSM Class of 2018 (the researcher led three small-group sessions in the NCN course), none of the members of those small groups were participants in the study), nor was she involved in the assessment of any of the students in the study. Further, the researcher admits she has no familiarity with the clinical curriculum of this medical school, which could be a gap in her understanding of the students' experience. The researcher discussed any potential biases with her research team to understand how these biases may have influenced data analysis, interpretation, and presentation. Finally, the researcher kept a reflexive journal to record information about her own perceptions during the data collection and analysis phases of the study (Lincoln and Guba, 1985).

### *Prolonged Engagement*

Prolonged engagement provides a foundation for credibility by allowing the researcher to engage with the participants over an extended period of time to mitigate distortions that may

be introduced by the newness of the researcher. In addition, prolonged engagement helps the researcher gain participants' trust and develops rapport (Erlandson et al., 1993). The longitudinal nature of the study and the solicitation of audio diaries from the participants in two month intervals between interviews ensured prolonged engagement. In addition, the three one-on-one interviews served as opportunities to interact with the participants on a more personal level to help build trust and rapport between the researcher and participants.

### *Member Checking*

Member checking involves the researcher soliciting the participants' feedback on the credibility and interpretation of the data (Merriam, 2009). Member checks give the participants an opportunity to respond to the researcher's interpretations of their own realities (Lincoln and Guba, 1985). As such, the researcher requested feedback from the participants to confirm the acceptability of the results and accuracy of the interpretations. In particular, each participant was given the opportunity to examine results and provide feedback. The researcher considered any feedback received from the participants during the member checking process as indicated in the results.

### *Thick Descriptions of Findings*

Qualitative research offers rich descriptions to ensure that interpretations drawn from the data are situated within the context of the study (Lincoln and Guba, 1985). The researcher accomplished this by presenting authentic participant quotes in the analysis, interpretation, and presentation of the results. The researcher also provided context for how conclusions were made and how the results reflected the processes being investigated. This was done to assist the reader to better understand how the interpretations were made.

## **Theoretical Assumptions**

### *Identity Formation*

Although identity is a commonly studied construct, there is considerable debate regarding how identity is defined and one's definition of identity has a substantial impact on how it is explored. Therefore, the researcher seeks to clarify her stance on identity and identity formation to establish how these assumptions influence this research. First, the researcher assumes that everyone has an identity even though many may not be aware that it exists. Second, many identity studies distinguish between whether an individual has a singular identity or multiple identities (Vignoles et al., 2011). This researcher assumes that we have multiple identities (e.g., gender, cultural, professional) that can be researched independently of other identities. This research further assumes that these multiple identities, while able to be researched independently, influence other identities an individual may possess and thus may not be completely separable from them. Third, the researcher assumes identity formation occurs at multiple levels: in relation to the individual, in relation to others and through defined roles, and in relation to social groups and categories in which they belong. Fourth, the researcher assumes that while some aspects of identity may be relatively stable, identity formation can occur throughout the lifespan particularly as the individual has new experiences that inspire a re-evaluation or new definitions of self (Vignoles et al., 2011). Finally, this research focused on the processes of identity formation (rather than stage theories of identity formation) as this type of investigation allows for a deeper understanding of how identity is formed both in the context of the individual and their environment (Grotevant, 1987; Pratt et al., 2006; Vignoles et al., 2011).

### *Medical Professionalism*

Definitions of medical professionalism are varied and often contentious. The researcher assumes that professionalism is far more complex (Castellani and Hafferty, 2006) than many offered definitions that distill professionalism into expected behaviors and competencies (e.g., ACGME, ABIM). Professionalism in this study is characterized as an adherence to a shared set of values that uphold societal expectations of physicians, but does not articulate what those societal expectations are. Instead, the researcher allowed the participants to conceptualize what professionalism meant to them in the context of medicine. The researcher then investigated how the participants' understanding of professionalism transformed across the second and third years of medical school while considering professionalism in terms of the social contract.

### *Professional Identity Formation in Medical Students*

Much like identity formation, the researcher assumes that PIF occurs in the individual, through defined roles and experiences, and in relation to social groups and categories. Therefore, the researcher assumes that professional identity is formed in medical students through the process of socialization and through interactions within the medical education institution and the medical community. Professional identity formation in medical students was evaluated as a function of how the participants began to define themselves as a future physician. Specifically, the researcher examined the processes through which experiences were internalized by the participants in order to make sense of who they were going to be as future physicians.

## CHAPTER 4: RESULTS

The purpose of this study was to examine the processes through which professional identity is formed in medical students in the second and third years of medical school. Additionally, this study investigated medical students' perceptions of professionalism and how those views had transformed by the end of the third year. Finally, this study explored how professionalism influences the formation of professional identity. This chapter presents the results of three thematic analyses aimed at answering the three research questions as well as the results of a quantitative analysis of the Professionalism Assessment Tool (PAT). Each research question will be restated prior to the section that addresses that question.

### **Participant Information and Records**

Twelve participants from the Indianapolis campus and one student from a regional campus agreed to participate in the study. The regional campus participant had recently transferred to that campus and was still enrolled in the Neuroscience and Clinical Neurology (NCN) course at Indianapolis campus at the time the recruitment presentation was given. Of the thirteen participants who agreed to participate in the study, twelve completed the first interview. Participant H thought she might take a break between the second and third year and dropped out of the study before her first interview had been completed. Participant F completed the first interview and did not respond to any audio diary prompts. Participant J completed the first two audio diaries but decided to take a break to focus on the Step 1 examination. She ultimately decided not to return to the study. Finally, Participant A completed Interview 2 and Audio Diary 5 but decided to drop out of the remainder of the study to take a research year the third year instead of completing clinical clerkships. Participants A and J consented to their existing data to be used in this analysis despite leaving the study.



Demographics of the 11 participants whose data were included in the analysis can be found in Table 4.1

The solicited audio diary protocol had a 92 percent submission rate (89/97; calculation including submissions before participants exited the study). The length of the audio diaries ranged from a minimum of 3:46 minutes to a maximum of 30:06 minutes. The average audio diary length was 10:28 minutes. Participants were encouraged to submit audio diaries in between scheduled prompts, but only one additional audio diary was submitted. Information regarding the individual lengths of audio diaries over the course of the study by participant along with individual and cohort average audio diary lengths can be found in Table 4.2.

A completed copy of the methods and results were sent to all nine participants who completed the study for feedback regarding the researcher’s interpretation of the data and accuracy of the results. Five participants responded to the member check. All participants claimed the results accurately represented their experience in the second and third years. One participant provided additional information about a process within a theme and that information is provided in that section.

Table 4.1. Participant Demographics

		<b>MALE</b>	<b>FEMALE</b>	<b>TOTAL</b>
<b>Gender</b>		4 (36%)	7 (63%)	11 (100%)
<b>Ethnicity</b>	White	2 (18%)	4 (37%)	6 (55%)
	Black	0 (0%)	2 (18%)	2 (18%)
	Indian (E. Asian)	2 (18%)	0 (0%)	2 (18%)
	Hispanic	0 (0%)	1 (9%)	1 (9%)
<b>Average Age</b>	As of 8/15	25	24	24.5
<b>Highest Degree</b>	BA, BS	3	6	9
	MA, MS	1	1	2

Table 4.2. Audio Diary Length in Minutes

PART	DIARY NUMBER										AVG.	
	1	2	3	4	5	6	7	8	9	10		
A	6:32	5:17	x	x	4:11							<b>5:20</b>
B	8:17	20:36	14:18	9:15	11:42	9:17	9:50	11:04	10:37	9:43		<b>11:27</b>
C	7:14	4:29	11:38	5:16	4:29	x	8:26	8:39	7:40	10:31		<b>7:35</b>
D	7:25	12:51	14:05	7:22	7:51	13:07	15:19	9:23	11:16	13:09		<b>11:10</b>
E	13:57	26:44	12:41	21:41	10:22	11:36	10:45	10:34	10:13	10:38		<b>12:29</b>
G	13:33	10:49	10:39	3:55	9:26	8:14	10:53	6:44	15:53	12:29		<b>10:15</b>
I	17:27	13:16	20:32	23:00	29:09	30:06	23:29	27:02	25:51	22:49		<b>20:19</b>
J	4:24	7:38										<b>6:01</b>
K	15:21	10:01	4:21	3:46	9:54	6:37	7:34	12:00	11:52	11:41		<b>9:18</b>
L	4:43	6:18	5:44	4:35	10:28	7:11	5:48	5:49	15:53	12:01		<b>7:51</b>
M	11:42	8:09	x	x	19:45	19:23	14:00	x	x	x		<b>13:18</b>
<b>AVG.</b>	<b>10:03</b>	<b>9:34</b>	<b>11:44</b>	<b>9:51</b>	<b>8:32</b>	<b>10:46</b>	<b>10:19</b>	<b>9:10</b>	<b>11:54</b>	<b>11:27</b>		<b>10:28</b>

X Missed audio diary submission

Exited the study (A & J)

### Themes of Professional Identity Formation

Professional identity formation (PIF) is described in this study as the process of beginning to *feel* like a physician and includes aspects such as the internalization of the values and characteristics of a physician and carrying out the role of a physician. This process includes a deeper understanding of one's role in the profession and a greater awareness of who one wants to be as a physician. Specific attention was paid to the processes used by the participants during the second and third years of medical school as they became more internally comfortable with their future role as a physician.

The thematic analysis was conducted to answer the following research question:

- Through which processes are experiences in the second and third years of medical school integrated as components of a medical student's professional identity?

Five main processes (themes) were utilized by participants to form their professional identities during the second and third years of medical school: (1) Connecting to Image of Medicine, (2) Exploring Self in Medicine, (3) Embodying Role in Medicine, (4) Exploring Specialty Choice, and (5) Internalizing of Professional Values and Characteristics. Each theme is also a process of identity formation and within it are a series of processes or subthemes. Each theme and its processes will be explained in detail, and then the section will conclude with a representation of how those processes were utilized by the participants. Figure 4.1 presents a schematic of the processes utilized by the participants during PIF during the second and third years of medical school.

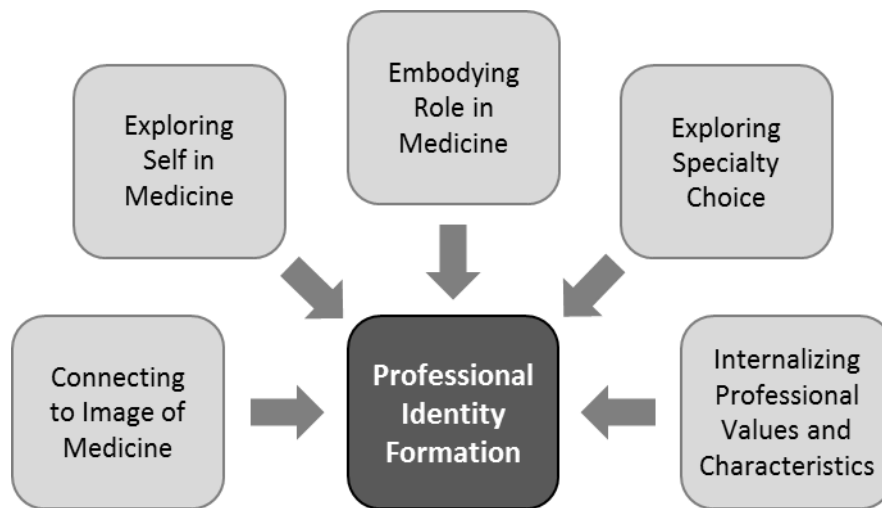


Figure 4.1. Themes of Professional Identity Formation

### *Connecting to Image of Medicine*

Connecting to Image of Medicine involves the evaluation of a participant's place within and commitment to the field of medicine. This theme explored the degree to which the participants' experiences connected to their preconceptions of medical students, physicians, and the community of medicine and how these connections influenced their sense of belonging and commitment to that community. Participants utilized three processes while connecting to their image of medicine: (1) Doubting, (2) Challenging, and (3) Confirming. The following paragraphs define each process, and the section concludes with examples of how these processes were utilized by participants throughout the study.

#### **Doubting**

The majority of participants expressed an interest and a commitment to medicine either during grade school or during their undergraduate studies. However, a small number of participants experienced doubt regarding whether they belonged in medical school. For the most part, this doubt did not alter their commitment to medicine but made them question whether they had what it took to finish medical school and actually become a physician. Some participants doubted their place in medicine in response to examination scores that were either failing or below the class average. These participants tied their place in medicine to their ability to attain the knowledgebase needed to practice as a physician and judged their knowledge primarily on examination scores. Not performing as well as peers caused these participants to doubt whether they could attain adequate knowledge to be a physician. One participant reflected on her reasons for experiencing doubt while in medical school:

I'm either at or slightly below average grade-wise despite really putting a lot of hours in, which is kind of a thing for me to adjust to. I was definitely in the top of my class in high school and as an undergraduate and then I wasn't when I came to med school. So that was an adjustment to make in my own identity, that I wasn't the smart one anymore. So that was an interesting adjustment. Sometimes when I do get below average grades I'm like "oh my gosh, I'm going

to be the worst doctor ever” and it makes me feel kind of disproportionately insecure about my professional identity if I feel like I don’t have the biomedical knowledge.

Other participants who doubted their place in medical school would also compare their grades and standing in high school and undergraduate studies to their standing in medical school.

During their Introduction to Clinical Medicine II (ICMII) course, the participants traveled to the clinic approximately once per week to perform a history and physical examination (H&P) on one patient. As the year progressed, the H&P became more focused on specific regions and required a more direct set of questions during the history and specific procedures on the physical examination. The participants were required to perform the H&P and then write a report on their findings. Rarely, a faculty preceptor for the group would be present to observe the participant during their patient interaction. Many participants lamented the lack of constructive feedback on their performance in the clinic, both in their ability to perform the H&P, and concerning their interaction with the patient. These participants regarded the lack of feedback to be detrimental to their PIF. One participant described how the doubt she experienced in the clinic and the lack of feedback made her feel that she was not attaining the clinical skills necessary to perform in the clinic and as a physician:

I just really have a lot of uncertainty about how I’m acting. If I can remember a scenario, I’ll go back and asked my preceptors like “Hey, did I do this correctly?” But I can’t always pick up my own behavior and analyze it to see if I’m being a doctor the right way. So, I wish I had more examples of how to be a doctor correctly or was observed more so people could tell me how I’m being a doctor incorrectly.

Another participant discussed the doubt she experienced when performing the physical examination during patient interviews:

There are times that I am not sure what I’m doing or what I’m looking for or what I’m feeling for correctly, and this leads to insecurity as a professional because I’m supposed to know how to do all this kind of stuff.

Other participants also lacked confidence in their clinical skills and performance while in the clinic during ICMII and felt uncertainty in their development in clinical aspects of medicine.

During the second year, and for some into the third year, a few participants experienced what they referred to as “imposter syndrome,” feeling as if they were simply playing doctor. In these cases, their self-perceptions did not align with who they were trying to be (e.g., just a medical student who’s lacking in confidence and competence versus a physician who is confident and competent). One participant described such a feeling during patient interactions in ICMII: “Sometimes I still feel like I am a little kid holding a stethoscope and playing dress-up.” For some this sentiment remained into the third year, as they thought they had so much more work to do to actually feel like a doctor during patient interactions. From member check feedback, one participant who did not openly discuss doubting in audio diaries or interviews contended that doubting is likely to be far more prevalent than indicated in this study.

### **Challenging**

The participants entered medical school with perceptions and expectations about what it meant to be a medical student and a physician. Many of the participants had experiences which challenged those preconceptions and made them rethink their notions of being a member of the medical community. The experiences that challenged their image of medicine did not weaken their commitment, but often served as barriers to developing a deeper connection to medicine. Many of the challenges the participants faced were in response to the curriculum. The high-stakes nature of medical school examinations caused many participants to focus the majority of their time and energy on passing tests. One participant discussed how taking examinations reinforced her identity as a student at the expense of developing the professional identity of a future physician:

Right now my professional identity is doing really well in school to make sure that I have all the doors that I want to be open for me open in the future. So it’s

hard to focus on who you're going to be as a physician when your immediate goal is passing a test, so that you still have all the options open when you decide what kind of physician you want to be.

The focus on examinations in the second year culminated with taking their first licensing examination, the USMLE Step 1. In the months leading up to this examination, many participants were challenged by both the administration's focus on the test and their own internal drive to perform well on the test to ensure the best possible residency matches in the future. Recalling an orientation session, one participant described the stress placed on the students by the administration to perform well on the examination:

They basically told us "your Step1 score is going to be branded on your forehead for the rest of your career." All of us know that [the Step 1] is important, but statements like that were off-putting to a lot of people in my class and I think added an extra layer of stress that was pretty unnecessary. I mean, a lot of us are pretty motivated anyway so we don't really need the fear tactic approach.

The majority of participants were unsure which specialty they wanted to match into for residency, and therefore, did not have a distinct score they wished to attain on the Step 1. Most wanted to score at or above the national average to keep their options open. This uncertainty, coupled with internal and external pressures, resulted in an immense burden for many participants throughout much of the second year.

During the second year, many participants lamented the focus on attaining a foundational level of biomedical knowledge, while having relatively little time in clinical settings, whether it be in the form of patient interactions or observational experiences. One participant felt that the focus on basic science information disconnected him from why he came to medical school:

It seems that the first two years are really packed with material that kind of takes out the fire of why we went into medical school. A lot of us went in because we wanted to work with patients; actually make an impact on people's lives... Being subjected to all this information that we need to know, memorize, [and] understand can be demoralizing at times. I think meeting with patients and actually having clinical experiences can be uplifting, in that sense.

Despite the challenge of learning basic science information, at the end of the second year most participants felt more confident in their biomedical knowledge and viewed it as an important foundational aspect of their developing professional identities, but the lack of clinical experiences and ability to practice in other areas of doctoring often resulted in feelings that their professional identities had not formed much over the second year. In reflecting on his PIF during the second year, one participant stated:

You have limited hospital experiences where you get to put on the white coat and kind of pretend to be a doctor for half a day. But I would say, overall, the way the curriculum is all book learning of the first two years I don't feel, just kind of looking around and looking at myself, I don't feel like I have changed a whole lot.

Several other participants claimed that the curriculum focus on biomedical information led them to believe their professional identities had not transformed much over the second year and many felt that their biomedical knowledge was the only component of their professional identity they could utilize in the clinic.

While the majority of participants claimed to prefer the third year of medical school over the second, their experiences in the clinic resulted in a new set of challenges. Many participants discussed the challenges of adapting to new clerkship rotations, but all felt more confident in their roles by the end of those rotations. Of the experiences that remained challenging for many participants throughout the third year was witnessing behaviors that countered their perceptions of a good doctor. While these experiences were rare and never at the level that would have affected patient safety, they were, nonetheless, striking to many participants. One participant discussed a physician whom he described as taking no interest in teaching medical students and was uncaring to his patients:

You go into medical school and you're like "oh, all physicians are great." You know that's not true but you kind of have this feeling, most go into this because they wanted to help people, but somewhere along the line people are jaded. Which I understand, but the way you react to that kind of determines how you



act, I think, in the end. So it is kind of a shock value when someone's a bad physician or a bad teacher, maybe not a bad physician, but they are bad at some part of their role.

Many participants who were challenged by observing physicians who did not meet their expectations of good physicians tended to describe these physicians as brash and uncaring with patients. Other participants described challenging experiences where the patient was disrespected, usually in the form of disparaging remarks after leaving the patient's room or in the operating room. These experiences were particularly challenging because they stood counter to their expectations of physicians and how they should treat their patients.

### **Confirming**

During the second and third years, many of the participants had experiences which simply confirmed their choice and expectations about medical school and being a physician. While many found medical school to be challenging, particularly the course-load and the amount of information they needed to learn in those courses, these experiences for some validated their connection to medicine. Several participants viewed the challenging curriculum and the need to learn considerable amounts of biomedical and clinical information as a "rite of passage" to becoming a doctor. One participant described the importance of having a solid foundation of biomedical knowledge before entering the clinic:

I think the actual teaching of how to be a doctor and how to practice and see patients comes after we have all the book knowledge...I think they are taught hand-in-hand this year and for the rest of medical school, but I think you definitely need the basic science is first.

A few other participants claimed to desire a strong foundation in biomedical knowledge before learning more clinical aspects of medicine. For those participants, learning that biomedical knowledge was merely a part of being a medical student.

In comparing the curricular format of the first-year of medical school to the second, many found the second-year courses to be more relevant to the participants' future role as a

physician because they were considered to be more clinically-focused. One participant reflected on the second-year and stated:

I liked the courses a lot more because they were a lot more clinically relevant, at least in my opinion, than the first year. We learned more about disease processes and treatments and that is something we really didn't touch on in first year.

While the participants were often challenged by learning basic science information that was seemingly unrelated to clinical practice, when the information was presented with a clinical correlation it justified the need to learn that information because it related to patient care and they felt were more likely to use that information in the clinical setting.

Even though most participants had a solid commitment to medicine during the second year, it was during the third year that all participants' commitments were strongly confirmed. During the clerkship rotations the participants finally had the opportunity to "do the work of a physician" and get an extensive amount of time interacting with patients and other members of the healthcare team. One participant described how he felt in the third year of medical school compared to the previous two years:

When you get into the clinical years you just feel much more like you're actually doing medicine rather than the past two years I felt like I've been getting a Master's degree in biology, especially the first year... Actually putting on a shirt and a tie and a white coat and going to work versus going to library all day to me seems like a huge difference, thinking about what you're doing: trying to learn medicine versus trying to learn pathology.

The sentiment described by this participant was similar amongst most of the participants. Being in a clinical environment in the third year confirmed their choice as a future physician because they finally felt as if they were learning to practice medicine.

While observing physicians acting inappropriately challenged many participants' preconceptions of good doctors, identifying positive role models confirmed to the participants that good doctors exist and they often served as exemplars of the types of physicians the

participants could become. One participant discussed his role models and the characteristics he found admirable:

My attendings have been fantastic. They are good role models and definitely people that I want to be like when I become a physician. My current attending has been quite available for his patients. He goes out of his way to educate them on their medical condition and fielding questions that they have, which I find to be quite meaningful. He never looks like he's in a hurry to leave the room [and] is always willing to engage the patient, which is key to developing that relationship with the patient.

The role models who confirmed many of the participants' expectations of physicians and commitment to medicine were frequently described as caring, empathetic, and took the time to educate both the patients and the medical students.

### **Processes of Connecting to Image of Medicine**

The participants entered medical school with perceptions and expectations about medical school and what it meant to be a medical student and a physician. While not all participants utilized all three processes (Confirming, Challenging, and Doubting) of Connecting to Image of Medicine, for some the processes followed a linear progression, while others had experiences where one or two processes were utilized. Those participants who experienced doubt tended to follow the linear progression of the process model more closely. Such participants claimed to have experienced doubt more in the first year than in the second year. Second year was still challenging for most of those participants, but they began to have more confirming experiences, such as learning clinically relevant information, which reinforced their commitment. When the doubters entered the third year, they had fewer challenging experiences and far more experiences that confirmed and validated their expectations and place in medicine.

Figure 4.2 presents a process model of connecting image to medicine. The dual sided arrow represents the majority of participants who utilized challenging and confirming processes

throughout the second and third years, while the right-facing arrows represent the participants who experienced doubt when beginning medical school and proceeded to generally follow a linear progression.

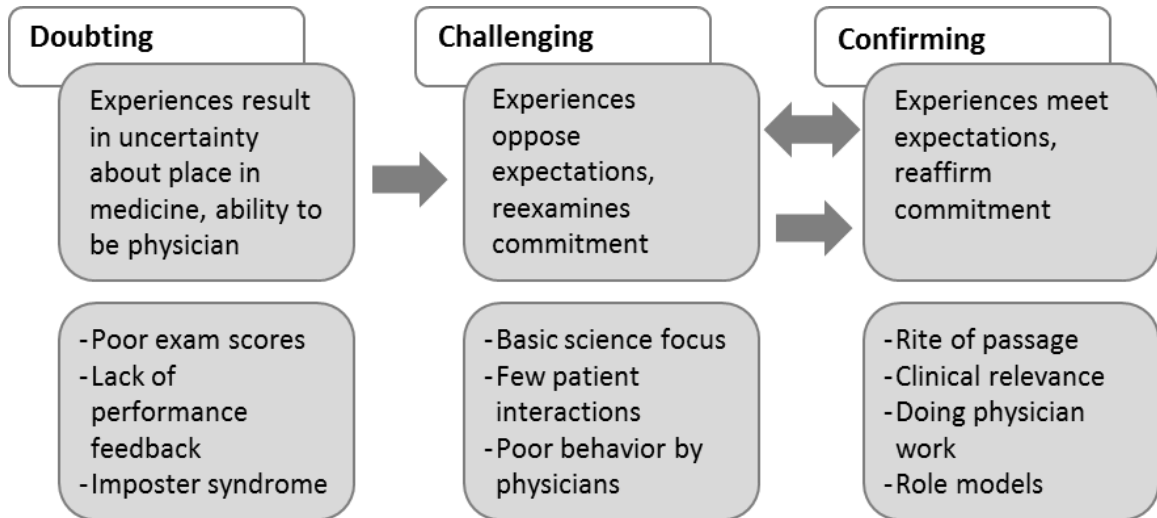


Figure 4.2. Process Model of Connecting to Image of Medicine

### *Exploring Self in Medicine*

The Exploring Self in Medicine theme relates to the assessment of how one’s personality or personal identity fits with one’s conceptions of a medical student and a physician. This theme explores the degree to which participants felt that their personal identity transformed to form an identity consistent with that of a physician. Several participants considered the transition to being a medical student and a future physician as unproblematic and believed their existing personal identity and personality to be well-suited to a physician’s professional identity. Analysis of this theme revealed that participants used up to three processes to form an identity consistent with that of a developing medical professional and to feel comfortable with their future self as a physician. The three processes identified during Exploration of Self in Medicine were: (1) Adapting, (2) Accommodating, and (3) Refusing. The following paragraphs define each

of those processes, and the section concludes with examples of how these processes were utilized by the participants during the second and third years of medical school.

### **Adapting**

Each of the participants entered the second year with ideas about what it meant to be a medical student and a physician and what qualities each should possess. The process of adapting involved identifying positive personal characteristics in themselves and recognizing how those traits could be best utilized as a doctor. One participant described how being logical can be adapted to medicine as she views it as an essential part of the role of a physician:

Growing up I've always been told I have a logical mind... And I think that will serve me well being a physician and running through algorithms and looking at the things I know I can't miss, what test to do next, and the sort of stepwise approach to find the diagnosis. I'm not sure how much that will relate to my professional identity in the sense that those are just the things that you need to do to be a doctor.

Other beneficial characteristics that were described by participants include being a problem-solver, being inquisitive, and driven. These attributes were described by participants as being adapted to their professional identities because they too were viewed as valuable qualities of physicians.

A couple participants identified what they perceived as adverse personality traits and found ways to adapt them to their developing professional identities. One participant discussed her anxiety and how it compelled her to be more proactive during her clerkships:

The fact that I am an anxious person has helped me with third year quite a bit ... I think the fact that I do worry about things does help me to be more conscientious and maybe more self-directed [with] learning things and making sure I know how to do things. And nurses have commented on this too and advocated for me with the attendings.

Another participant described how his peers were far more motivated to study than he was and that he spent more time on extra-curricular activities. He believed that some of these activities,

such as learning medical Spanish and learning how to code, would make him a better physician in the future by broadening his practical skill-set.

### **Accommodating**

There were certain attributes some participants perceived necessary for a medical student and physician to hold that they did not personally see themselves possessing. Additionally, there were features the participants saw in themselves as being incompatible with the identity of medical students and physicians. During the process of accommodating, the participants would make conscious efforts to modify personality traits and exude characteristics in which they were otherwise deficient. One character trait accommodated by participants was confidence. Even though many participants expressed a lack of confidence in their clinical performances and claimed that displaying confidence was something they did not personally feel, they deemed it necessary to demonstrate because it is an important quality of being a doctor. One participant stated:

Confidence is a huge thing. Going into that is sort of making the patient feel that you know what you're doing even if you don't really because even now I don't really know what I'm doing but I feel like I'm probably better at hiding that and trying to exude a level of knowledge and confidence that I think goes into professional identity.

Confidence was viewed by many participants as an essential component of physician identity and several participants claimed to make active attempts to learn to be more confident.

Some participants often described themselves as introverts and claimed this status stood at odds with how the typical medical student is described: an extrovert who is assertive, talkative, and outgoing. Several participants claimed to not possess these personality traits but felt pressure to exude those characteristics in the clinical setting. One participant described how her personality compared to that of her peers who may be classified as more extroverted:

That's feedback I have gotten from preceptors that comment "oh, you know you're sort of quiet" or "it's hard for you to speak up in a big group." I guess I

can see what they are getting at, but I think it's because I am not one to interrupt people and sort of be over the top. But that's how I come off compared to classmates [who] might be more prone to interrupting or just making sure that they are heard. I am sort of more willing to be laid-back, observe, listen, and that's how I gather information instead of trying to overpower people.

Other participants described how their personality compared to that of their peers who may be considered more extroverted. One participant described how even though her personality was that of an introvert, she contended that she could simply separate that aspect of her personality from her professional identity:

I'm definitely an introvert. I know that's a part of my personality that won't be getting used. I'll be spending a lot of my energy putting myself out there and talking to patients and maybe using that side more and leaving the rest of it at home just because that's the nature of the job.

This participant considered her own introversion to stand at odds with the work of a physician and decided to accommodate when interacting with patients.

A few participants considered themselves as "shy" which led to a degree of discomfort particularly when they entered the third year. These individuals felt nervous at the prospect of having to put themselves in uncomfortable situations and ask questions. One participant explained:

It's challenging to put yourself out there if you are naturally shy and don't really know how to be useful to the team. Because what you don't want to do is make more work for them... My next rotation will be general surgery so hopefully since I have some skills I can show that I am competent and, like, my competency at certain tasks will kind of compensate for being shy or not speaking up as much.

This participant described how she hoped to accommodate for her shyness by being able to perform technical skills on her surgery clerkship.

Several of the participants who accommodated parts of their personality felt they were not able to be their true selves in the clinic. For many, this related to being unable to relax and

have fun while in a clinical setting. One participant describes the prospect of being herself in the future and why she feels unable to let her personality out in the clinic:

So I think as I progress in my career and sort of have more of that leadership role instead of being the low man on the totem pole like as I am as a medical student, those things will be able to come out more just because I won't have to be watching my back for poor evaluations all the time and can sort of relax a bit and have fun at work but still be appropriate. But I think it's sort of hard is a medical student to really let your full personality out in the clinic or on the wards just because anyone that you interact with gets to evaluate you.

Some of the pressure to accommodate their personality in the clinical setting related to evaluations and they felt they were more likely to get good evaluations if they conformed to the typical medical student who is outgoing, takes initiative, and speaks up. Others felt they needed to present themselves in that manner to have successful patient interactions.

### **Refusing**

The process of refusing describes identifying personality traits that they, themselves, held, but were acknowledged by others or self as being in contrast to what should be held by medical students and physicians. A few participants refused to accommodate or adapt those traits in their development of self as a future physician. One participant was told by an attending she was soft-spoken and recommended that she speak up. This participant regarded this feedback as an attack on an intrinsic personality trait and refused to adapt to this conception:

I was told I was sort of soft-spoken. That I needed to work on that and that made it me sort of blend into the team rather than standing out and being more assertive in the group. I took that sort of hard because she was remarking on an intrinsic quality about me. The sound of my voice. So that I had a soothing voice or something... Having that realization that we are each just doing things the best that we can and I don't have to be any one particular way. Sort of developing myself as an individual is okay. It's something that helps me develop as a future physician because I feel like a lot of medical education is about conformity.

Another participant refused to display confidence until she felt it internally despite seeing her peers falsely exude it:



I think it's important because a lot of people try to pretend to be something that they are not or overexert confidence that they maybe don't have. I don't think that I've ever tried to do that. If anything I've been on the lower end of confidence and therefore have suffered in different ways as a result of that. I think you should meet yourself where you're at. You can't pretend to be someone that you're not. And finally to get into a place where I'm confident in my abilities and so therefore [confidence is] exuded an appropriate way.

While rare, these participants considered it more important to maintain these aspects of self rather than adapt to the traits of typical medical student because they viewed these characteristics as fundamental aspects of self.

### **Processes of Exploring Self in Medicine**

As the participants accrued more experiences in the clinic and were learning how they fit into the team dynamic, some began to reflect on their personality traits and evaluated whether those traits fit the picture of medical students and physicians they had created or if they were at odds with it. Most participants considered their personality or personal identity to be a good fit in medicine and did not utilize any processes to Explore Self in Medicine. However, five participants used the processes of Adapting, Accommodating, and Refusing to make sense of who they were as a person and how they fit into medicine. Accommodating was the most commonly utilized process. Even though three of the four participants who accommodated their personalities for medicine had similar experiences (e.g., they considered themselves either shy or introverted and felt pressure, either internal or external, to appear more outgoing and extroverted) they accommodated their sense of self in medicine differently. One simply detached that part of her personality while in the clinic, another made concerted efforts to modify that aspect of her personality, and the last began to modify her personality but then refused to conform to the persona of the typical medical student.

Figure 4.3 presents a process model of exploring self in medicine. There are dual-arrows between adapting and accommodating, and accommodating and refusing because there

appeared to be no linear relationship between the processes. The participants who explored self in medicine would utilize processes as they encountered experiences that caused them to explore how they fit into the persona of a medical student and a developing physician.

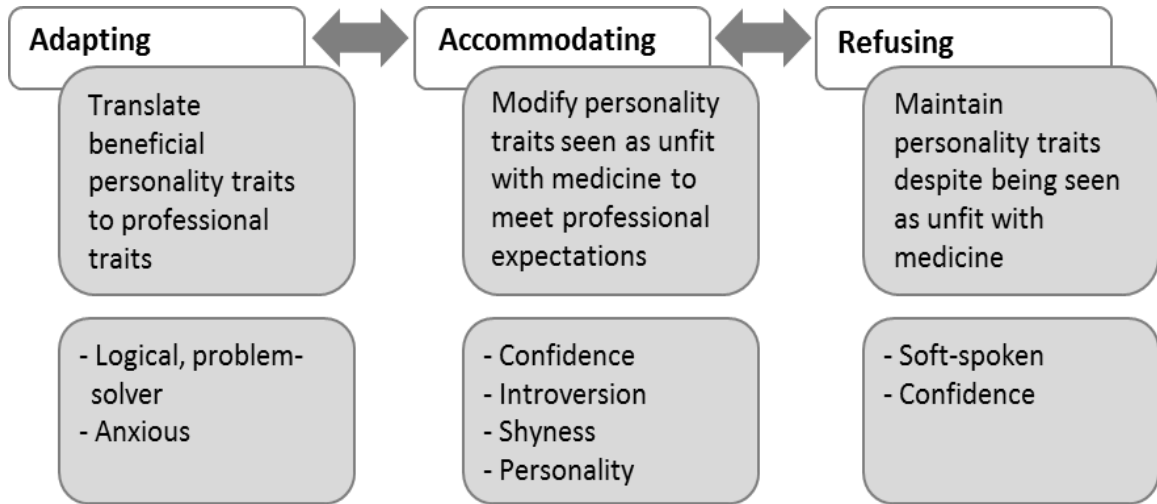


Figure 4.3. Process Model of Exploring Self in Medicine

### *Embodying Role in Medicine*

The theme, Embodying Role in Medicine, relates to procedural aspects of being a doctor and involves medical student acceptance as a contributing member of the healthcare team. During the second year of medical school participants had limited opportunities to perform in the role of a physician. However, participants were required to enter a clinical environment approximately once per week to interview one patient during their ICMII course. In these settings, participants were responsible for conducting an H&P and writing up the results of the interview. Most participants appreciated the opportunity to practice their clinical skills and to gain more comfort interacting with patients. Others found these interactions to be less beneficial to their development as many claimed a lack of appropriate feedback on their clinical performance and uncertainty whether they were performing aspects of the physical

examination correctly or were asking the right questions during interviews. Some found these settings to be an unrealistic representation of the doctor-patient relationship as students were given a full hour to perform an H&P (whereas most physicians have 15 minute appointment windows) and some felt they had no direct involvement in patient care.

On the other hand, during the third year of medical school the participants entered the clinic full time and were often accepted as functional members of the healthcare team. In each of the clerkships, participants were given varying levels of responsibility from shadowing residents and attendings, to performing H&Ps on patients and reporting back to attendings, and finally, to managing patient care (under supervision of residents and/or attendings). As responsibilities increased they began to feel more competent and confident as members of the team.

Throughout the second and third years of medical school, participants utilized a series of processes to embody the role of the physician. With more opportunities to interact with patients and the medical community, participants began to feel more like functional members of the healthcare team. Beginning in the second year and moving into the third year, the participants employed seven processes as they began to act and then feel more like a physician: (1) Impersonating, (2) Emulating, (3) Practicing, (4) Communicating, (5) Evaluating, (6) Participating, and (7) Reflecting. The following paragraphs define each of the processes, and the section concludes with a representation of how participants utilized these processes across the study timeframe.

### **Impersonating**

At the beginning of the second year, many participants simply lacked the experience to understand the role of a physician and how they act in specific situations. Participants valued the opportunity to observe physicians working in the clinic because it gave them a chance to see

a physician in action. Some participants would mimic the physicians they observed through the process of impersonating. However, many participants cited that they had few opportunities to observe clinical faculty interact with patients and the healthcare team. One participant stated:

Patient interactions do help to build a professional identity in the sense that we get to pretend to be doctors or we are acting as student doctors in that setting but often times there is no one in there for us to emulate or to build our professional identities off of those settings where we are alone with the patients.

This participant claimed that the scarcity of faculty observation experiences was detrimental to her professional identity formation. Others also claimed to have so few interactions and at times they did not even know how to begin acting like a physician.

Despite this reported shortage of experiences with which to impersonate clinical faculty, most participants claimed to have modeled their approaches in the clinic from their ICM preceptors or other physicians in the clinic. Participants would observe how their preceptors approached a patient when the medical student was invited to interview a patient. One participant discussed the importance of observing preceptors interacting with patients:

Whenever we are with our preceptor for ICM class and see how they interact with patients and I do think that is extremely helpful because we see positive interactions and probably, you know, ways we should be interacting as well.

Participants also observed their preceptors to gain insights into other aspects of patient interactions, like how to approach the patients, where to put your hands, and what are appropriate things to say. In discussing how she has impersonated her preceptors, one participant stated: "I have tried to talk more confidently and loudly. I try to use the same phrases that they use."

While most participants impersonated their clinical faculty early in the second year, they were genuinely trying to act like a physician during those interactions so as to gain proficiency with their clinical and interpersonal skills. Conversely, relatively few participants impersonated

physicians without being truly invested in the opportunity to practice being a physician in a low-stakes setting. These situations occurred during interactions with standardized patients where many would acknowledge they were “faking” being a doctor. Even though many considered these interactions to be fake, relatively few went beyond that to claim they were carrying out aspects of the physical examination but not actually accomplishing the procedure (e.g., putting the stethoscope on the chest to listen for lung sounds, but not actually attempting to hear lung sounds). One participant discussed faking during interviews with standardized patients:

You’re not worried if you’re actually feeling the pulse or whatever. You just want to say “I’m feeling the popliteal pulse,” and then just move on so that they check the box and say “yes, I did this” but not worrying so much about actually doing it.

This participant considered interviews with standardized patients to be unrealistic representations of patient interactions and discussed how some of her peers would simulate aspects of the physical examination because these encountered were not viewed as genuine.

### **Emulating**

Attending physicians and residents served as powerful role models for the participants by demonstrating how a physician acts in certain clinical scenarios. Not only did role models demonstrate how to act like a doctor, but they also served as exemplars of how to be a physician. Once participants became more comfortable with their own role in the medical community, they began to identify positive and negative role models, based on their interactions, and how well they perceived them to embody the characteristics of the physician. Participants would identify specific behaviors of their role models that they would want to emulate in future practice. One participant discussed the qualities of his family medicine attending he wanted to model:

I just kind of noticed myself honing in more on things my provider and things that that other providers do and just kind of focus and pick and choose, “oh, I want to do that or no I don’t want to do those sorts of things.” Two of the things

that have come out in this rotation so far is I really like the way my provider, the doctor I'm working with, interacts with patients. It's very laid-back, very approachable and not at all kind of haughty or judgmental or rushed. So I like that and I think that is something I found myself emulating in the past two weeks and is something I would like to continue to hone over the next year.

Other participants claimed to want to emulate their preceptors or attending's approaches to patient interactions if they viewed them as kind, caring, and cognizant of patient's time.

Conversely, observations of behaviors that the participants would not want to emulate were equally powerful motivators of how to behave as a physician in the future. The participants would often claim to make conscious efforts to not adopt the negative behaviors they observed. One participant discussed her experiences with an attending in the operating room:

It's almost a joke that in the OR that an attending will get really angry and throw instruments and be verbally aggressive, I guess, but when you see things like that actually happen you realize that that's the exact kind of doctor I don't want to be.

Particularly in the third year when they were exposed to a variety of physicians, most participants claimed to be actively evaluating their attendings and residents for positive behaviors they could incorporate into their professional identity and for negative behaviors they would attempt not to model.

### **Practicing**

The participants actively practiced their H&P skills during their patient interactions in ICMII and third year clerkships. Participants began in the second year by following a strict guide of questions to take a history and a list of procedures to complete during the physical examination. As the participants gained more comfort with the H&P through practice and experience, they began to establish their own "style" of conducting the interview. In discussing how she developed her own style of interview, one participant stated:

I think generally when we're using these methods that the faculty recommend they are generally pretty good methods or ways to ask questions. So whenever it goes well, I think the thing... is learning to integrate into our own personal history and physical examination skills.

Rather than simply impersonating clinical faculty she had observed or following a strict guide, this participant's personalized interview technique was an amalgamation of aspects learned during imitation and procedures practiced on patients.

As participants began to feel more confident in their history-taking skills and more competent in their physical examination skills they utilized the guides less and directed their questioning and examination based on patient responses. One participant discussed how she began to approach the patient interview in the third year compared to the second year:

I think as I got more comfortable with the history and physical stuff I feel less like I have to follow the form in order to remember it all. Like, I have more control over, I guess, how the exam flows and how I talk to the patient is kind of individualized and I can clump certain steps together.

In the third year, participants were given additional opportunities to see patients before they were seen by other members of the healthcare team. This gave the participants opportunities to practice focused H&Ps with the goal of developing differential diagnoses. One participant discussed how practicing helped advance her clinical reasoning skills: "The rotations where I learned the most were the ones where I got to go see the patient and think about a plan before talking to anyone else. So I developed a lot of clinical reasoning doing that." The participants continued to practice their H&P skills throughout the third year and while all had gained confidence in their abilities, each proclaimed to need more practice before having proficiency.

### **Communicating**

One important aspect of acting like a physician is communicating like one. Many participants felt the need to speak like a physician during their clinical interactions and one

means to accomplish this was by using medical terminology. Some participants began by repeating phrases and expressions used by their clinical preceptors and faculty:

We pick up on those things that we see physicians doing. That's kind of how medicine is taught here. Well, a lot of it, you aren't really taught, but from seeing doctors doing it we learn different medical terms and abbreviations from observing and just faking it until we make it.

Many participants cited discomfort with asking specific, sensitive questions, such as those about sexual history. One participant stated:

I learned a lot about how to talk to patients and just saying different phrases. I shadowed about 15 doctors over the summer and I just learned how to act in front of patients, different transitional words, and conversational pieces and things that I would've thought were awkward were not really awkward because I learned them from somebody else.

This participant discussed how she quelled her fears of asking uncomfortable questions after observing physicians having those conversations. Others simply became more comfortable asking those types of questions with more experience.

Once participants began to feel more confident in their level of medical knowledge, they began to feel more comfortable conveying that knowledge to others. They began to embody the role of the physician more as they found themselves able to convey medical knowledge to patients in layman terms during their interactions. One participant described her increased confidence in the second year:

I've grown as far as knowing how to talk to patients and having more confidence in the medical side. Knowing what I'm saying, can also have more confidence in speaking to them on an emotional level as well because I actually have an idea what's going on with their medical picture... Now I feel even more confident that I can answer some of their questions about the medical side.

For this participant and others, having more medical knowledge allowed her to feel more confident talking to patients and more able to answer their questions.

As participants gained experience and comfort talking with patients, many learned that effective communication as a physician was more than just talking to patients. Participants



discussed the need to give the patient time to tell their own story, rather than bombarding them with a series of questions from a sheet. One participant described one interaction when she tried this approach with a patient:

I had a patient who had a pretty complex history and so I was just like “you can start at the beginning and tell me what happened” and as they were telling the story, they would fill in their past medical history. These are my chronic conditions and you let them tell their story... just allowing them to speak and you not interrupting and focusing the conversation and then you just go back to fill out the details that you missed. That’s definitely not what the sheet says to do.

Several other participants concluded it was an essential part of their role as a medical student and future physician to give patients time to tell their stories.

### **Evaluating**

The participants made active evaluations of how well they thought they were embodying the role of a medical student and future physician in clinical settings. Participants began by evaluating clinical faculty and could use those assessments as a template of how to approach patient interactions. One participant discussed how she evaluated her ability to perform in the role of a physician:

What sticks out to me the most is how calm and confident they are which is something I would love to be able to do but I am still way too nervous trying to remember every question to ask and how to do every physical maneuver to get there yet. So there are some things I observe in faculty that I would love to put in place, I’m just not at the level where I can do those things yet.

This participant evaluated her ability compared to her preceptors and as able to identify behaviors she wanted to emulate but did not feel she was able to perform in that capacity.

At a more subconscious level, participants would judge the effectiveness of an interview and their performance based on the tone of the interview. If patients willingly shared information or they were able to guide the interview well and nothing went completely awry,

the participants then deemed those to be successful interviews. One participant discussed how he evaluated his performance:

When you practice things that people think of as the really good physician and you practice that with the nice older patient who is looking to you for help and if you can do it well and I guess it's happened once or twice where they reinforce it, like, 'oh I had a good interview' and you have a good experience coming out of that [interview]. What I did in that interview I will to continue to do that because it worked well.

This participant described his evaluation of how well he had embodied characteristics of a good doctor based on the quality of the interview and how he felt about it when he left the room.

Participants would also evaluate their progress on being able to conduct an H&P. Early in the second year, many participants would rely on a guide to ensure they were asking the right questions and performing the correct procedures. One participant described her growing comfort with the H&P:

When you first start taking a history you are looking at that sheet of paper, clenching it for dear life, reading the exact sentences... once you can stop using the paper and start asking questions and asking their medical history as their own narrative it gets so much easier and you don't have to think about what you are going to ask next unless you have a clinical diagnosis in mind that you need to rule stuff in or rule stuff out.

This participant evaluated her growth in clinical skills and felt she had advanced in her development once when she was able to conduct the interview without a guide and begin to direct the interview based on a differential diagnosis.

Evaluation of communication skills occurred both in the form of internal assessments and external feedback. Participants internally evaluated their ability to communicate their medical knowledge to patients during interactions but also received explicit feedback from their teams during case presentations. One participant discussed how he plans to evaluate his communication skills and at what point he may begin feeling more like a physician:

When I can start feeling comfortable having conversations with patients about even basic things like blood pressure management, diabetes management, like

healthy habits and same thing with kids and parents. The ability for having those conversations, as flawed as they might be, and getting some positive response from patients.

Another participant discussed her evaluation of how well she performed at various aspects of the physician role while volunteering at the student outreach clinic:

I was so surprised at the end of it like how I was able to communicate with members of the team who weren't physicians. I was confident talking to the patient and how doing some of the physical exam is almost started to become, like I'll have to think about it, like I didn't have to stop and think what do I do next. It's just something that just starts to happen. I just know what I need to do next. I don't have to stop and think about it and panic that I forgot one of the systems. It's nice that I am starting to have some habits when I examined people and I'm starting to know what questions I need to ask and I just feel like I'm growing in independence.

While evaluating how well she performed, this participant discussed her ability to communicate and perform the H&P and linked her ability to function in the clinic to self-sufficiency.

While most participants were effective at evaluating their performance in the clinic, most desired explicit feedback during patient interactions, particularly in the second year. Participants did receive explicit feedback from residents and attendings during case presentations and that was found to be beneficial to the participants. However, in general, feedback received in mid-rotation feedback and in clinical evaluations at the end of clerkship rotations was viewed as positive and validating, but not constructive or actionable, and therefore had little influence on their development of professional identity.

### **Participating**

During the second year, participants had difficulty seeing themselves as future physicians because, even though they saw patients in the clinic, they had no direct impact on patient care. As participants were given more responsibility in the clinic during their clerkships, they began to feel more like functional members of the healthcare team. The level of participation varied for each clerkship due to the constraints of that specialty and the skill level

of the medical students (e.g., minimal participation in surgery clerkships because surgeries are procedural and third-year medical students lack many of those skills [with the exception of suturing and intubating] versus maximal participation in family medicine due to medical student experience taking an H&P). Participants typically began participating by putting notes in electronic medical records (EMR) or by performing an H&P on the patient alone, reporting their findings back to the physician, and then entering the room again with the physician. One participant described participating in the clinic:

I feel like now that I've gotten a little better working up a patient that has been interesting because I feel like I'm a useful part of the team. In the beginning I felt kind of out of place. Being someone who can contribute, someone who can write notes that actually make it on the EMR and stay with them has been kind of cool to see... You can see that you're making somewhat of a difference. It has been nice to feel you're a contributing member of the team.

This participant began feeling like a member of the team after seeing his and his peers' notes within a patient's EMR after the rotation had ended.

Toward the end of the third year, many participants were given the responsibility of managing patients under the supervision of faculty. It was during these experiences that the participants could finally see themselves embodying the role of the physician and began to actually *feel like a doctor*. One participant discussed his role participating within a clerkship:

You're in charge of the patients essentially. So you just pick [the patients] up. You go see them. You'll staff with the physician for a few minutes but you put all the orders, you do the physical exam, you come up with a diagnosis. So that's the most freedom you're ever given in medical school. You have complete control, to a degree, and then you take back feedback from the attending.

Several other participants agreed that the most they had felt like a physician in their medical school career was when they were given their own patients to manage and felt as if they had a role on the team and in the care of the patient.

## Reflecting

Responding to the audio diaries required a degree of reflection and many of the participants were not accustomed to performing reflective activities. Reflecting differs from evaluating in that it is the process of retrospectively revisiting experiences to understand what was learned and how it helped the participants form their professional identities. Reflecting was often used to understand how experiences taught participants about who they wanted to be as a physician. One participant described how being reflective was useful in her development:

I've realized that being more introspective, and I think I reflect on things a lot, that can be useful for patient interactions. I think that I want to continue to grow to be a good listener because I think that patients appreciate that too and some of the doctors I have watched have maybe struggled with that a little more and were more inclined to interrupt their patients.

This participant reflected on the ability she has to listen and compared them to other physicians she observed who lacked that quality. This reflection reinforced the importance of being a good listener to her developing professional identity.

Reflecting was also used by participants to assess their development in various areas of physician role. Participants reflected on how they have become more comfortable interacting with patients, interviewing, and performing the physical examination, and on their ability to link theoretical knowledge to clinical cases. One participant described reflection on his progress during the second year:

So one of the things that was also brought up in the patient interview was some of the drugs that she was taking. And all of them were drugs that I have covered so for me it was important to think back about the first time I had a patient interview and I didn't know what the drug names were, what the dosages are or what was going on. So I think taking pharmacology classes helped in knowing the basic science behind it.

This participant discussed how it was important to reflect on the basic science he learned and how he was able to apply that knowledge to the clinic.

Toward the end of the study, many participants reflected on their progress in embodying the physician role between the second and third years of medical school. One participant reflected on how she had become more confident entering a patient's room, something she views now as quite trivial:

It's funny thinking back to like first and second year. I mean, even in the beginning of second year I feel like you sort of get nervous just entering a patient room because you don't want to bother them or look like you don't know what you're doing or forget to do something and now it's just, whatever. I feel more confidence. Sort of like I'm in charge and own the room.

Another participant reflected on her growth and ability to interview a patient using more of a conversation style compared to when she recited questions from a list:

For second year we had to memorize things like very specific list [of questions] and to do [the interview] in a very specific order. So I had to memorize a card in that order and I would regurgitate it like a doctor robot when I would try to interview patients. Then this year I learned how to make it more of a conversation and let the patient talk a little more even if I don't get the information necessarily in the same order. I'm still getting the information but it's a lot more natural, a lot less forced.

Several other participants reflected on how they grew in confidence by simply having the opportunity to talk to more patients in the third year. Most participants claimed increased confidence in their ability to interact with patients and in their H&P skills.

Finally, many participants utilized reflection to critically evaluate their experiences and to understand how these impacted their developing professional identities. Many of these critical reflections involved emotional experiences or observations of role models in a significant situation. One participant reflected on a significant experience early in the third year during which he was able to observe an end-of-life discussion with a patient and family, and how it helped him develop as a future physician. He compared how he probably perceived the experience when he first talked about it during an audio diary, with how he now viewed the experience after taking some time to reflect on it:

What I took away from it at the time was probably how I want to be like this doctor and how thoughtfully he shows compassion and takes time to listen and everything. I probably talked about how I wanted to emulate that throughout this year. I think it impacted me because I had that experience early on and it's not like I thought about it every day but having reflected on a little bit I feel like I did try to not hesitate to allow silence. Obviously we all try to be empathetic and compassionate but having had that experience like to draw directly from, like a great vivid example of it, was very helpful. Just watching how the family responded to the certain things that the physician was saying and how the physician would respond to certain things the family said. He gave me a little glimpse into how this kind of thing works and how the most significant conversations, like a perfect way that they could be handled, and then I get to apply those lessons into my less groundbreaking conversations. But no less important conversations, in many situations, to the patients.

In these reflections, participants advanced from the simple identification of valuable characteristics of the role models they wanted to emulate to elaborating on how those experiences were likely to influence their future practice and values as a physician.

### **Processes of Embodying Role in Medicine**

For most participants, the process of embodying role in medicine followed a fairly linear model. Many participants claimed to have impersonated their clinical preceptors in the first year of medical school, but only a few alleged to do so in the second year. By the time participants were seeing one patient per week in the clinic for ICMII, they were actively attempting to hone their abilities to perform in the role of a physician. Participants were practicing H&P skills, learning to communicate with patients and the medical community, and emulating positive characteristics of their role models. They continued to perform these tasks into the third year but began to practice skills and emulate behaviors that were specific to each specialty. Following practicing, communicating, and emulating, the participants evaluated how well they had embodied a physician during those experiences. While the participants had valuable opportunities to practice, communicate, and emulate, most claimed that they would need to continue to hone these skills throughout the fourth year and into residency. However, many participants noted a distinct transformation in their professional identities when they began

participating between the middle and end of third year. They began feeling like valuable members of the healthcare team and felt they had an impact on patient care. At this point, many participants began to see themselves as a doctor for the first time in their training. Finally, reflecting allowed the participants to understand how they had developed in the role of a physician over the second and third years of medical school. A few participants utilized critical reflection throughout the study timeframe, while others' reflective ability blossomed toward the end of third year.

A process model of embodying role in medicine can be found in Figure 4.4. This model represents the linear example that was followed by most participants. The single-arrows follow the linear progress while the dual-arrow represents a fluid movement between the processes of practicing, emulating, and communicating as participants progressed through them concurrently.



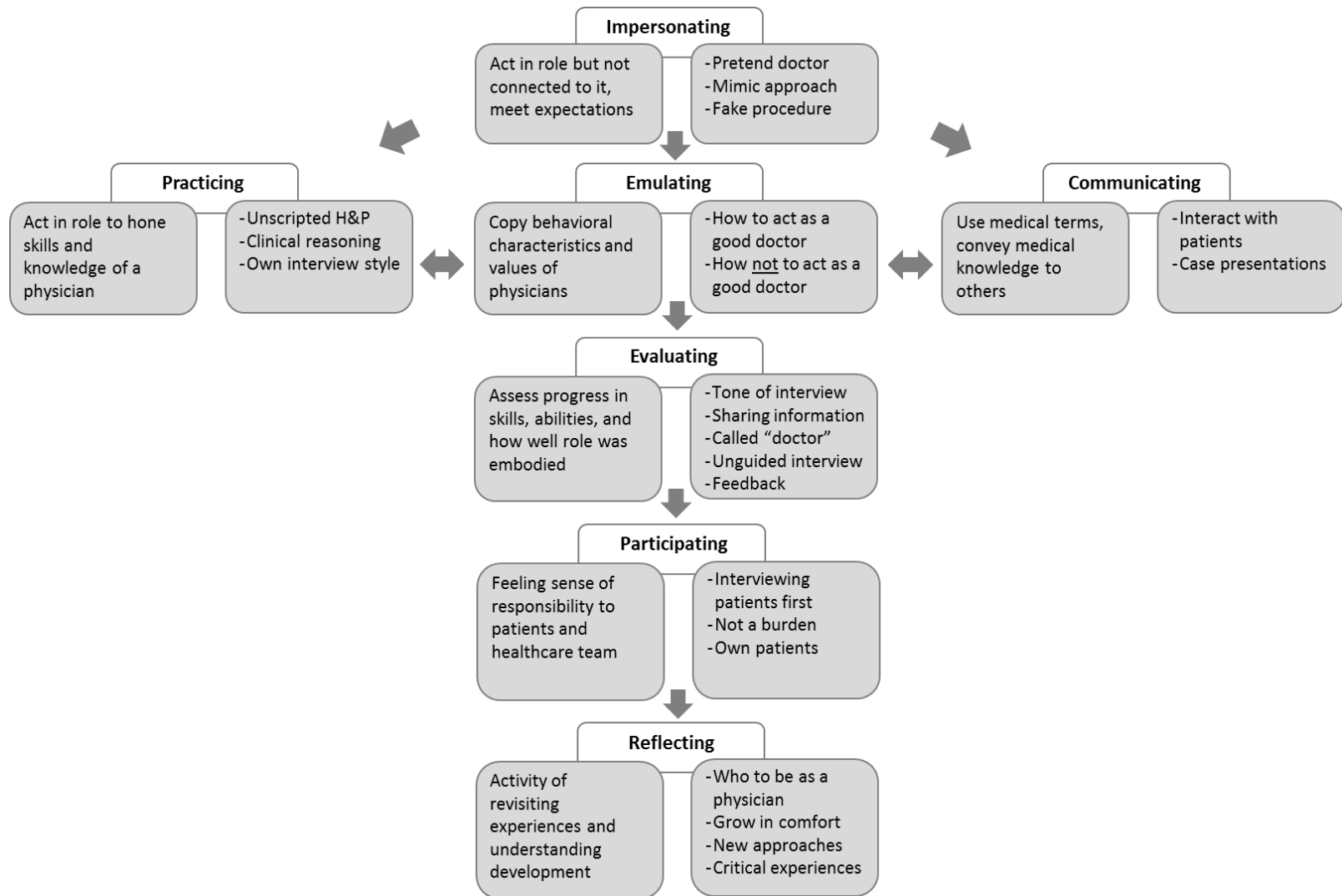


Figure 4.4. Process Model of Embodying Role in Medicine

### *Exploring Specialty Choice*

The theme of Exploring Specialty Choice relates to the processes the participants used to ultimately decide on a future medical specialty. The participants began the second year with vague ideas about their future specialty choice. Most participants had a few medical specialties of interest but none had committed to a specialty and all wanted to experience their clerkship rotations before they came to a decision. However, during the third year, all of the participants began an active exploration of specialty choice and at the end of the third year the vast majority had committed to a specialty. Those with a degree of uncertainty at the end of the third year had a desire to enter emergency medicine (EM) but had yet to experience an EM rotation because it is a core clerkship in the fourth year. These participants had essentially decided on EM as a specialty, but were hesitant to commit unequivocally until they had completed their EM rotation(s). Exploration of specialty choice consisted of four processes: (1) Perceiving, (2) Imitating, (3) Envisioning, and (4) Selecting. The following paragraphs will define each of the processes and the section concludes with a presentation of how participants utilized these processes during the third year.

#### **Perceiving**

Each of the participants entered their third year clerkships with conceptions about various medical specialties and what they could expect of a physician in that specialty. Perceiving was the process of participants comparing preconceptions of specialties with the realities of their experiences. Participants discussed stereotypes of particular specialty physicians (e.g., surgeons are known for being hostile) and whether their experiences lived up to those expectations. Conceptions of a specialty and physician specialists were confirmed and contradicted depending on the participants' experiences and both were equally meaningful.

Some experiences, like the one described by a participant in her surgery clerkship, challenged preconceived notions in a positive vein:

So I think this experience is significant because I came into the rotation with different expectations and then came out with a completely changed perspective... Seeing the surgeons who have a reputation for being rude and yelling and not caring about patients really care about patients was eye-opening to me, and they cared about the patients that...people would think were the least deserving.

It was particularly meaningful when participant preconceptions were challenged or validated by a physician in a specialty the participant considered as a possible specialty choice. One participant who selected surgery as a specialty discussed his initial hesitancy to commit to surgery due to stereotypes of surgeons:

In the beginning I started off with my surgery rotation. I really liked it but was hesitant to commit to it because you hear so much about the stereotypical general surgeon or stereotypical whatever surgeon as being mean or uncaring, but that was not the experience I had.

While a few participants' experiences in surgery challenged the stereotypes of surgeons and the operating room, others had experiences that reaffirmed those stereotypes. Some described surgeons who berated their staff, were uncaring, and fostered a negative atmosphere in the operating room. None of these participants chose surgery as a specialty and those experiences often served as examples of how not to act as a physician.

Overall, most participants had positive experiences with varying specialties and specialty physicians that either confirmed previous notions or led to positive perceptions of them. These positive perceptions of specialties did have an impact on overall participant specialty choice.

### **Imitating**

Many participants would consciously imitate the behaviors, interaction style, and clinical approaches of the residents and attendings they observed. While clinical faculty functioned as role models throughout the second and third year, some were replaced by role models within a

potential specialty area as the opportunities to emulate those behaviors became more powerful and real. One participant described the importance of identifying a role model within his future career choice of family medicine and how adopting aspects of his role model's professional style influenced his approach to patients in subsequent rotations:

So just probably finding someone that I connected with and felt like I kind of wanted to become was the most important... In most aspects of his career he kind of represented what I wanted to become and that has been a huge driver in the way I approached the rest of the year in terms of developing my personal style.

This participant described how his specialty role model influenced his approach to patient interactions in future clerkships. Another participant who decided on pediatrics as a specialty reflected on an experience in which he failed to emulate behaviors consistent with pediatricians during family-centered round:

When I reflected on the experience when I was just spitting out acronyms, keeping going without pausing for questions and not using family-friendly language, it just kind of underscored one of the professional values, which is tactful communication with families, in the field that I'll be trying to go into.

This experience made him understand the importance of utilizing attributes of the pediatricians he observed in future interactions.

### **Envisioning**

Once the participants identified role models and were able to practice as a member of that specialty, many began to envision themselves as a physician within a specialty. One participant described envisioning himself as a future specialty physician:

Any time you are in a clinical situation you're really kind of looking at each of the physicians and as we think about picking a specialty, this is how I go about it: I look at each of the physicians and think 'who do I want to be', both as an individual and specialty-wide.

This participant described how he evaluated physicians he observed with the purpose of seeing how well he would fit into the persona of that physician and into his/her specialty.

Envisioning included an assessment of how well they, as an individual, fit within a specialty based on their conceptions of that specialty and whether they could see themselves as a member of that specialty. One participant described how he thought he fit and could see himself as a rural family medicine doctor in the future:

I just see myself much more clearly in the small-town doctors that have farms, a lot of them are into hunting, gardening or things like that. So I see myself much more in those type of people than the academic people who were publishing a lot and that sort of thing... You can still be a very good clinician, very knowledgeable, and effective physician outside of that metropolitan area and still make a big difference and kind of stay true to your roots. I think that comparison has been very useful to me.

Other participants assessed whether they could see themselves doing the work of that specialty physician for the rest of their careers. One participant described how she could not envision herself within a specialty:

I've decided after this rotation that I definitely don't want to be an OB-GYN. It's not that I hated the rotation, I just don't see myself being able to do it every single day... I don't like this enough to do it for the rest of my life.

Even though this participant valued her experience in her obstetrics and gynecology rotation, she could not envision herself doing the work of an OB-GYN for her entire career.

Some participants were able to identify role models within their chosen specialty whom they could connect to and obtain career advice from, and who could serve as an example of who they could be as a specialty physician. One participant ultimately decided on a combined internal medicine and pediatrics (med-peds) specialty after it was suggested by a physician in that specialty. The participant described seeing herself as a med-peds physician:

I just looked at this physician was like, "you know, that's what I want to do when I grow up." Med-peds hadn't really been on my radar as much, but just the flexibility and the fact that she could do all those different things and I realize that's just sort of who I've always been... I've always been someone who sort of likes to do it all when I can and be sort of a Renaissance woman, or try to be a Renaissance woman. Med-peds I think really fits that well and that is sort of an interesting revelation to have. And I can totally basically imagine myself being this physician in like nine or 10 years and having a job exactly like hers.

The participant discussed how she could envision herself within both the specialty and as the physician who suggested she look into that specialty.

### Selecting

Participants progressed through a series of steps to ultimately select a specialty. While most participants identified several potential specialty choices at the beginning of the second year, slightly more than half had chosen a specialty from that list at the end of the third year. Once participants had completed a clerkship, it was either added or removed from a potential list of specialty choices. Several considerations were utilized to weigh specialties including: lifestyle (work-life balance, income), doctor-patient relationship (long- vs. short-term management of patients), scope of medicine (generalist vs. specialist), patient population (children vs. adults; female; terminally-ill), patient contact (procedural vs. clinical), and a perceived personality match with members of that specialty. During this selection process, participants used some, if not all of these considerations in their ultimate selection of a specialty. One participant described the aspects of the internal medicine clerkship she enjoyed, which ultimately influenced her specialty selection:

I enjoy having a long-term relationship with my patients. I liked that medicine is broad. I liked that I got to coordinate different aspects of people's care. I liked that I got to consult with different teams and get to know a lot about a lot of different subjects. I've always kind of been a broad-thinking person, but I also like that I got to see the same patients every day and see how they did overnight, and I just thought that was very cool. So medicine has kind of been in the back of my mind for a little while.

However, these considerations were equally important to rule out another potential specialty. The same participant as above entered medical school believing she would go into emergency medicine. Before she could ultimately choose a specialty, she had to select against emergency medicine and she described that process:

The continuity is sort of something you kind of have to let go of [in emergency medicine] and I don't think the long term relationships with patients was

something I was ready to let go of. Ultimately I thought it through and sort of what was important in a career to me was flexibility and while you can have that in emergency medicine, pretty much you have to practice in emergency departments or you can do a fellowship and practice in an ICU... and I didn't like the idea that circadian rhythms are sort of things you let go as an emergency medicine physician.

All participants described ways they perceived themselves as fitting within their chosen specialty. Of the extrinsic factors influencing specialty choice, work-life balance was the factor most commonly cited by participants, particularly those deciding to enter emergency medicine and anesthesia.

### **Processes of Exploring Specialty Choice**

The process of exploring specialty choice was a very important component of the third year for the majority of participants. Once the participants had ultimately decided on a specialty, many began to feel a deeper commitment to medicine. Most of the participants followed a fairly linear progression through the processes (Perceiving, Imitating, Envisioning, and Selecting) of Exploring Specialty Choice. While many had come to a decision about their specialty before completing all of their clerkships, they were often willing to keep an open mind about their remaining clerkships. The participants' perceptions of their chosen specialties had a great impact on their ultimate selections. In addition, many participants identified role models that exemplified how to act and perform as a member of that specialty and they also served as an example for the participants to envision themselves in that specialty. Finally, many of the participants who were less sure about their future specialty choice often reported using a checklist to document what they liked and disliked about specialties to ultimately select a specialty.

A process model of exploring specialty choice can be found in Figure 4.5. Most participants began exploring specialties by processing their perceptions of specialties, acting as a

member of that specialty during their clerkship, and seeing themselves as the specialty physician before finally selecting it.

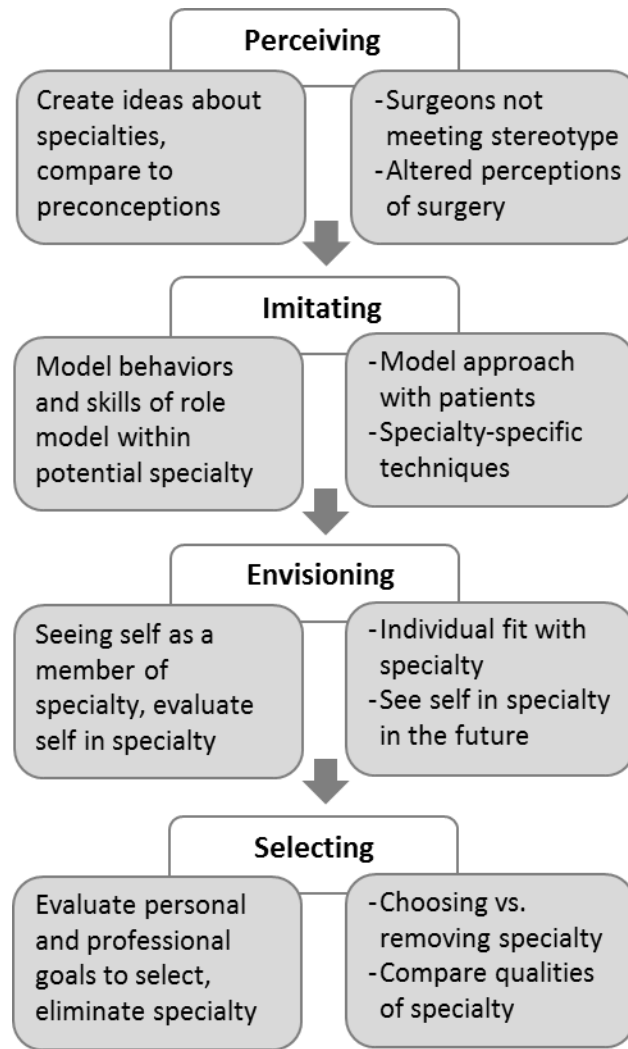


Figure 4.5. Process Model of Exploring Specialty Choice

### *Internalizing Professional Values and Characteristics*

Internalizing Professional Values and Characteristics was a theme that related to participant discussions about the professional values they expected a physician to possess, how they learned to demonstrate those values as professional characteristics, and how those values



were internalized as components of their professional identities. These will be referred to as values and characteristics of the “good doctor” and include the following attributes: (1) Trustworthy, (2) Empathetic, (3) Competent, (4) Caring, (5) Respectful, (6) Dutiful, (7) Good Communicator, and (8) Altruistic. These attributes, as described by the participants, are discussed in detail in a later section and will be accompanied by the processes that the participants used to internalize these values and characteristics as components of their professional identities.

Even though the participants had notions about what it meant to be a good physician when they entered medical school, they formally learned of the core professional values and attributes of physicians during their ICM courses. However, with such little time dedicated to clinical encounters, many participants felt that they had insufficient time to practice demonstrating these professional attributes. Without the experience of observing physicians and performing the characteristics of a good doctor, they had difficulty internalizing the values and truly connecting to the importance of having those professional attributes. However, over time with the concept of the good doctor in mind and what characteristics she/he should possess, the participants began to process their experiences and determine which attributes were most important to their professional identities. While participants often had similar experiences, they utilized different processes to make meaning from them. The four processes utilized by participants to internalize professional values and characteristics of a physician were: (1) Reinforcing, (2) Enriching, (3) Prioritizing, and (4) Detaching.

#### **Reinforcing**

Many of the participants had expectations of physicians based on their own prior experiences with doctors. Often, these prior expectations of professional attributes were reinforced during observations of clinical faculty. Reinforcing experiences simply reemphasized

the importance of these characteristics to the participants as future physicians. One participant described how having negative experiences with physicians reinforced a desire not to be arrogant:

I think, like, certain things, like being arrogant, that I thought that I probably would've told you I didn't want to be before medical school, now I can think of, like, three instances... of someone just being incredibly arrogant and I can kind of point to that and say "that's definitely what I don't want to be."

Other attributes that were reinforced for participants included caring and having respect for patients.

### Enriching

While several values and characteristics were reinforced during the observation of clinical faculty, when participants interacted directly with patients, many of these experiences went beyond a simple reinforcement to actually enriching the participants and giving them a deeper understanding of the importance of embodying a professional value. One participant described how witnessing suffering enriched his understanding of the need for a caring physician:

I think I've developed an appreciation for the real need that there is for a caring, empathetic physician. Seeing just a little bit of people suffering really brings that home pretty quickly. I guess that is something that you didn't really think of. I've had a grandmother die but even then you don't really appreciate what role the physician can play.

Many of the participants who had enriching experiences claimed to understand the importance of having a professional attribute, but lacked the experience to be able to demonstrate that characteristic to patients. When these experiences occurred, it gave them a deeper understanding of why that characteristic is important to patients and the profession. One participant discussed an emotional interaction with a patient in ICMII in which he felt unequipped to demonstrate empathy to a patient:

This past week I had a female patient tell me that she started smoking after she was raped. Obviously that's very hard and I cannot relate to that because I've never gone through that. So it's hard to have empathy but I can understand, from her perspective, I can understand how damaging and emotionally scarring that is. So I did feel really sad that I wasn't able to articulate it well but I gave her my condolences and moved on to her mental health.

Later, a gynecologist entered the room to do a consult with this patient and suggested that the participant stay to witness a pelvic examination. Upon completion of the examination the patient became emotional and the participant described how the physician comforted and empathized with her:

[The physician] placed her hand on [the patient's] hand and pretty much looked into her eyes and told her that she felt her pain, to a degree. I don't know if she knew that she was raped earlier, but I could tell that she could definitely empathize with her as a normal human being. I thought that was very professional. She was also very good at calming the patient down afterwards as well as beforehand.

In this enriching experience, the gynecologist demonstrated empathy to the patient and the participant was able to observe what empathy looked like and how those actions minimized harm to the patient.

### **Prioritizing**

As the participants became more accustomed to the role of physicians, they began to realize some aspects of being a physician are more complex than they had originally thought. Some participants determined a few values to be mutually exclusive and therefore they would need to find a way to prioritize one value over the other. For example, many participants contended with the prospect of having limited time with patients due to appointment constraints, but also needing time to ensure they were providing quality care and meeting patients' needs regarding their ailment. One participant contended with this dichotomy:

Actual doctors don't spend that much time chatting about the weather or whatever. It's like you just get to the point. So I've been doing that a lot more now as a second year which isn't necessarily a good thing because I'm sure patients appreciate it more when doctors actually take the time to get to know

them, but I'm feeling more of the crunch of "oh I only have 15 minutes to do a full history and physical." You know, I don't have time to spend two minutes asking how their day is going and if they are enjoying the sunshine, or whatever.

While second and third year medical students are not under the same time constraints as physicians, they are nonetheless aware that time is a constant concern for both patients and physicians. This participant, and several others claimed they would prioritize their own agenda over taking the time to listening to all of the patient's issues, particularly those that were not related to the medical problem at hand.

### **Detaching**

As participants began to contend with the emotional aspects of medicine, a few participants discussed the need to detach themselves emotionally from patients to ensure they were providing objective care. One participant described the importance of detaching from patients when delivering bad news after experiencing an end-of-life discussion:

It made me think about, it really reminded me how professional you have to be when you're delivering this type of news and not to, one, be too invested, but also present the facts and not sugarcoat anything or not leave anything out.

Other participants stated that detachment from patients allowed physicians to save part of themselves for their lives outside of medicine. One participant reflected on an end-of-life discussion, which made her contend with detachment by stating: "I think it's a double-edged sword because you can't give too much of yourself but at the same time you want to be there for your patients."

The processes utilized while internalizing professional values and characteristics can be found in Figure 4.6.

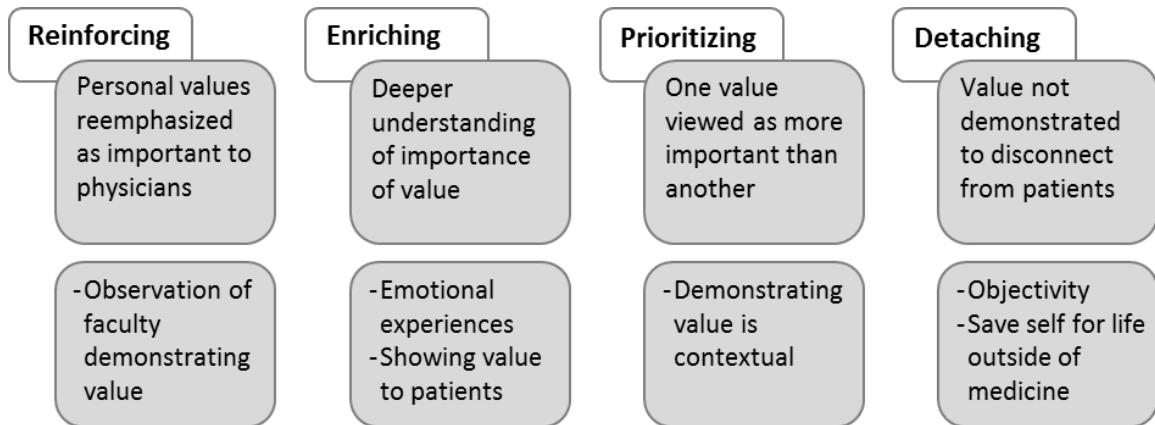


Figure 4.6. Process Model of Internalizing Professional Values and Characteristics

### Processes of Internalizing Values and Characteristics of the Good Doctor

The participants had a range of experiences that allowed them to internalize professional values and attributes of a good doctor. Even though the experiences differed, many utilized similar processes to internalize those professional qualities. Each of the eight qualities of the good doctor are discussed in detail in the next section with a description of the processes (Reinforcing, Enriching, Prioritizing, and Detaching) the participants used to internalize those values and characteristics.

*Trustworthy.* Most participants expressed the importance of trust and claimed it was an inherent aspect of the patient-doctor relationship, but also something that needed to be nurtured. Some participants found that patients would inevitably trust you if they thought you were a doctor. These experiences reinforced trustworthiness as an essential component of being a physician. One participant described the inherent trust in medical professionals:

I have found that patients put a lot of trust in you automatically if you have a white coat. They assume you have a lot of power in the hospital. A lot of patients have asked me to do things I have no idea how to do or they think I am part of the team and I have to tell them I am just a medical student.

While many described this blind trust by patients, trust was later described as a part of the relationship with patients that needed to be fostered for patients to have positive outcomes.

Many participants concluded that trust was fostered with patients by exuding confidence and communicating effectively. Participants stated that patients are more likely to share information if one has been able to build a trusting relationship. One participant described a patient who felt many of his doctors did not give him a chance to speak, but when he interacted with medical students he had a voice. This experience enriched the importance of trust to her professional identity:

I want to be able to make patients feel that way because it's an important part of care. A lot of times if the patient doesn't feel comfortable with you they are not going to tell you what's going on. I think that's a big thing, patients expect you to have a lot of knowledge but I also want to be able to interact with you. If they don't feel like they can interact with you they might not trust you as much.

However, as participants had more experience with patients, a few expanded their understanding of trustworthiness to be a state of honesty regarding one's limitations and the constraints of the profession in general. While less frequent, these experiences prioritized trustworthiness over the need to exude confidence, even in the face of uncertainty. One participant described a trustworthy family medicine physician:

For my family med rotation there is a family medicine physician that wasn't very knowledgeable compared to the other doctors. She would look up a lot of different stuff on the Internet in front of patients, actually. One thing she did she was be really honest with the patients whenever she was looking something up that she did but she didn't know much about it. She would look it up and get back to the patient about it. I think that was a really bold move... It sounds like a common sense thing to admit what you don't know but lack of knowledge is seen as a weakness in medicine.

The participant admired the physician who was not afraid of appearing incompetent while being honest with her patients about the limitations of her knowledge and deemed it appropriate to prioritize honesty over competence.

*Empathetic.* Being empathetic was viewed by most participants as an important component of physician identity. Empathy describes the quality of being able to enter into a patient's predicament. Many viewed this trait as being an intrinsic attribute of those who want

to enter the medical profession and that admissions committees selected medical students based on this and other traits. One participant described an innate level of empathy:

Empathy and compassion, respect are innate behaviors of people who enter this profession and other health professions and many other careers. We have a certain level of innate empathy and compassion otherwise I don't think we be getting into this line of work. What we have to do in professional school is learn how to apply that empathy in situations such as being at the bedside of a dying patient or comforting the parent of a child or reassuring them, trying to feel the pain that they are feeling and do so in a compassionate way.

While all participants considered empathy to be an important attribute, like this participant, many felt that compassion and empathy cannot be taught to medical students but instead needed to be fostered through experience. Many participants thought they could not truly understand and enter into the patient's predicament until they had more experience with patients.

The majority of experiences that enriched empathy for participants were either emotional experiences with patients or observations of faculty in emotional situations. While interviewing a patient, one participant discussed how she tried to show empathy after her patient became emotional about his loss of independence:

I was trying to show empathy and compassion to him and told him that I understand what he was saying and he immediately and respectfully stopped me and told me not to say that because I could not possibly understand that because I've never been in his situation and he was right, I haven't. So this encounter showed me that I will never fully understand each one of my patients but I do have to learn different ways to show empathy and compassion to these patients.

This experience enriched the participant's understanding of empathy and drove her to learn how to demonstrate that attribute more effectively. Many participants observed faculty demonstrate empathy to patients and these experiences served as exemplars how the participants could emulate being empathetic in the future.

While rare, a few participants had experiences which resulted in a detachment from empathy. These participants viewed empathy in the more literal sense and felt that detaching from truly empathizing could protect their personal and emotional well-being. After witnessing an end-of-life discussion, one participant discussed how she felt it can be important for physicians to detach from empathy:

I think it's a good thing to have some sort of dichotomy there because, I mean, you're supposed to be empathetic and you're supposed to try to understand what your patients are going through but you can't live everyone's experiences because there is not enough of yourself to go around, I think.

Another participant came to a similar conclusion after caring for a patient who was removed from life support. She claimed that detaching would be particularly important to physicians who experienced death and dying more frequently.

*Competent.* Attaining an appropriate level of knowledge to function as a physician was deemed to be a crucial aspect of the participants' developing professional identities. Many participants concluded that confidence and competence were intrinsically related. Participants often described how being more confident with patients resulted in them being perceived as more competent, and that feeling more competent in their own knowledge allowed the participants to display confidence more freely. One participant discussed how feeling more confident and competent changed the tone of her patient interviews at the end of the second year:

I think that I have gained a little bit more confidence and I think that has helped too. Before I wasn't, really, and I feel like the patient could sense that and they really didn't want to take me seriously during the interviews. I feel like that definitely improved throughout [the second year] and I also feel I have gained more knowledge about medicine, and I know more about what they were talking about. And I can actually ask more questions, ask the correct questions and lead them to more of the information I wanted to get.

Several participants discussed how being confident was important for being taken seriously during patient interactions. The importance of being confident was further reinforced by



observing physicians who confidently interacted with patients and other members of the healthcare team.

Most participants acknowledged that while they were required to learn what seemed to be a large amount of information in the second year, the third year came with a new set of challenges to learn clinical information and apply biomedical knowledge to clinical situations.

One participant described how she felt about her competence entering the third year:

I don't know anything. Sometimes it's hard to believe I spent two full years studying constantly just learning about medicine and I still feel like I don't know anything about it. But I realize that's mostly okay and I'm here to learn and no one really expects me to know [everything].

Another participant reflected on how rare diagnoses were often taught in medical school and how he had to learn to convince himself that a patient had the more common, rather than the rare diagnosis:

I kind of learned that a lot of things that are taught in medical school aren't 100% relatable to clinical management of patients. So it's been a process of unlearning things that I've learned from studying for the boards so I can be a better medical student, a better clinician in the future... It's kind of hard when you only have the rare diagnosis in your mind to come up with something simple...So it took a lot of training and repetition for me to prove it to myself that the diagnosis was pretty rare and not as common as the board exam would've suggested it to be.

For many participants, the realization that practicing medicine is far more complex than presented in the first two years of medical school and that there was much more to learn through experience reinforced the notion that maintaining one's competence was a lifelong process.

As participant interactions with patients grew, several concluded that competence is important to patients, but the way patients assess it is through effective communication. One participant had a patient who told him how knowledgeable her physician was because he was able to convey information about her condition using effective communication:

Your actual competence is measured essentially by how well you communicate and your interpersonal skills much more than your grades or your board scores or academic pedigree, because most the patients won't know that, and even if they did, most of them wouldn't be in a position to evaluate one versus another.

While these participants still considered competence as an essential component of their professional identities, these experiences enriched their understanding of competence to also include effective communication. Another participant viewed having knowledge as a requisite for communication: "If you don't have a solid biomedical foundation you won't even be able to pass along that knowledge."

Finally, many of the participants contended with their perception of the good doctor when they observed a physician who was technically competent, but visibly deficient in other valuable attributes such as caring, respect, and empathy. One participant described a neurosurgeon who was regarded as a good physician but was not caring to patients:

I think this experience has kind of been a little bit disconcerting. Medicine and science seem like the only fields where you cannot not only exist but really can kind of thrive if you are technically competent but not really competent in the other domains like being a nice person to work with or that sort of thing. In medicine, you know this guy is probably one of the best surgeons in the neurosurgery group, known for his speed and his technical ability, and he does the most challenging cases. And somehow, in medicine, that's allowed to trump the other flaws and I found that sort of disconcerting that there is not some sort of a basic expectation of kindness.

Several other participants had similar experiences with physicians, surgeons in particular. For some, these experiences were enriching in that they did not view caring and competence as mutually exclusive and believed physicians should possess both qualities. Other participants believed one could still be considered a good doctor if he/she were competent, but not caring. For example, one participant described how she views competence as a priority over caring, particularly for surgeons: "Patients come to you and you diagnose them and you do your

surgery well and they don't have complications, I think in the narrowest sense that makes you a good doctor."

*Caring.* Each of the participants considered caring to be an important component of physician identity. They believed it was not enough just to demonstrate to patients they cared about them, but physicians actually needed to genuinely care about their patients. Much like being empathetic, participants considered caring to be intrinsic to their identity but that demonstrating caring to patients effectively required experience. Some of the ways participants described they could demonstrate caring was by serving as someone with whom patients could have a conversation, allowing them to tell their stories, and by listening to their concerns. As second- and third-year medical students, the participants realized that because they were able to spend more time with patients, patients appreciated physicians who would listen to them.

One participant discussed the importance of listening:

Often times it's not groundbreaking stuff they were talking about. It is just like diabetes or blood pressure things but multiple people said "wow, it was great to have someone sit down and actually talk with me and have your doctor listen to you rather than just getting up and stepping out after five minutes."

These experiences often reinforced the participants understanding of the importance of demonstrating caring to their patients in all interactions.

Many participants shared experiences of observing faculty demonstrate caring to patients and other members of the healthcare team, which reinforced caring as an essential component of a physician's identity. These interactions served as exemplars of how they could show patients they care. One participant discussed how many of the physicians she observed were able to show caring:

I have been really fortunate to see lots of great doctors or what I would consider great doctors and just how they interact with people and how they are personable and how you can tell that the patient feels as if they are really cared for. Just having that skill of showing that you care with just your words and your actions, and letting patients know that they will always come first is an amazing

skill. And it's something that, luckily, so many of the doctors that I've gotten to see, especially my ICM instructor, have.

For this participant and others, it was particularly meaningful to observe a physician display caring in such a way that the patient knew their doctor cared about them.

Of the participants who had enriching experiences with caring, those experiences tended to be tied to emotional situations or occurred when the participants themselves effectively demonstrated caring to patients. One participant discussed a patient visit during her family medicine clerkship where she listened to the patient's concerns about her lower back pain:

More importantly, [what] she really wanted was someone to listen to her long list of health problems and say "wow, that's frustrating. I'm sorry you're dealing with all that. Tell me more about that." Even though I didn't really do anything for her except print her a page of exercises off the Internet I feel like she was still satisfied with her medical care and that's where she was that day.

This experience enriched the importance of caring to this participant's professional identity because she believed the patient left the office satisfied with the care she provided just by taking the time to listen to her concerns.

Some participants discussed experiences when they observed physicians prioritize other qualities over caring, such as duty and competence. Even though caring was noticeably missing from some interactions, a few participants claimed the physician was still a good doctor, despite not demonstrating caring. Others disagreed that one could be a good doctor and not truly care about their patients. One participant described how his experiences with some medical professionals who were not caring to patients resulted in him prioritizing caring over duty and other aspects of the physician role:

[I want to be] someone who prioritizes caring for patients over basically a lot of the other things that, as physicians, we need to juggle... At the outreach clinic or just from shadowing sometimes you see physicians, nurses being kind of jaded with patient interactions and almost blame the patients for the situation they are in. Obviously patients have to take some responsibility for their diseases

they have but that's not your domain to judge them. As a physician you have to do the best you can to help someone, even if they don't want to help themselves, but that's their issue. So I'm just trying to remind myself to do that and not get jaded about patients.

When participants observed caring being prioritized over other qualities, it was generally viewed positively. One participant discussed how a physician spent more time with patients at the expense of staying on time:

He doesn't get in a hurry, like he doesn't really rush patients out the door so a lot of them end up waiting because he gets backed up... So that not rushing yourself and just spending time with patients was a good lesson, and at least an ideal way to interact with people even if nowadays [that] is not always possible.

These experiences of balancing duty (being timely, fulfilling responsibilities) and caring for patients by giving them more time were common for participants. Most recognized this contention, but considered it very difficult to do both well. One participant discussed this dichotomy from both the perspective of the physician and the patient:

A lot of patients feel like they are not being heard or that doctors don't have enough time to really spend listening to them or teasing out their story. And I think that's true but it's also not entirely the fault of the doctors when you're under constant pressure to see more patients and getting reimbursed less for each patient. It's always kind of a balance figuring out how long I can spend with this patient and still pay the bills and pay the staff and everything like that may be a little bit more difficult than some people realize. It's not like the physician doesn't really want to listen but, in most cases, they don't have the time or the ability to.

Few came to a solid conclusion about which attribute they would prioritize, caring or duty, and often claimed it would depend on the circumstance.

*Respectful.* The value and attribute of being respectful was widely described by many participants as treating patients as individuals, giving them a voice in their medical care, and valuing their privacy. The participants considered respect to be foundational to the patient-doctor relationship and one method for building relationships with patients. Observations of faculty demonstrating respect to patients served to reinforce the participants' perceptions of

respect as an important value for physicians. One participant reflected how his team was discussing palliative care options with a patient and family, but the family refused the team's advice on palliation:

That was a pretty eye-opening experience for me. I think it's important to advocate for your patients and provide your opinion, which is what this team did, but it's also important not to push your views on them and be cognizant of [the family's] concerns.

Another participant described an experience in which a patient needed a tumor removed from his liver and that was viewed as the priority by his healthcare team. However, the patient considered an ileostomy reversal to be the top priority:

Yes, doing both surgeries at the same time was a riskier approach, but ultimately, the patient does get to kind of choose the care that they receive. And the patient needs to be involved in the decisions that are made clinically about them. This whole situation kind of made me realize that, especially for patients that have terminal cancer diagnoses, you need to make sure that you are making the decisions with them and not about them, as much as possible.

These experiences served to reinforce that physicians, in the end, must respect a patient and family's decision on their own care.

Several participants claimed to have witnessed disrespect for patients in the form of ridiculing the patient after leaving the room or in the operating room (OR) when the patient was under anesthesia. These experiences were challenging for most of the participants because they understood it was wrong to disrespect patients, but they did not feel they were in a position to correct their superior's behavior due to the confines of medical hierarchy. One participant described a difficult situation in the OR:

I was in surgery the other day, I mean these patients are so vulnerable laying there on the operating table, naked, getting ready for surgery, and the doctors and nurses are commenting on this woman's moles on her breasts... It makes me feel uncomfortable but just trying to not react to the situations like that because I feel that as a medical student I'm not in a position to speak up.

In the end, these experiences were enriching in that they expanded the participants' understanding of respect for patients in all situations, particularly when they are at their most vulnerable.

Rarely, a few participants who witnessed disrespect for patients, particularly in the operating room, utilized detaching because, in those instances, they did not view the experience as directly harmful to the patient. One participant described differences in culture of the OR:

Definitely there certainly things in the OR that would not fly anywhere else. I think that when people are in an environment where they're with the patient but the patient isn't necessarily conscious, they feel like it's a lot more okay let their guard down and use language that [they] wouldn't otherwise use... I felt really uncomfortable a lot of the time it was happening but I think that it's so ingrained in the culture of some specialties that it's not going to change and you almost have to imitate it to keep up.

Many participants described surgery as having a different "culture" than other medical specialties and would often chalk up uncomfortable experiences in the OR to that culture.

Most of the female participants had experiences with patients who referred to them as "nurses" or "nursing students," despite introducing themselves to the patients as medical students. While these experiences at times were challenging, they enriched many participants' perception of respect and made many of them realize that they might have to work harder than others to earn it. One participant reflected on being referred to as a nurse and how she had to compensate by appearing more professional to earn respect:

I feel like I had to present myself more professionally than I otherwise would, be less casual so I could get that level of respect. Not that nurses don't deserve that respect too but some patients, for whatever reason, had a hard time with the concept of a female medical student.

Another participant described how she felt she needed to learn more and exude more confidence to gain respect:

I feel like I have to kind of defend myself a lot more. A lot of times even though they will say "there is a medical student coming in here," they asked me when I'm going to be a nurse and things like that. It makes me a little frustrated so I

feel like there is more pressure to know what I am talking about than other people. I feel like I have to learn more to make up for it and to project more confidence.

While these experiences at times were challenging, they enriched many participants' perception of respect and made many of them realize that they might have to work harder than their male counterparts to earn respect from patients.

*Dutiful.* The participants described several characteristics simply related to fulfilling responsibilities and doing physician work. Being dutiful was portrayed by participants as the most baseline professional characteristic and involved meeting the expectations of society, the healthcare team, and patients. These expectations included the treatment and management of patients, coordinating care with patients and other professionals, and being punctual and available. Many participants discussed the additional responsibilities that academic physicians have in educating medical students. One participant lamented that some of the physicians he worked with did not take the time to teach students and therefore were not fulfilling their duty as academic doctors:

If you are a resident or an attending at a teaching hospital part of your responsibility should be to teach when you have some time. I think it depends a lot on the individual and is not very standardized, unfortunately.

Other participants had similar experiences with physicians while most claimed the attendings and residents they worked with were willing to teach in addition to their other responsibilities. Experiences that involved role expectations of physicians often served to reinforce the need to meet expectations and responsibilities concerning the duty of physicians.

Many participants stated that the team dynamic in the academic health center was one aspect of physician role that was a learning experience for them in the third year. These experiences were often enriching because it allowed students to internalize important aspects of physician responsibilities within health systems. One participant discussed how the team he



was working with may have been able to better fulfill their duty to the patient had they called other departments:

Sometimes I think physicians, at least the last rotation I saw, there's always a hesitance to call someone like palliative care even when the patients are not going to do well. Or calling other professionals who can do a better job than you do. In the end you have to realize the patient is here to hear your opinion about their condition and if you think someone else can help them better you need to get them involved. So being aware of your limitations is also important as a medical professional.

Having experiences that helped participants learn the role of different departments and when to call them were often enriching because it allowed them to internalize important aspects of the responsibilities of physicians within health systems.

Other participants had emotional experiences that challenged their perceptions of the duty and role of the physician. One participant described an experience where a patient entered the trauma department and was unable to be revived:

They just decided to stop the vent, stop the compressions and just let him die. I don't know, I've just kind of struggled with that... It just kind of struck me that we just kind of let him die because we couldn't figure out what was wrong at that time... Just thinking about your professional duty and how it's our job to figure out what's wrong and try to keep people alive. I'm not saying I would do it differently because I don't know enough but I feel like I hopefully wouldn't just give up in that situation.

Witnessing the limitations of medicine and the tragedy that not everyone can be saved were challenging for many participants, but resulted in a deeper understanding of a physician's duty to patients.

As discussed previously, many participants contended with the prospect of having limited time to meet with their patients. Several participants considered it to be part of a physician's duty to ensure they were prompt and timely with patients and to also give them the time they needed to describe their disease. One participant discussed the prospect of ensuring

that he had time to complete all of his responsibilities, prioritizing it at the expense of good communication:

You can be super stressed and really busy and not have time to really sit down and educate the patient... You have other things going on and perhaps is not the highest on your priority list. I don't know if I'd consider it unprofessional but perhaps not in the best interest [of the patient].

Duty was also viewed by a few other participants as a priority over other values, such as caring and being a good communicator. Duty was often considered the most fundamental attribute of a physician necessary to ensure they completed their professional responsibilities.

*Good Communicator.* Being an effective communicator was an attribute that most participants considered to be important for physicians. Second- and third-year medical students occupy a unique role in academic medicine in that they have little responsibility for patient care but are given more opportunities to communicate with patients. By talking with patients, many participants learned that patients value effective communication by physicians. One participant described how many of the patients he interacted with have fell victim to poor communication:

Making sure to communicate our intentions with them is very important. It seems like a lot of patients I've seen, at times, they've been lost in the medical field. They're not quite sure what's happening to them and none of the residents and physicians have explained it well to them. It seems like the physicians that are better appreciated by the patients tend to be more forthcoming... and more intentional about communicating the patient's status with them. I think that's a big part of being a professional doctor to be able to communicate with patients.

Other participants described patient experiences that enriched the importance of being an effective communicator as a future physician.

Many participants described observing faculty exemplifying good communication with patients and family. The most striking experiences for participants involved physicians delivering bad news or discussing end-of-life options with patients and families. One participant described

his first experience witnessing a conversation about death and how the physician exemplified the good physician:

Being a witness to it, and obviously none of these conversations are easy, but it was particularly challenging because you know sometimes people are more resigned to their fate and they have been mentally preparing for this for a long time or they are just ready to go. This person and this person's family were on the opposite end of the spectrum and it is hard to take someone like that and convince them of this reality that they have maybe weeks to live. Doing it while preserving the patient's dignity and preserving their relationship and trust you built with this person since you've been treating them for the last year or two. It was just a striking example of someone who displayed the ethos of what the professional identity of a physician actually is.

Other participants witnessed these conversations and began to envision themselves being in that physician's situation in the future. One participant described the significance of a discussion on palliation:

It just really impacted me knowing that eventually that could be part of my job to deliver the news to someone and to break it down in such a way that they feel like they have all the information they need to make a decision.

These conversations enriched the participants' perspective on the importance of communication for physicians. These experiences were significant for many participants and served as powerful examples of how to effectively and empathetically communicate challenging information.

Several participants had difficulty communicating with patients about their disease and realized that effective communication was an attribute learned with experience. These participants discussed that being a good communicator was more than just conveying knowledge. One participant discussed the importance of being able to effectively interact with patients and how that will ultimately influence their care:

What will be the most important [to my professional identity] is the interpersonal skills because... you can explain to them why people are getting foot ulcers with diabetes but if you can't get them to take their diabetes medication then it doesn't matter if they understand the pathophysiology

behind the ulcers, they are still going to get them, and you have accomplished nothing as a physician.

Another participant was asked by a resident to convince a patient to consent to an MRI to obtain an image of a new tumor. The participant compared his approach with the resident's approach to the conversation:

I tried to talk to her about it for probably 15 minutes giving her good reasons why she should do it and the reasons behind it all. I thought I was doing a good job and in the end she still said no. So I have the resident come in with me and I'm still pretty impressed by how he was able to squeeze a yes out from her because I guess I used a lot of logic, I think that's how I solved most of my problems pretty logically... I think the main thing was giving her a long time to speak. So he would sit there for maybe 30 to 45 seconds and nobody would say anything and then she would finally say something.

Other participants also realized that good communicators aren't afraid of silence and allow their patients to speak. These experiences of learning new, valuable aspects of the importance of communication were enriching for many participants.

*Altruistic.* Several participants cited that medical professionals were expected to put the interests of their patients above their own. However, the term altruism was very rarely used. Instead, the participants discussed the high expectations society has of physicians to put patient's needs first. One participant was reflecting on an exercise about "the type of physician you want to be" versus "the type of physician a patient would want." She discussed how her peers wanted to be the physician with a great work-life balance while patients likely wanted a physician who was dedicated to the work:

I guess it kind of reminded me that the public has some pretty high expectations of physicians and there's dichotomy that I haven't quite thought a lot about. It just seems that for doctors, more so than other professions, we're expected to go above and beyond to take care of patients. Which I think is a good thing, and I think it's good to have high expectations, but it's also interesting that no one wants to be that person.

This participant and several others had come to the conclusion that society has high expectations of physicians to put the interests of others above their own. These experiences

often reinforced the participants' understanding of altruism.

Other participants observed faculty embodying altruism and these experiences often enriched the participants' understanding of that attribute. One participant described a surgeon who worked incredibly long hours because he would spend a great deal of time meeting with each patient and would perform his surgeries after completing rounds, often into the evening.

Despite the hours he works, when he steps into the patient room he's okay with chatting with them even about things, trivial things, they want to talk about, not just medical issues. He focuses on the medicine, of course, but he gets to know them a little more than that as well, which I think his patients appreciate. He has a fairly good bedside manner compared to what I thought, what my preconceived notion of what he would have. One of the reasons he operates so late is because he prioritizes treating his patients earlier in the day and has his surgeries at the end of his day schedule.

Altruism was admired by several participants and was often described as going above and beyond for patients.

Figure 4.7 presents the values and characteristics of the good doctor and the lines connecting to attributes are the processes utilized by participants to internalize them. Each value, other than empathy, was reinforced during the participants' experiences in the second and third years of medical school. This was a consequence of the participants entering the second year with expectations about good physicians. While participants claimed empathy was an important attribute for physicians, many did not know what empathizing looked like and claimed to be unable to demonstrate it until they had more experience. Being trustworthy, competent, caring, and dutiful were values that were prioritized by some participants. Finally, detaching was only utilized on very select occasions to understand the importance of empathy and respect as values of the good doctor. Detaching from being empathetic was only utilized to make meaning from very emotional experiences. Detaching from respect was only used to cope with uncomfortable situations, such as when a patient was unconscious in the operating room or when subjected to disparaging remarks from the healthcare team.

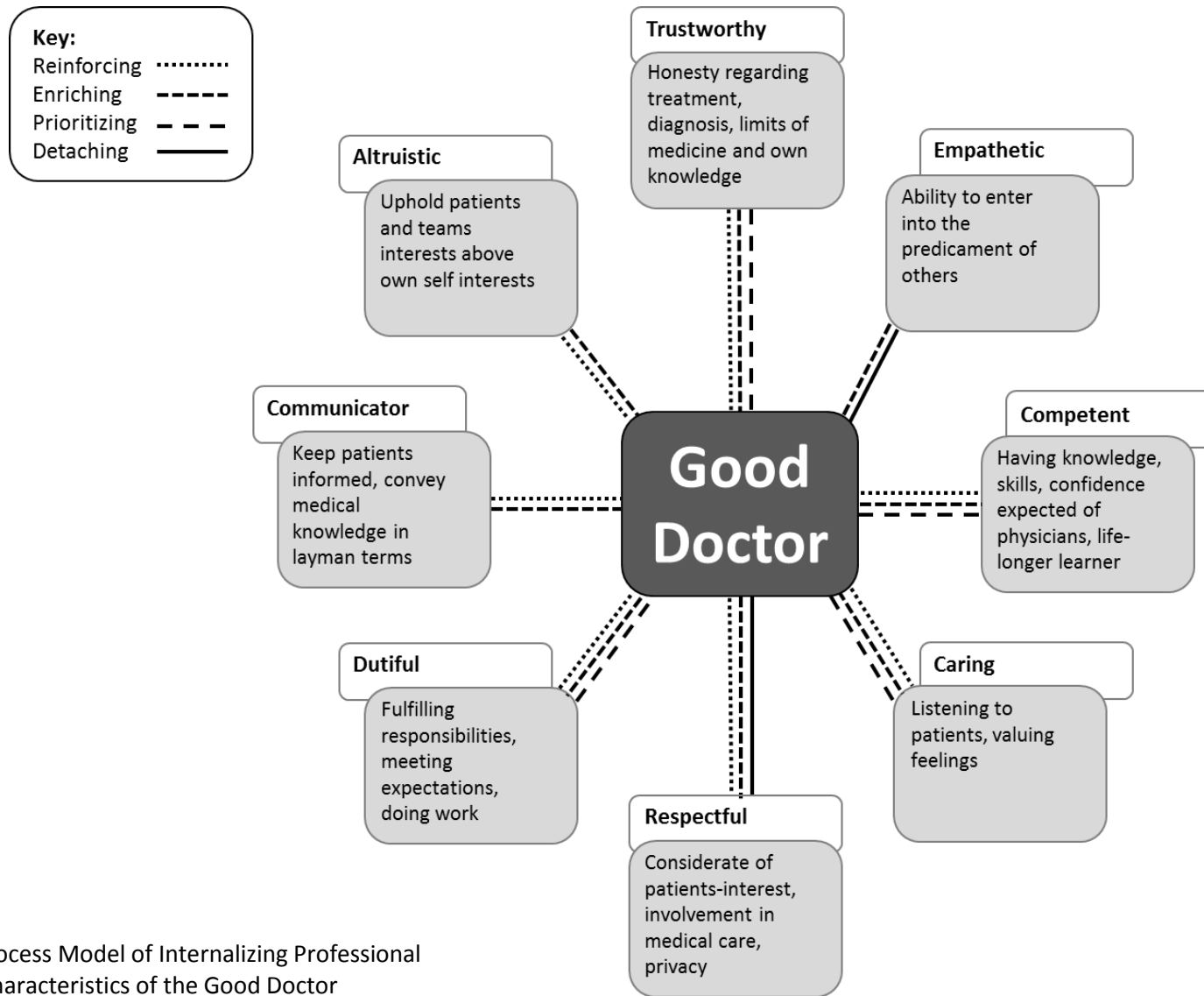


Figure 4.7. Process Model of Internalizing Professional Values and Characteristics of the Good Doctor

## **Professionalism Transformation**

This study additionally sought to understand how participants' perceptions of professionalism transformed across the second and third years of medical school and to investigate which factors influenced that transformation. Participants were asked to discuss their experiences with professionalism in each of their audio diaries and during interviews. In addition, the professionalism assessment tool (PAT) was administered at the beginning of the second year and again at the end of the third year as a quantitative measure of how the participants perceived they were able to carry out those professionalism behaviors. Finally, the results of the PAT were discussed with each participant as an additional qualitative measure of professionalism transformation.

The thematic analysis and analysis of the PAT were used to address the following research question:

- How does medical student understanding of professionalism evolve during the second and third years of medical school?

### *Influences on Understanding of Professionalism*

The formal, informal, and hidden curricula all had a profound impact on how the participants understood professionalism, but some were more influential than others. The formal curriculum had the greatest impact in the second year, the informal curriculum persisted throughout both the second and third years, and the hidden curriculum had an impact in the third year.

While all participants were aware of medical professionalism at the beginning of the second year, few could remember any instance in which professionalism was formally taught in medical school. A couple participants directly recalled a professionalism session during their ICMI course, while most believed they probably had learned about aspects of professionalism in

this course, but could not recall any specific session. Most described the existence of professionalism in the formal curriculum primarily in the form of threats of receiving an isolated deficiency in their professionalism competency for failing to respond to emails, attend required events, and dress in an appropriate manner. One participant described how professionalism was employed by the administration during the second year:

I feel like they keep throwing out these IDs at us, isolated deficiencies, like way more than they did last year. It's somewhat of a joke to us. Obviously we take professionalism very seriously when we're with patients and interacting with professors but it's almost like, because they say it so often, that maybe there was a problem in the past and so they're really bearing down on us like "oh, make sure you're prepared for this TBL or you'll get an isolated deficiency."

For some participants, this presentation of professionalism limited to conduct led to a perception of professionalism as a buzzword to control student behavior. For others, it limited the scope of their understanding of professionalism as something based just in the individual and how they presented themselves.

The vast majority of participants claimed that the single greatest influence on how they grew to understand professionalism was through the observation of faculty during interactions with students, faculty, patients, and other members of the healthcare team. This informal transmission of professionalism was profound in that it not only demonstrated how to act professionally, but also how to not act professionally. Participants described experiences with faculty who exemplified professionalism and highlighted the behaviors they wanted to emulate in the future. However, participants were equally hesitant to label some questionable behaviors as "unprofessional" and, instead, attempted to justify the action and described the conduct as behaviors they did not want to emulate. This paradox is illustrated by a participant who described an incident with a consulting physician while his ICMII group was visiting a "show and tell patient" (i.e., a patient with an interesting clinical presentation that the whole group got to observe) in the hospital:



Another doctor who was being consulted, ugh, for lack of a better term, barged right in [to the room] and we were at a loss of what to do and even our preceptor was at a loss of what to do because he just completely ignored what we were doing and started doing his own thing. I don't want to say that it was unprofessional because who knows if he had lots of things to see or lots of things to do...so maybe not something unprofessional but something I would not strive to emulate.

Most participants continued to be clear that they did not want to emulate any of the questionable behaviors they observed and claimed to make active attempts to not adopt unprofessional behaviors that were observed. In fact, very few admitted to adopting such behaviors. However, a few participants did mention that learning professionalism primarily through observation was inherently problematic as it left medical students vulnerable to subsume questionable behaviors.

Many participants asserted an attitude that “you know professionalism when you see it,” and while at times it was difficult for them to define professionalism, they claimed it was much easier to identify unprofessional behaviors, particularly when they were egregious. However, most claimed they witnessed very little that they would consider unprofessional behavior. Observation of faculty interactions continued to be a powerful influence on participants' understanding of professionalism throughout the third year as well.

The hidden curriculum influenced the participants' perceptions of professionalism once they began their clerkship rotations in the third year. Participants described several subversive themes including competitiveness over teamwork, competence, acceptance of hierarchy, and loss of idealism/becoming jaded. These themes often stood at odds with their perceptions of professionalism learned through formal and informal processes. Most participants viewed these hidden curriculum themes as inherent aspects of medical school culture that medical students needed to find a way to manage. Each of the influences of the hidden curriculum are discussed

in the following section as they fall under the auspices of varying themes regarding how participant understanding of professionalism transformed over the second and third years.

### *Themes of Professionalism Transformation*

While the participants' understanding of professionalism varied and developed at different rates, there were some commonalities in the factors influencing their perceptions of professionalism that resulted in 10 professionalism themes expressed by participants across the second and third years of medical school. The 10 themes included professionalism as: (1) Threat, (2) Individual, (3) Presentation, (4) Duty, (5) Competence, (6) Hierarchy, (7) Contextual, (8) Teamwork, (9) Patient-centered, (10) and Society. The following sections will discuss each of these themes and describe how the participants' perceptions of professionalism transformed during the study timeframe. The section concludes with a summary of how the participants' views on professionalism transformed across the second and third year of medical school.

#### **Threat**

At the beginning of the second year, many participants had difficulty defining professionalism. Several participants discussed professionalism in the context of how it was presented to them by the administration and some of their professors, as a threat of receiving an isolated deficiency (ID) in their professionalism competency. Participants claimed to be threatened with an ID for not dressing appropriately in clinical situations, not receiving passing grades on quizzes, not responding to emails, and not attending required events. Many participants considered the threats of being labeled unprofessional as a tool to control student behavior. One participant described professionalism as coercion:

You don't hear about it in a positive context. It is always in a negative sort of pseudo-threatening, or implied sort of threat, or direct threat. "You must be professional or else;" "You really should do this or you're not professional," sort of thing. It's never really in a positive context, I guess. The more times you see that the more you're like "oh, it's just a tool, a coercion tool."

Other participants described professionalism presented as what not to do. One participant described how this presentation of professionalism left her with confusion about the School's expectations:

So far professionalism seems to have been presented to me in the context of what not to do. Which is definitely kind of a frustration because I feel like I don't know if I'm being professional or behaving in a way that is expected of me or not because I don't think that there has been enough time spent defining what professionalism is. I think this is a cause of a lot of frustration. The administration seems to be frustrated with our class and how we do or don't demonstrate professionalism and our class seems to be frustrated with the administration about professionalism.

Discussions about professionalism as a threat only occurred in the second year. However, the formal presentation of professionalism as a threat likely influenced other themes, such as professionalism as individual, presentation, and duty.

### **Individual**

Professionalism as the individual related to behaviors and attributes that participants considered to be basic traits that any person should utilize in a professional setting. Individual features of professionalism involved aspects of personal conduct including timeliness, responsiveness, promptness, and also adaptation of those traits and one's personal code of ethics to medical professionalism. One participant described an individual perspective on professionalism:

Professionalism is one of those things that you can sort of learn just by observation. It sort of subconscious I think because it's social skills that you just pick up in life and I don't think it necessarily needs to be formally taught.

Those who viewed professionalism as attributes in the individual often thought that formal training was unnecessary because they considered it to be conduct learned throughout life.

The vast majority of participants felt that their personal morals and values, learned during early development, undergraduate education, and work experiences, were easily adapted to the construct of medical professionalism. One main area of contention between

participants and expectations of medical professionalism was in response to professional dress.

One participant stated:

Where do one's personal views tie into the professional space? Because everybody comes from different areas. Some people are more liberal or conservative. Some think showing a tattoo is fine in a professional setting and others don't think that's okay. It's possible for people's personal values to hinder someone's outlook on someone else's professionalism.

This conflict of personal values to medical professionalism led this participant to question how personal values influence professionalism.

The importance of personal conduct to the participants' perception of professionalism, particularly in the second year, appeared to be in response to emails from the administration regarding the cohort not meeting the University's expectations on conduct. The participants often mentioned the administration's emphasis on dressing professionally, timeliness, and responsiveness as important aspects of professionalism.

### **Presentation**

Many participants discussed professionalism as a manner of presentation. Presentation encompassed professional attire, communication, and how you are perceived during interactions. One participant described professionalism as presentation:

[It's] how a physician or healthcare provider presents themselves in the health field... It's a combination of appearance, dress, manners, how people speak, interact with others, communicate, and carry themselves.

As participants accrued more experiences in the clinic, particularly in the third year, they began to question the relevance of attire to professionalism. This questioning was primarily the result of observing physicians dressing more casually even though the administration emphasized the importance of dressing professionally in the clinic. One participant described this dichotomy:

We went into the clinic...with this old school clinical doctor and he was wearing jeans, a flannel shirt, and a baseball cap and we're on rounds. I think if you asked one of the ICM coordinators, if [medical students] walked into a hospital wearing those clothes and looking like this guy they would say we are

unprofessional. But in reality his rapport with the patients is some of the best I have ever seen and [he] is a great clinician that gets a lot of respect.

Many participants concluded that dressing casually was not unprofessional as long as you were providing care for your patients. Others maintained the importance of dressing professionally and making sure to present your best self to patients.

Presentation for some participants was an essential component of the professional interaction. The participants felt the need to present themselves in the best possible way in order to build relationships with patients. One participant discussed the importance of presenting yourself well in patient interactions:

You're part of a profession that is held to high standards and the way you present yourself and the way you interact with people around you says a lot about the type of care you provide. Even with patients, in the first 30 seconds or minute that they meet you they will make a judgment about you and the way you act with them will kind of determine the course of how your relationship with them will go.

Many participants became more aware of how their interactions changed people's perceptions of them during the third year. One participant discussed how she acts more formal to ensure a positive perception of her professionalism:

I'm just continuing to be more aware of how things are perceived because in a professional environment you don't know other people, what they might find offensive or funny. I think it's always safer to err on the side of caution and be more formal.

Several other participants discussed the importance of how they were perceived in the clinical environment. This was often presented in the context of grading as the participants were graded on professionalism using subjective evaluations by the residents and attendings who observed them during the clerkships.

## **Duty**

Many participants discussed professionalism in the context of duty, or ensuring that one is fulfilling responsibilities and meeting expectations of physician work. Several participants entered the second year with this perception of professionalism as duty but began to see contradictions between the administration's expectations of medical students and the administration actually fulfilling their duties. A few participants discussed a situation in which the administration promised to have the student's third year schedules to them by February, but ended up not getting them out until April. One participant contended with this situation:

We are told to be places on time and to turn things in on time and to keep our word of different things or will get an isolated efficiency and in planning third year we see the administration promise dates for schedules and different things and they don't deliver those dates. So when you're looking up to administration and are being expected to [do] something by administration that doesn't do what they expect you to do that can be discouraging and kind of discount your idea of being professional.

Another participant considered the threats of IDs to be meaningless because she viewed professionalism as a part of the job:

This is a part of your job. You are expected to do it. There should be no threats or rewards involved. Is it something that's happening just for students? It makes me wonder, does it carryover when you're a physician? Are you going to be getting emails from whoever's in charge of the hospital?

These situations made this participant and others wonder if there would be the same top-down control of professional conduct on physicians.

Throughout the second and third year the participants became more aware of the complexity of physician duties in an academic health center. Participants understood that many of the physicians they worked with had multiple responsibilities, from patient care to research and teaching. Many considered an important aspect of professionalism to be the fulfillment all aspects of one's job well. One participant described how an interaction with a physician who

failed to fulfill her responsibilities on a research project taught her about professionalism as duty:

So I guess that taught me a part of professionalism is if you agree to do something you need to make sure that you can do it, and do it well. It is sort of meaningless if you have your names on all sorts of things, all these titles, if you're doing everything half-assed, because that's pretty unprofessional.

Other participants had similar experiences in the clinic in which their attendings or residents did not take the time to teach them even though they considered it a part of their professional duty.

### **Competence**

Many participants considered competence and attaining the appropriate knowledge and skills for practice to be an essential component of medical professionalism. One of the ways the participants believed they could appear competent was by projecting confidence. One participant discussed how confidence can make you look professional:

A big part of being a professional and being able to perform as a good physician is having the confidence in what you know and how you're acting. So just presenting yourself confidently can mean a lot and make you appear more professional.

For some participants, it was enough to appear competent and confident, but for others they needed to feel it as a component of professionalism.

Competence also included attaining the knowledge and skills necessary to function as a physician and the ability to apply theoretical information to a clinical setting. Many participants concluded that knowledge was essential for treating patients, but it was also part of a physician's responsibility to become a lifelong learner and maintain competence. One participant described professionalism as competence:

Part of [being professional] is having the necessary knowledge and then being able to apply it but also being able to take a look at your situation and figure out what needs to be adjusted accordingly.

Other participants considered professionalism to also include an understanding of the limits of one's own knowledge. However, a few considered that the culture of medicine and other aspects of the hidden curriculum encouraged medical students to project competence and confidence at all costs. One participant discussed how he thought it was professional that one physician was able to inform her patients when she had uncertainty regarding drugs or dosages and said this was admirable because: "it sounds like a common sense thing to admit what you don't know but lack of knowledge is seen as a weakness in medicine."

### **Hierarchy**

The participants discussed two themes relating to hierarchy in medicine that influenced their understanding of professionalism. The professionalism hierarchy themes were primarily adopted through the hidden curriculum and included acceptance of hierarchy and hierarchical expectations of professionalism. The most prominent view of professionalism shaped by the hidden curriculum was that the creation, expectations, and enforcement of professionalism standards is hierarchical. Several participants concluded that those in the highest rungs of the hierarchy, who create and enforce the rules of professionalism, are the ones who are least likely to abide by them. In contending with what she perceived as the administration not meeting professional expectations, one participant stated:

So I think being professional is not always the same for everyone. Understanding your role and how to assume the role and there's a whole bunch of what you should do and all these expectations that you should abide by and that's professionalism. It seems like professionalism is not only defined by the individual person but it's defined by every single person that's above you which can be interesting and can be abused sometimes.

Many participants thought there were different professionalism standards and expectations for medical students, residents, attendings, and other members of the healthcare team. This made it difficult for some to navigate their expectations of professionalism because at times they



observed those superior in the hierarchy displaying behaviors they knew would be considered unprofessional if exhibited by a medical student.

The participants understood that an actual hierarchy existed in the clinic, based on training, to ensure the appropriate allocation of responsibilities in the team. However, with regard to professionalism, the participants discussed a general understanding that it is inappropriate for a medical student, situated in the lowest rung of the medical hierarchy, to question and label behaviors of their superiors as unprofessional. Even as some witnessed potentially unprofessional behaviors (but none that would result in harm of patients), none of these behaviors were reported by the participants. One participant discussed a physician who was brash and short with patients, behaviors he considered unprofessional, but stated:

I am not the one, it is not my place. I don't feel that I should be trying to contradict the doctor or pointing these things to them. As long as I feel that patient care is not being irreparably damaged or harmed. Like, they are still getting their care, just maybe not getting the reassurance they really want and deserve.

Some participants refused to report unprofessional behaviors simply based on their adherence to the medical hierarchy (i.e. they were "just medical students"), while others feared that doing so would have a negative impact on their grades because those who were acting inappropriately were also those responsible for evaluating them. One participant described why some students are reluctant to report unprofessional behaviors:

I'd be kind of putting myself out there which most students aren't willing to do because the same people I'm going to be complaining to about their colleague they will also be writing my letters of recommendation and helping me set things up during the third and fourth year. A lot of people rightly or wrongly just perceive it is being kind of dangerous or not worth the effort to do something like that.

The adherence to hierarchy also manifested itself in an unwillingness by some participants to label behaviors of their superiors as "unprofessional." One participant described the tone in the OR, but was unclear what he would categorize as unprofessional:

Just a really interesting atmosphere in the operating room. It's really hard to say whether things I've seen have been unprofessional, or whether they are acceptable. Like, nobody is throwing scalpels or instruments around. Nobody is berating nursing staff or trainees, medical trainees or anything like that. The only thing that I've really seen in that atmosphere that maybe underscores a slight difference in the training of surgeons versus other disciplines is that there is a very hierarchical system, especially in operating room where it's really clear who's in charge.

At times, other participants would attempt to justify the physician's poor behavior, typically by speculating that they had other more important things to attend to or were simply too busy.

### **Contextual**

As participants began to contend with competing messages about the meaning of professionalism, many came to the conclusion that the construct was far more complex than how it was formally presented to them. Several participants concluded that professionalism was context-specific and what might be considered professional in one situation may be deemed unprofessional in others. The contextual nature of professionalism was highlighted as participants alternated between the classroom and clinic and began to visualize different professionalism expectations in different contexts. One participant described:

Professionalism is a very nebulous term that has many different manifestations in different situations. In the medical school it is used as a carrot or like a stick to keep students in line but outside of that, in the real world, like in the hospital, it's got a much broader sense of application.

This participant and others increasingly realized professionalism to be more complex and contextual than how it had been formally presented by the institution.

Many participants also considered interactions to be contextual and stressed the importance of knowing your audience. A common view was that one's professionalism is judged during interactions and, therefore, one must tailor behaviors depending on who is present. One participant described how a resident was talking about her neurology patients to medical students:

It just the way she was talking about the patients. I was like “how are you saying this? We are kids who want to become doctors and you’re talking condescendingly about these patients.” I don’t think that was very professional and maybe that happens a lot. It taught me that you need to know your audience. It’s one thing to vent to a friend or whoever but it’s another, even though she never explicitly said “these patients are all crazy” or whatever but that was the vibe that I was getting, just her tone.

This participant believed that talking about patients in that manner to medical students was unprofessional but it may not have been in another context.

While most participants agreed that good physicians needed both humanistic (caring, compassionate, empathetic) and technical (knowledgeable, skillful) attributes, a few participants thought in certain contexts it was not necessary to demonstrate both qualities. This opinion became prominent as participants experienced different specialties and began to consider professionalism to vary in the context of different specialties, as described here by one participant:

Professionalism has a changing definition between different medical specialties, and maybe a better way of saying this is that different aspects of professionalism are valued more in different specialties... That kind of shapes how I act or how I try to portray myself within each clerkship. We are creating impressions of ourselves, and our ability to act as a professional is very highly valued and noticed by our supervisors and those evaluating us. Maybe my version of professionalism, or whatever I value most, is also valued pretty highly by those that I interact with in pediatrics.

Several other participants considered professionalism to be contextual to certain specialties.

This was particularly evident with regard to the participants’ perceptions of physicians in procedural specialties, such as surgery and anesthesiology. Several participants noted that some surgeons, in particular, lacked many humanistic qualities during patient interactions and often appeared cold and uncaring. The prioritization of technical prowess over humanistic attributes, as in surgery, was the only instance where a patient-centered understanding of professionalism was not emphasized by a few participants. However, most participants felt there were core

tenets of professionalism that were not context-specific (described below in patient-centered), such as the responsibility to the patient.

### **Teamwork**

As the participants became accustomed to the team dynamics in the hospital, more began to recognize teamwork as a valuable aspect of professionalism. Many participants deemed teamwork to be an essential aspect of patient care as, at times, members of the healthcare team throughout the hospital were responsible for managing care for a single patient. At the end of the third year, one participant described professionalism as teamwork:

I think professionalism is definitely very important. In a lot of cases if you want to get hired somewhere as a doctor they care way more about how you interact with other physicians and the nurses and how nice of a person you are than they do about how great you are with patients. I think to a degree it's on par with [the] patient always comes first, but so do your colleagues. Colleagues are very important and you have to work with them.

Other participants considered professionalism as teamwork in the context of good team dynamics. Many of the participants walked away from clerkships with positive perceptions of that specialty if the team had worked well together.

Several participants admitted to hearing physicians in one specialty make denigrating remarks about a physician in another specialty or toward the specialty as a whole. Many participants viewed these remarks as unprofessional, as they were not in the spirit of teamwork, and different specialties often needed to work together to ensure patient care. One participant lamented about contentions between departments:

One of my biggest complaints in medicine is that everyone hates every other specialty I can never figure out why. In IM everyone hates the ED docs... That's the thing that bugs me most about medicine is there is not a lot of respect for people within fields. People are always criticizing why you did this and that but they weren't there. They don't know what you're thinking at the time.

Several participants heard the emergency department criticized by other departments, while other participants witnessed physicians speaking poorly about other members of the healthcare

team, such as nurses. Nurses were regarded by many of the participants as essential members of the healthcare team and were often vital at assisting the participants in understanding their role as a clerk. One participant stated:

One thing I wanted to avoid doing was to become the doctor that hates all nurses, thinks they're all idiots or whatever. Everyone has a job in the healthcare system and on the healthcare team and taking care of the patient...Everyone has their place but it's been interesting to see the rift that's been coming up not just in OB-GYN but also the surgery team as well.

This participant entered the third year hoping to maintain positive outlook on nurses but witnessing poor team dynamics between nurses and physicians made it challenging.

Aspects of the hidden curriculum, such as competitiveness, also shaped some participants views of professionalism as teamwork. While competitiveness was a theme throughout the second and third year, many participants claimed that some of their peers who were overtly competitive in the clinic (e.g., quickly accepting a patient offered by an attending in the morning or answering first when being "pimped") displayed unprofessional behaviors at the expense of the healthcare team. Many participants felt as if competitiveness was rewarded by their superiors, and if they were not competitive they were perceived to be lazy or disinterested.

### **Patient-centered**

Many participants considered the core tenets of professionalism to be the actions that placed the patient at the center of the healthcare team. The themes of patient-centeredness include such virtuous characteristics as being altruistic, empathetic, compassionate, caring, trustworthy, and respectful. Since most considered these to be core tenets, the majority of participants thought they should be utilized in every patient interaction, regardless of context.

One participant discussed professionalism as patient-centered:

At the core of nearly all physicians there is the same tenets that people hold dear and identify with as being a physician or having the core professional identity. Namely, the main thing is the responsibility to the patient. The reason I say that is because I've seen some people on surgery right now which

notoriously has a different personality. The stereotypical surgeon has a different personality than the stereotypical pediatrician, right? Well I've seen some of that but then there's also been instances when I've been pleasantly surprised at the empathy and compassion, the things that these people that are stereotyped one way and maybe sometimes they act like that stereotype but on the other hand they really shine at times with their compassion and are going the extra mile for patients.

This participant considered physicians to have a core understanding of professionalism as patient-centered even though some physicians are stereotyped to behave a particular way.

Caring was considered by many participants to be an important aspect of medical professionalism because it was one thing patients, in particular, desired from the doctor-patient relationship. Caring was described by participants as being thoughtful, listening to patient concerns, and genuinely wanting to improve their health. One participant discussed an experience when a peer reached out to a fellow medical student who was struggling emotionally at the end of the second year. She stated:

I think that's part of being a doctor is just being there for people. Not that they need anything from you, just so that they are aware somebody out there is thinking about them and caring about them. I thought it was one of the kindest gestures I have heard of in the year. I don't know if that's professionalism or if it's just being a good person, but I think those things go hand-in-hand.

She spoke of caring being an intrinsic quality of physicians, but also considered it an important aspect of professionalism.

A few participants discussed their experiences with a diverse population of patients and how this began to advance their understanding of professionalism to include respect for individuals from different backgrounds. One participant discussed how a patient called him a derogatory term, but he did not let it change his perception of that patient because a part of professionalism is wanting the best for patients regardless of their circumstances:

I think just understanding that people come from different backgrounds, and everyone is different. You're not going to get along with everyone. I had a patient who called me a terrorist when he was zonked out on drugs. I don't really take it to heart and I wouldn't really take it hard even if he wasn't zonked

out on drugs. You just have to continue to show that you just want to get them better it doesn't really matter what you are who you are as a person. You just want to get them feeling better.

Another participant discussed how some attendings and residents displayed unprofessional behaviors toward patients. He attributed this to having a disrespect for patients and their backgrounds:

You're taking care of strangers who tend to be from a different socioeconomic stratum than you are from if you are physician and you're pretty much taking care of people who are poorer and less educated than you. Which doesn't make it right but I think that has something to do with it. That people just aren't necessarily bringing their professionalism A-game all the time because, I don't know, they just don't have as much respect for the patients I guess. You'd hope that's not true but it seems like maybe it is with some residents or physicians, but certainly not all of them.

Other participants had experiences with physicians displaying unprofessional behaviors toward patients that gave some participants a deeper understanding of the need for a patient-centered approach to professionalism. One participant described how some nurses and a physicians were talking about a patient's medical condition while in the breakroom of the clinic when a patient overheard them:

I never like to talk about patients because I feel like people are... in such vulnerable states and are trusting us with this personal information. It's not fair or right to judge them but I think that the longer you are in medicine the more sort of jaded to that you become. So I found that sort of a common theme throughout all of my clerkships...I hopefully don't get to that point because I feel bad and don't want to be judgmental or making patients feel uncomfortable.

Several other participants discussed witnessing attendings, and residents, in particular, becoming jaded or losing their idealism toward patients and the medical profession. This was a common hidden curricular theme for many participants, which challenged growing enthusiasm about medicine. In the end, these experiences reinforced the need to ensure that professionalism is patient-centered.

## **Society**

Near the end of the study, many of the participants discussed professionalism in terms of the social contract and spoke of the desire for the profession to meet the expectations of the society they serve. Most participants cited a greater understanding of why society holds such high expectations of professionalism for physicians. One participant discussed the difference between medical professionalism and professionalism at his previous employment:

The other thing about being in the healthcare field versus where I was before is that there is probably more expected of me or of one in the healthcare profession than that I had gathered before. But throughout the year that is what I realized just because people are coming to you with their nearest, dearest, and gravest fears.

Other participants discussed the high expectations for physicians because they often served as role models for professionalism. One participant stated: "Physicians are held up on a pedestal somewhat. They're supposed to be models for society." A few other participants discussed how these expectations of physicians to exemplify professionalism extended outside the clinic and required physicians to be professional in all settings.

## **Process of Professionalism Transformation**

In general, many participants had a superficial understanding of professionalism in the second year of medical school. This may be in response to the administration citing expectations for professional conduct based on threats of isolated deficiencies without appropriately defining medical professionalism and how it related to their expectations of students. Professionalism as a threat was the most common theme in the second year but it was not discussed again in the third year. However, professionalism as a threat influenced participants' discussions about other professionalism themes, such as individual influences of professionalism, and professionalism as presentation, duty, and competence. While these were often cited by participants as important aspects of professionalism in the second year, with more clinical encounters in the third year



they began to tie these aspects of professionalism to their experiences and could better explain why they were significant to their understanding of professionalism. Presentation was an often cited aspect of professionalism in the second year, and while it continued to be important to many participants, their view of it often transformed when they saw physicians who did not meet their expectations for professional attire, though still being highly regarded by patients and staff.

As participants entered their clerkship rotations they attained a greater understanding of professionalism in the context of teamwork, patients, and society. Many of their superficial understandings of professionalism (relating to answering emails on time and professional dress) were replaced by an understanding of patient and society expectations of physicians. While many participants contended that professionalism varied based on context, most argued there were a core set of professionalism values that underpinned physician practice which placed the patient as the most important component of the healthcare team regardless of context.

During the third year, several themes became more prominent due to the effects of the hidden curriculum. Unwavering allegiance of the medical hierarchy, even in the face of potentially unprofessional behaviors, was a constant theme throughout the third year. Participants did not claim to report any unprofessional behaviors, but were cognizant of them, and made conscious efforts to not emulate or adopt those behaviors. Similarly, participants gained a clearer picture of professionalism as it related to putting patients at the center of the healthcare team, but observing some residents and attendings who had become jaded with medicine was challenging for many participants. A few participants felt they were becoming more jaded, but those participants, and others, reported becoming more cognizant of maintaining a positive attitude toward medicine even though many were experiencing burnout. Table 4.3 presents descriptions of the themes of professionalism transformation.

Table 4.3. Themes of Professionalism Transformation and Descriptions

<b>PROFESSIONALISM THEME</b>	<b>DESCRIPTION</b>
<b>Threat</b>	<ul style="list-style-type: none"> <li>- Isolated deficiencies in professionalism competency</li> <li>- Coercion to control student behavior</li> </ul>
<b>Individual</b>	<ul style="list-style-type: none"> <li>- Behaviors expected in all professions: conduct, integrity</li> <li>- Influence of personal morals and ethics</li> </ul>
<b>Presentation</b>	<ul style="list-style-type: none"> <li>- Appearance during interactions, attire, communication</li> <li>- How you are perceived by others</li> </ul>
<b>Duty</b>	<ul style="list-style-type: none"> <li>- Meeting expectations, fulfilling responsibilities relating to physician work</li> </ul>
<b>Competence</b>	<ul style="list-style-type: none"> <li>- Confidence in knowledge and skills</li> <li>- Maintaining knowledge with lifelong learning</li> </ul>
<b>Hierarchy</b>	<ul style="list-style-type: none"> <li>- Knowing place in medical hierarchy</li> <li>- Differing expectations for those in hierarchy</li> </ul>
<b>Contextual</b>	<ul style="list-style-type: none"> <li>- Understanding your audience to adjust behavior</li> <li>- Different professionalism standards for specialties</li> </ul>
<b>Teamwork</b>	<ul style="list-style-type: none"> <li>- Understanding role of other medical professionals</li> <li>- Respect for other specialties</li> </ul>
<b>Patient-Centered</b>	<ul style="list-style-type: none"> <li>- Patient at the center of healthcare team</li> <li>- Virtues of the “good doctor”</li> </ul>
<b>Society</b>	<ul style="list-style-type: none"> <li>- Higher expectations of physicians than other professions</li> <li>- Physicians as role models for professionalism</li> </ul>

*Professionalism Assessment Tool*

The professionalism assessment tool (PAT) was utilized to quantitatively evaluate the participants’ perceptions of their professionalism behaviors and to determine whether they perceived change in these behaviors over the second and third years of medical school. A Wilcoxon Signed-Rank Test was used to determine if there was a significant difference in professionalism behaviors across the second and third years of medical school (PAT1 and PAT2, respectively). Furthermore, the individual results of the PATs were used qualitatively to evaluate how the participants felt they had developed in the professionalism areas addressed in the survey. A copy of the PAT can be found in Appendix C.

### **PAT: Quantitative**

Nine participants (n = 9) completed both PAT1 and PAT2. The Wilcoxon test showed significant differences in each of the five domains between PAT1 and PAT2 for the entire cohort. Individual results varied, but each participant showed significant change in at least one domain; eight showed improvements, while one showed a decline. Five participants showed significant improvements in more than one domain with four of those showing significant improvements in three domains. The vast majority of participants reported improvements in each domain between PAT1 and PAT2, however most of these improvements did not reach significance. Most participants demonstrated a significant difference in the domain of Lifelong Learning and Adaptability (n = 7), followed by Relationships with Others (n = 6). The results of the Wilcoxon Rank Sign Tests are reported in Table 4.4.

The average score for the Citizenship and Professional Engagement (CPE) domain improved from 8 in PAT1 to 13 in PAT2, out of a total of 20 points ( $p < 0.01$ ). This suggests that participants moved from knowing and knowing how to engage and participate in the community to showing they can perform these responsibilities without support from others.

For the domain of Reliability, Responsibility, and Accountability (RRA) the mean scores improved from 16 to 19 between PAT1 and PAT2, respectively ( $p < 0.05$ ), out of a total of 25 points. This suggests that at the end of the third year, participants felt that they could show others how to fulfill responsibilities and meet expectations more so than at the beginning of the second year.

The mean score for the Relationships with Others (RO) domain improved from 26 to 33 ( $p < 0.05$ ), out of a total of 45 points. These results indicate that participants improved from feeling they were able to show that they can relate to others, work in teams, and be sensitive to the needs of others to feeling they are able to assist others in those areas.

The domain of Upholding Principles of Integrity and Respect (PIR) had a total score of 40 points and the mean score for PAT1 was 25 and improved to 32 in PAT2 ( $p < 0.05$ ). This suggests that participants felt they were able to show respect to patients, colleagues, and the profession at the beginning of the second year and by the end of the third year felt they were able to assist others in completing those tasks.

Finally, the mean score for the domain of Lifelong Learning and Adaptability (LLA) improved from 17 in PAT1 to 25 in PAT2 ( $p < 0.01$ ), out of a total of 35 points. This indicates the participants felt they were better able to show and show how to evaluate learning, implement feedback, and adapt to change at the end of the third year of medical school compared to the second year.

Table 4.4. Mean Scores for Each Domain in PAT1 and PAT2

	CPE1	CPE2	RRA1	RRA2	RO1	RO2	PIR1	PIR2	LLA1	LLA2
<b>B</b>	6	9	18	20	<b>24</b>	<b>33*</b>	<b>23</b>	<b>33*</b>	<b>15</b>	<b>19*</b>
<b>C</b>	6	12	16	18	24	28	27	26	<b>16</b>	<b>25*</b>
<b>D</b>	14	15	22	24	<b>30</b>	<b>43*</b>	36	43	<b>17</b>	<b>33*</b>
<b>E</b>	8	17	20	19	33	35	<b>28</b>	<b>37*</b>	20	21
<b>G</b>	7	9	12	16	<b>21</b>	<b>32**</b>	<b>16</b>	<b>32**</b>	<b>12</b>	<b>19*</b>
<b>I</b>	6	13	15	17	<b>17</b>	<b>27*</b>	<b>18</b>	<b>27*</b>	<b>16</b>	<b>27*</b>
<b>K</b>	8	14	19	20	<b>44</b>	<b>38*</b>	34	32	20	25
<b>L</b>	12	15	16	19	30	30	26	30	<b>19</b>	<b>28*</b>
<b>M</b>	5	10	<b>8</b>	<b>20*</b>	<b>13</b>	<b>28**</b>	19	26	<b>16</b>	<b>28*</b>
<b>DOMAIN MEAN</b>	<b>8</b>	<b>13**</b>	<b>16</b>	<b>19*</b>	<b>26</b>	<b>33*</b>	<b>25</b>	<b>32*</b>	<b>17</b>	<b>25**</b>
<b>ITEM MEAN</b>	2	3.25	3.2	3.8	2.9	3.7	3.1	4	2.4	3.5

\*  $p < 0.05$

\*\*  $p < 0.01$

Ordinal Item Scale:

1 = Knows, 2 = Knows How, 3 = Shows, 4 = Shows How, 5 = Teaches

### **PAT: Qualitative**

When the participants reflected on how they thought their professional identities had transformed over the second and third years of medical school using the PAT as a template, many stated they simply had limited opportunities to demonstrate professional behaviors during the second year of medical school. However, during the third year they felt more engaged in the medical community and were better able to show many of the behaviors on the PAT.

Several participants indicated that many of the items on the PAT, such as responsibility, accountability, integrity, and respect, were universal professionalism characteristics that were transferable to any profession. This sentiment is corroborated by the quantitative results which show marginal increases in the RRA domain with only one participant reaching significance. Most participants perceived fulfilling responsibilities to be an important professional behavior, emphasized in the second year that persisted into the third year. However, caution is warranted in that there are likely too few items in the both the CPE and RRA domains to reach significance at the  $p < 0.05$  level even, with large differences between the PAT1 and PAT2.

However, there were several domains where participants transformed over the second and third years and felt better able to demonstrate those professional behaviors and assist others in showing those actions as well. Those domains included Citizenship and Professional Engagement (CPE), Relationships with Others (RO), and Lifelong Learning and Adaptability (LLA).

For the CPE domain, several participants reported limited opportunities to engage in the community in the second year. During the third year, many participants felt more comfortable engaging in the profession and a few felt more confident in their abilities to benefit their own community. One participant stated: "I learned more about the social work aspect of medicine. I'm able to see who to contact, when to contact them, and what services are available in the

Indianapolis area.” None of the individual analyses reached significance, but each of the participants showed an increase between PAT1 and PAT2. Again, the failure to reach significance was likely due to the small number of items in the domain.

Several participants discussed feeling they developed in several of the items in the RO domain. Many felt as if these professional behaviors, such as being sensitive to needs of others, empathizing, and establishing rapport, were highlighted in the third year and that they also had more opportunities to work on these attributes. One participant discussed how he thought he had transformed in some areas of the RO domain:

[This domain] is talking about a lot of those [attributes] that I guess I was alluding to that are important as a future pediatrician or future physician. Most of these get at the heart of it like just being able to talk to somebody and a lot of them, like empathy, establishing rapport, those are things that were emphasized in the third year and I guess I’m seeing as more important now.

Five participants had significant improvements in the RO domain, while one participant reported a significant decline between PAT1 and PAT2. The decline may have been the result of a misunderstanding of the survey descriptors or that the participant may have felt more confident in her skills in the arena of relationships with others at the beginning of the second year.

Finally, the majority of participants considered they had developed the most in the domain of LLA. Most participants thought they were better able to recognize their limitations, self-assess, and accept feedback and make improvements. While some of these abilities came from external feedback, the clerkships also gave students opportunities to compare their abilities to their peers. One participant described her ability to self-assess based on observation of her peers:

Being in clerkships with other third years has been really helpful because before in first and second year you’re only comparing yourself to other people based on exam scores and that’s it. But that’s not what being a professional is all about. It’s not just [exam] results because those results aren’t directly helping patients. And just seeing how I am right there along with everyone else. I get along with patients, I get along with the team, I do well... Just because my exam

scores may not be high pass or honors doesn't mean I'm not in the same boat as everyone else.

Seven participants showed significant improvements in the LLA domain between PAT1 and PAT2 and it was also the domain in which most participants thought they experienced the most improvement.

### **Influence of Professionalism on Professional Identity**

This study investigated how the construct of professionalism influenced the participants' developing professional identities. In each audio diary, the participants were asked to discuss how recent experiences with professionalism influenced their professional identities. Additionally, in each interview, participants were asked to discuss the importance of professionalism to their professional identities. A thematic analysis was used to address the following research question:

How does professionalism influence the formation of professional identity in medical students?

The analysis revealed two themes: (1) Professionalism as Outward Display of Professional Identity and (2) Professionalism as Evaluation of Who to Be as a Physician. Each of those themes are presented below with a brief description of the theme.

#### *Professionalism as Outward Display of Professional Identity*

Even though articulating a definition of medical professionalism was difficult for some participants, it was often described as something you know when it is there and you know when it is not there. As participants got more opportunities to observe physicians interact with patients, colleagues, and medical students, they began to assess their level of professionalism and identified the professional characteristics they valued and desired to emulate as a part of their developing professional identities. Several participants considered professionalism to be

the foundation of their professional identities and was simply an outward manifestation of the professional values and characteristics of their professional identities. One participant described the importance of professionalism to his professional identity:

I think professionalism underscores the whole professional identity. Like I said it's not something you often think about and it's not the thing that people sing 'hurrah' about and give you praise or really noticing or complimenting. But it really has to be there in order to bring out those professional identity attributes I was talking about so you can start being caring, empathic, open, and responsive.

This participant considered that individuals need to hold professionalism values of a physician in order to actually become a physician and truly care for patients.

Other participants described professionalism as the basis for how to act as a physician, which would then define the type of physician they will become. One participant described how professionalism directed her professional identity: "Professionalism is like the compass that helps point your identity in some direction. Then you kind of decide what direction you want to take it." Another participant described professionalism as a framework: "I think it provides a framework for how I want to carry myself, and the goals that I want to achieve, and how I want to portray myself to patients and other members of my team." Others similarly described a physician's level of professionalism was the aspect of their professional identity that was judged by patients and the healthcare team, and ultimately, was what determined whether or not one is a good doctor.

#### *Professionalism as Evaluation of Who to Be as a Physician*

Professionalism served as a tangible concept participants felt they could use to evaluate the physicians they observed. Participants could then use those physicians they admired as a template for how to act as a physician. The concept of professional identity was ambiguous to many participants, but when it was framed as "who they wanted to be as a physician," they found it easier to articulate the person they aspired to be. However, in the second year, most



participants were very unsure of the type of physician they wanted to be. The reason for this was likely twofold: they had limited opportunities to see themselves in the role of a physician, and they had limited chances to observe physicians in their role. Often, opportunities to observe ICM preceptors were powerful experiences because they exemplified professionalism and served as examples of who the participants could aspire to be as physicians early in their training. One participant explained:

When we see an attending physician or our preceptor in ICM interacting with a patient in a professional way or interacting with the staff members in a professional way that makes a positive impact and [leaves] an impression on us.

Through their audio diaries, participants discussed the professional attributes and values of the attendings and residents they worked with and how they planned to integrate those into their own professional identities:

I think that's kind of what your professional identity becomes it's like taking little bits and pieces of the things you like from everyone you get a chance to work with and somehow making that kind of your own.

Others had one or two significant role models who served as exemplars of who they could be as a physician. One participant described his family medicine preceptor as a substantial influence on his professional identity:

So just probably finding someone that I connected with and felt like I kind of wanted to become was the most important piece of that. In most aspects of his career he kind of represented what I wanted to become and that has been a huge driver in the way I approach the rest of the year in terms of developing my personal style.

All of the participants discussed role models and how they did or did not exemplify professionalism. Their behaviors often served as models of how to act as a physician and also who they could be as a physician.

## Chapter Summary

This study had three main goals: to examine the processes through which medical students formed their professional identity across the second and third years of medical school, to investigate how medical students' perceptions of professionalism transformed across the study timeframe, and to explore how professionalism influenced the formation of professional identity.

First, the participants utilized five main processes (themes) to form their professional identities: (1) Connecting to Image of Medicine, (2) Exploring Self in Medicine, (3) Embodying Role in Medicine, (4) Exploring Specialty Choice, and (5) Internalizing Professional Values and Characteristics. Connecting to Image of Medicine allowed participants to make sense of their expectations of being a physician and medical student compared to their reality, and helped them understand their place in the medical community. Exploring Self in Medicine was utilized by some participants to understand how they, as individuals, and their personality fit into the persona of a medical student and physician. Embodying Role in Medicine was used by participants to begin to act in the role of a physician and eventually begin to feel like a physician. Exploring Specialty Choice was utilized by participants to see themselves as a specialty physician and ultimately select a specialty. Finally, Internalizing Professional Values and Characteristics allowed participants to create their own perceptions of a good doctor and adopt the desired attributes into their professional identities.

Second, the participants discussed 10 professionalism themes and included professionalism as: (1) Threat, (2) Individual, (3) Presentation, (4) Duty, (5) Competence, (6) Hierarchy, (7) Contextual, (8) Teamwork, (9) Patient-centered, (10) and Society. Professionalism as a threat was the most common theme in the second year in response to fears of receiving isolated deficiencies from the administration in their professionalism competency. However, as

participants entered the third year, professionalism as a threat waned and a patient-centered perspective on professionalism persisted as the most common theme. Professionalism was viewed by many participants as a way of conduct to ensure patients' interests were at the center of the healthcare team.

Finally, the participants discussed two themes regarding how professionalism influenced their professional identity formation: (1) Professionalism as Outward Display of Professional Identity and (2) Professionalism as Evaluation of Who to Be as a Physician. Professionalism was used as a tool to evaluate the characteristics of the physicians the participants observed throughout the second and third years of medical school. Many participants considered professional behaviors to be the outward projection of one's professional identity and it was the basis for how one would be judged as a physician. Additionally, participants also used their evaluation of professionalism behaviors to understand how they wanted to act as a physician and who they could potentially be as a physician. The implications of these results as well as limitations and suggestions for future research will be presented in the following chapter.

## CHAPTER 5: DISCUSSION AND CONCLUSIONS

This study presents a cohesive picture of the processes used by medical students to develop their professional identities in the second and third years of medical school. These processes help students understand how they fit into the medical community, define and enact their core professional values, interact in the role of a physician, decide on a medical specialty, and as a whole, make sense of who they want to be as a physician. Many of the themes of professional identity and professionalism have been discussed in the literature but this study situates professional identity formation (PIF) within the context of medical education and fills in important contextual details that stage-theory models and other approaches have left out.

It is important to note that medical students are not forming professional identities of physicians, but are forming identities that are consistent with the identities of physicians they have observed, interacted with, and emulated. Professional identities are formed from interactions with the curriculum, faculty role models, other members of the healthcare team, and patients. As the students have more interactions in the medical community, their professional identities are transformed to internalize the expectations of physicians based on role, characteristics, and values. Furthermore, professional identities of medical students are formed based on assessments of observable characters of their role models and their conceptions of good physicians as they decide the type of physician they aspire to become.

In addition, this study explored how medical student understanding of professionalism transformed throughout the second and third years and how professionalism influenced PIF. This study employed a qualitative analysis of interview and audio diary data using the constant comparative approach to data analysis and also included a quantitative analysis of pre- and post-survey results of the Professionalism Assessment Tool (PAT).

## Discussion of Themes of Professional Identity Formation

### *Stages Theories vs. Processes of PIF*

Several authors have created stage theories of PIF adapted from identity development models. While these theoretical models can serve as broad lenses to create a general understanding of how medical students progressively transform throughout their training, the curriculum has an immense impact on the processes of PIF and, stage-theory models remove context completely. Process models of PIF, on the other hand, can directly inform which aspects of the curriculum most impact student identity development and these can be used to create actionable plans to foster PIF. When, for example, Jarvis-Selinger et al. (2012) claims students will move from Stage 3 to Stage 4 when they can carry out expectations and embody the role of a physician, this theoretical model does not detail *what* embodying the role of a physician looks like and *how* to get a student to that subsequent stage. By examining processes of identity formation, this study determined that progressive experiences of practicing being a physician (e.g., taking an H&P, reporting to an attending, and observing the physician with the same patient) to later managing their own patients enabled students to begin to embody a physician. Therefore, providing medical students more opportunities to function as genuine members of the healthcare team and empowering their impact on patient care will help to advance their professional identities.

In the popular framework by Jarvis-Selinger et al. (2012) adapted from Kegan (1982), the authors define three levels that correspond with a respective level of training. Although the authors claim individuals move between stages throughout training, nonetheless, each stage corresponds with a training level (e.g., Stage 2 = medical student, Stage 3 = clerk, Stage 4 = resident). As is true of many stage-theory models, this model did not encompass the breadth and depth of variability in PIF among the medical students in this dissertation study. First, while

it is true while most participants in this study lacked the understanding of what it meant to be a physician early in the second year, most had begun to create their own conceptions about the good doctor and began to internalize societal expectations of physicians before beginning clerkships (Stage 3). Secondly, when given the opportunity to participate in medical care during clerkships, many participants felt as if they were embodying a physician because they were acting in the role of a physician and had an impact on the healthcare team and in patient care (Stage 4). Thirdly, this model neglects other intrinsic and extrinsic factors of PIF formation such as, personal identity, socializing aspects like the connection one feels to the medical community, and selection of specialty choice.

Niemi (1997) and Beran et al. (2011) applied the identity status model by Marcia (1966) to third-year medical students to examine two processes of PIF: commitment and exploration, and the degree to which those processes are used in professional choices. Their studies determined that medical students may have uncertainty about their choice in medicine because they have not explored other career options. While commitment and exploration were also important processes of PIF in this study, constraining the processes to understanding professional choices is a severe limitation of their models. Nearly all participants had a firm commitment to medicine at the beginning of the second year and the process of committing was not utilized by the participants again until the end of the third year when they were deciding on a specialty. However, exploration as a process was actively utilized by participants when exploring self in the medical community and when deciding on a specialty. Even though Marcia's processes were utilized by participants, the use of the identity status model neglects other processes utilized by medical students as they make sense of who they will be as a physician and constrains committing and exploring to possible career choices.

The latest theoretical model that has been proposed by medical educators as a method to evaluate and assess PIF in medical students was created by Cruess et al. (2016). That model is an adaptation of Miller's Pyramid (1990) of Clinical Competence. The model proposes that medical students begin by understanding expected behaviors of physicians and how to employ them, then move to demonstrate those behaviors with the oversight of others, and then without prompting of others. The apex of the pyramid is when the student consistently demonstrates behaviors that have become components of their professional identities. Similarly, the results of this research demonstrate that the participants started to internalize professional behaviors and values first by understanding their importance and then, through reinforcement and repeated practice these characteristics become enriched with more impactful, emotional experiences. However, since this data was purely self-reported and not observational, there is no way to discern whether the participants were consistently demonstrating these reported behaviors as components of their professional identities. Furthermore, it would be very difficult to determine simply by observation if a professional value had been internalized. While the pyramid model is a logical representation of the progression a medical student goes through when learning and internalizing the role of a physician, like the other stage-theory models, critical context is removed. Thus, understanding how a medical student progresses to another level in the pyramid is demonstrably missing. Moreover, Cruess and colleague's pyramid neglects that PIF occurs both within the individual, at the level of the personality, as they make sense of who they are in the medical community, as well as in the context of others.

### *Intersections of Personal, Social, and Professional Identities*

This research is situated within individual students' perspectives and revealed the complex nature of PIF occurring within the person, during their interactions within the medical

community, and within the context of their training as a physician (e.g., personal, social, and professional identities, respectively). Much of the previous literature on PIF in medical students neglects the changes that are occurring within the individual during identity formation (Grotevant, 1987) and conclude that modifications of self are simply part of the process.

Individuals have multiple identities (e.g., gender, social, ethnicity, nationality), but specific identities may be categorized depending on the person. For example, identities may be hierarchical, as when being a doctor is prioritized over an ethnic identity, or in other cases they may carry equal weight (Burford, 2012). Personal identity is often considered one aspect of identity that is more consistent and less adaptable to change and personality is often considered part of personal identity (Hitlin, 2003). Doherty and Nugent (2011) investigated personality factors that can be used to predict success in medical students and they uncovered conscientiousness and extraversion (i.e., getting along, openness) as critical factors. While the authors did not relate these factors to PIF, participants who self-described as extroverted and attentive did have an easier time forming a connection to medicine and considered their personality to be easily adaptable to that of a medical student and physician. Thus, for these participants, PIF was more streamlined and less challenging.

While personal identity is often viewed as the least adaptable aspect of self, social identity often changes depending on group memberships. The process of identifying self within a social category is one hallmark of social identity theory. This theory proposes that social identity simultaneously exists both at the individual and group level in a process referred to as “self-grouping” or “self-categorization.” One process of determining salience of a social identity is fit, that is, the matching of an individual to a social category by comparing self to existing groups or stereotypes. Burford (2012) theorizes that failures during medical training result from the inability to self-categorize as a physician and may damage a medical student’s fit with a



perceived stereotype. Indeed, the results of this study suggest that medical students who experience doubt and have difficulty connecting personal identity to their perceptions of a typical medical student are more likely to question their fit in the medical profession.

Frost and Regehr (2013) contend that understanding one's place in medicine and forming a professional identity is more difficult for contemporary medical students due to conflicting discourses of standardization (conformity) and diversity (individuality). The authors conceptualized three types of identities medical students may construct while contending with these discourses (standard, alternative, and hybrid) that are similar to the processes of adapting, refusing, and accommodating, respectively. Frost and Regehr (2013) state that constructing a standard identity is most common and that those students felt they needed to suppress aspects of self to fit in. However, most students in this study utilized the adapting process and felt as if their personal identity fit well in medicine. Fewer students accommodated aspects of their personality to fit in (e.g., introversion) and formed a more hybrid identity that maintained some aspects of self they perceived to be inconsistent with a typical medical student.

The two themes of PIF, Connecting to Image of Medicine and Exploring Self in Medicine, were social identity processes that related to how well one fit within the medical community and how adaptable one's personality was to the identity of a medical student and a physician. The three processes within each theme translate well to Costello's concepts of identity consonance and dissonance during professional socialization (2005). Experiences *confirming* connection to medicine and *adapting* self to medicine are examples of identity consonance where participants experience synchrony between their personal and professional selves and their place in the medical community. Participants who had experiences that caused them to *accommodate* aspects of their personality and were *challenged* by their experiences in medicine not meeting their expectations were likely experiencing positive identity dissonance. Positive

dissonance is indicated when individuals embrace the conflict in their personal and professional identities. Nevertheless, these experiences can still result in disruptions that lead to uncertainty in self, abilities, and one's place within the profession. Conversely, individuals *doubting* their connection to medicine and *refusing* to adapt aspects of self to medicine are likely experiencing negative identity dissonance, or desire to escape aspects of professionalization.

Doubt is a process that has recently been explored in medical students. Liu et al. (2015) described two types of doubt in first-year medical students: whether they wanted to be a doctor or whether they were capable of becoming a doctor. Others have described doubt manifesting in medical students feeling like an imposter in the clinic (Lingard et al., 2003; Cohen et al., 2009). Most participants who experienced doubt in the second year also described feeling doubt in the first year, although it was described as more extreme in the first year. No participants doubted whether they wanted to be a doctor, but did doubt whether they were capable of succeeding in training. This study further describes doubt experienced by medical students who did not receive adequate feedback on their performance in the clinic. Liu et al. (2015) described doubt as an important factor in PIF and this study confirms that statement. Doubting prevents medical students from envisioning themselves as physicians and serves as a barrier to forming a professional identity.

### **Implications of Intersections of Identities**

This study establishes areas in which identity dissonance may occur and the processes medical students use to cope with it. Costello (2005) claims that professional students experiencing identity dissonance, particularly those with negative experiences, are at greatest risk for leaving training or not internalizing a professional identity that is consistent with members of the profession. Women, racial minorities, lower-class, and LGBT students may have more difficulty adapting self to the identity of a medical student as medicine has historically

been associated with white, heterosexual, middle- to upper-class males (Beagan, 2001b). Frost and Regehr (2013) suggest mentoring and guiding students as they form their professional identities to allow them to embrace their individuality while respecting the norms of the profession.

Monrouxe (2010) contends medical students must partially deconstruct their self as a part of the process of becoming a physician. While PIF is a transformative process and medical students should expect to exit their training having adopted the values of the profession (Hafferty and Franks, 1994), whether it is necessary for this to happen at the expense of medical students losing aspects of their personal identities in the process needs to be addressed by the medical profession. Medical education is inherently stressful and the additive effect of losing oneself in the process may invite unnecessary pressure. Several participants believed they were being coerced into conforming to the persona of a typical medical student at the expense of losing some of their individuality. Medical educators should encourage students to consciously reflect on how they are adapting to their new identity as medical students and their connectedness to the medical community. Furthermore, medical students could be encouraged to use the process of adapting to modify aspects of self to be beneficial to future practice as a physician.

Furthermore, feedback from a participant who did not openly discuss doubt in interviews or audio diaries alleged that doubt is probably far more pervasive than was presented in this study. If true, this suggests that medical students may be experiencing doubt but are not willing to discuss it, perhaps because one of the underlying constructs of doubt is uncertainty and ambiguity, which is viewed as a limitation in medicine (Haas and Shaffir, 1977). Geller (2013) describes tolerance for ambiguity as a personality characteristic but argues that medical socialization is likely exerting a mediating force influencing how students handle

ambiguity. While most medical students persist regardless of the doubt they experience, for others it may lead them away from medicine (Costello, 2005). Doubt and uncertainty needs to be explicitly addressed in the formal curriculum and students should be reminded that medicine is inherently ambiguous. Medical students must understand that uncertainty not only plagues medical students, but physicians also experience a degree of uncertainty in diagnosis, prognosis, and treatment (Henry, 2006).

### *Gender and PIF*

By attending to the experiences of students during PIF, this study revealed that female medical students may form their professional identities differently than their male counterparts. Most female participants reported being referred to as a “nurse” or “nursing student” by patients even after having introduced themselves as medical students. As a result, many felt the need to portray a more confident and competent image. Some further expressed the need to gain more competence to compensate for being gender stereotyped as a nurse.

Medicine is often considered a hierarchical field with its structure based on training, status, and gender (e.g., doctor = male, high status; female = nurse, low status) (Witz, 1992). Furthermore, only recently have females (and ethnic minorities) been broadly accepted, numerically, into medical schools to be trained as physicians (Grant, 1988). In the 1950’s, only 5% of medical students were females (Beagan, 2001a). Today the percentage of male and female matriculants into medical school is roughly equal (AAMC, 2016). Compared to the national average, IUSM tends to have a lower than average percentage of females with the class matriculating in 2016 comprising only 45% female students. Despite the shift in medical student population toward gender equity, female medical students report disproportionately more gender discrimination by faculty and patients than do male medical students (Beagan, 2001a; Babaria et al., 2011).

The types of gender discrimination encountered by female medical students has been described as blatant and overt (i.e., sexual harassment), but also covert, or woven into the institutional or societal culture. The most common perpetrators of discrimination and sexual harassment are attendings and consultants, followed by patients and their families (Fnais et al., 2014). None of the female participants in this study described being personally subjected to blatant or overt sexism or discrimination. Female medical students being referred to as a “nurse” or “nursing student” would likely consider this an example of covert discrimination. Most of the female participants brushed it off as a societal conception that a female in a hospital must be a nurse. However, these experiences are not unusual as other studies have reported female medical students less likely to be called “doctor” than male medical students and were often mistaken for nurses (Beagan, 2001a; Beagan, 2001b; Gude et al., 2005; Dyrbye et al., 2007; Babaria et al., 2011).

The female participants’ desire to gain more competence, or appear more confident in response to being gender stereotyped as “nurses” or “nursing students,” are common reactions of females being socialized into male-dominated professions (Dunatov, 2013). Rosenblatt and Kirk (1982) proposed that females socialized into male-dominated professions experience the need to try harder to attain the same status as males. Dryburgh (1999) reported female engineering students also felt it necessary to display more confidence and competence than their male counterparts in order to gain trust and respect of working engineers and society. Dryburgh claimed “learning how to project a confident image is more difficult for women because they begin with the ‘handicap’ of being female in a field where the professional identity is associated with being male” (p.674, 1999). Costello (2005) asserts the process of internalizing a new identity into personal identities (e.g., professional and gender, respectively) goes more smoothly if the previous identity is consonant with the new role. Dissonance between the

identities often results in the individual deriving coping mechanisms to resolve the conflicts between the developing professional identity and existing personal identity. The desire of female participants to exude confidence and competence more than their male counterparts may be a coping mechanism because their identity as a future physician is dissonant with society's conception of the identity of a physician. Appearing more confident and competent would then compensate for lacking one of the key identifications of a physician, namely, being a male.

### **Implications of Gender and PIF**

Even with a numerical shift toward gender equity in physicians, it is difficult to determine whether societal conceptions about doctors and nurses will change dramatically in the foreseeable future. Therefore, female medical students will likely continue to be socialized into a profession where their developing professional identity does not match society's view of a member of that profession. At the very least, medical educators should address the potential identity dissonance that may occur with female medical students during training as it relates to their gender. Furthermore, female medical students should be encouraged to discuss their experiences with gender discrimination and understand how their experiences impact them as developing professionals. Finally, explicit role modeling from female physicians who have overcome gender stereotypes may assist female students in identifying possible coping mechanisms to deal with gender discrimination as it arises.

### ***Role and PIF***

Embodying Role in Medicine relates to performative aspects of physician work that are internalized as operational components of professional identity. This study reemphasizes the importance of participating and reflecting in PIF, however, the magnitude may have been understated as these processes appear to have a significant influence on advancing professional

identity. Furthermore, the paucity of constructive feedback on performance in the clinic while practicing in the second year had a truly detrimental effect on some participants' formation of a professional identity, and it was particularly challenging for those concurrently experiencing doubt. While medical students have been described as having low tolerance for ambiguity (Caulfield et al., 2014), the desire for clear feedback does not appear to be borne out of the desire to know everything, but it appeared as if these students wanted to ensure they were learning the techniques correctly as performing them well was important to their developing professional identities.

The participants advanced through processes of embodying role when they began to feel increased self-confidence and/or competence in a specific area of physician role. Competence is a central construct underlying the identity of a physician. It is defined by Epstein and Hundert (2002) 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 individual and community being served" (p.226) and includes technical and humanistic aspects of physician role. The word, competence, not only includes a level of knowledge and capability, but also entails a judgment of that person by others based on experience, responsibility, and reputation (Mc Kee and Eraut, 2011). Feelings of confidence and competence were internal processes that allowed participants to evaluate their role performances primarily through repetition of the role processes, but also through internal and external evaluations.

Medical students have a desire to feel like a real doctor and at moments of uncertainty have strong motives just to appear to have the identity of a doctor (Bleakley et al., 2011). "Faking it" has been described in the literature as expressing a degree of confidence justifying that the individual has a right to be there (Haas and Shaffir, 1977; Gaufberg et al., 2010). Several participants in this study impersonated their ICM preceptors simply because they were unsure

how to act in clinical situations. Others had a strong desire to manage their uncertainty, incompetence, and nervousness by appearing competent, that is, until they got to the point when they felt more confident in their abilities. Haas and Shaffir (1977) refer to medical students as donning a cloak of competence and do so in part to be accepted into the medical community but also because society has high expectations of doctors to project competence. They conclude that as students become more successful at managing others' impressions of them, they increasingly begin to identify with the role of physicians. Indeed, faking being a doctor and impersonating faculty were important first steps for the participants to begin to identify as a future physician and these behaviors paved the way for them to internalize key aspects of physician role. They also served as a framework from which to individualize their approach with practice.

The physicians medical students practice their clinical skills with become important models from whom students can model their own behaviors and values (Haas and Shaffir, 1977). Ibarra (1999) concluded that during PIF, individuals direct attention to role models to identify behaviors and attitudes, enact these within the role to which they aspire, and create possible representations of who they can be in that role. The importance of role models to medical students for modeling behaviors and internalizing values has been broadly discussed (Kenny et al., 2003). However, emulating physician role models by participants in this study not only showed them how to act or behave as a physician, but more importantly, demonstrated how they could execute some of the characteristics of the good doctor (many that they felt unequipped and too inexperienced to perform, such as being empathetic) and served as exemplars of who they could *be* as a physician. While Ibarra (1999) noted that novice investment bankers utilized wholesale and selective imitation strategies of role model presentation styles, most medical students in this study appeared to select a few attributes of



role models to emulate based on value characteristics they deemed most important to being a good doctor and that they wanted to integrate into their professional identities. Participants discussed positive and negative role models, but good role models were particularly salient during critical, emotional experiences, such as during observation of and participation in end-of-life talks and care (Ratanawongsa et al., 2005), because they had difficulty envisioning themselves being able to perform in those situations in the future. Consistent with other research, participants also found role modeling to be more meaningful when the model explicitly discussed their approach, interpretation, and assessment of those significant interactions (Kenny et al., 2003).

Through their observation of faculty, medical students learned that one of the most important ways to appear like a physician was to communicate like one. Communication skills were highlighted by participants as an important aspect of physician role that fostered a good doctor-patient relationship and facilitated patients' involvement in their care. While Apker and Eggly (2004) established communication as an important conduit through which dominant medical ideologies are disseminated into professional identities, little research has elucidated the processes through which being an effective communicator is integrated into medical students' professional identities. Vågan (2009) determined that first-year medical students have difficulty embodying physician role when communicating with patients because they lack clinical knowledge and skills, and therefore, he concluded that communicating with patients is not a strong socializing force for students. As the participants in this study became more confident in their medical knowledge, communicating with patients became a powerful process to learn the role of physicians as communicators. As they became better communicators, participants were able to convey their medical knowledge to others and discovered new ways to involve patients in their own care by letting them tell their stories. Therefore, while it is typically not the role of a

physician to spend a great deal of time listening to patients tell stories (particularly those seemingly unrelated to their current medical condition), this study and others suggest effective communication is an important aspect of medical student role (Beagan, 2001b; Ratanawongsa et al., 2005; Dyrbye et al., 2007; Vågan, 2009). Communicating was a powerful socializing force and as a process it influenced PIF by improving medical students' comfort talking to patients and inspired good communication as an important value to their professional identities.

Most participants reveled at the opportunity to interact with patients and apply their theoretical knowledge in a practical setting during the second and third years of medical school. This study differentiated between the processes of *practicing* and *participating*, with the key determinant to participating being that the participants felt they were having impact on patient care and were active members of the healthcare team. Practicing, on the other hand, was considered those clinical experiences when participants honed clinical skills, but in which participants did not feel they were directly impacting patient care. Dornan et al. (2007) discussed the process of participation in third-year medical students but simply referred to all clinical experiences as participation with varying degrees of activity. The authors coded practicing as "'acting' as participation" and it was the process of the participants moving from observers to performers in the clinic. However, unless the participants felt a sense of contribution to patient care, the authors did not consider it to impact professional identity formation. Practicing in clinical settings has been described by others as influencing PIF because it allowed students to rehearse doctoring skills, act in the role of a physician, and begin to form a deeper connection with medicine by feeling like a member of the team (Dyrbye et al., 2007; Weaver et al., 2011). This study confirms those results and advances that practicing is an essential initial process to PIF since many concluded that the clinical skills they were practicing (e.g., H&Ps and differential diagnoses) needed to be sharpened to feel more like a doctor and to

be successful at one of the primary roles of a physician as a diagnostician. Certainly, with more practice, the participants did feel more confident in their ability to create a viable list of differential diagnoses and their skills were used as evidence that they were ready to be granted the privilege of participation in the medical community.

Historically, clerkship rotations are likened to an apprenticeship-type environment because medical students are situated within an authentic work environment and begin to practice in the role of a physician under direct supervision. However, learning and development of a professional identity is more meaningful when it occurs within the act of participating with the medical community (Bleakley et al., 2011). The results of this study fit well with the theory of Situated Learning in which students are invited into the community of practice as peripheral participants. As they are given more legitimate opportunities to participate, their professional identities are transformed when they feel they are becoming functional members of the community (Lave and Wenger, 1991). Several other studies have presented findings consistent with this research (Van der Hem-Stokroos et al., 2003; Lyon, 2004; Ratanawongsa et al., 2005; Dornan et al., 2007; Helmich et al., 2012). Participating was the process in this study that contributed most significantly to medical students feeling more like a doctor.

Participating has been equated with *habitus*, that is, the acquired patterns of thought and behavior that form after continual rehearsal and presentation of self until that performance becomes unconscious (Bleakley et al., 2011). Indeed, after given opportunities to participate in patient care, several participants noted that aspects of their clinical performance began to occur more naturally and they no longer had to think about the next steps. Furthermore, when participants felt a sense of responsibility in patient care, those interactions with patients became more meaningful. While the participants understood the importance of having many of the characteristics of the good doctor, they claimed to lack the experience and opportunities to

demonstrate those qualities to patients in a meaningful way. The results of this study confirm previous findings that active participation and having the ability to demonstrate characteristics of the good doctor, such as caring and empathy, have a profound impact on PIF by allowing medical students to internalize those values and characteristics into their sense of self as a future physician (Ratanawongsa et al., 2005; Konkin and Suddards, 2012).

Despite the importance of participation in PIF, the level of participation is afforded by the attending physician and is based on constraints of the clerkship environment and perceived abilities of the student. This is consistent with being granted legitimate peripheral participation from a community of practice (Lave and Wenger, 1991). However, since participants were assigned to varying physicians across the state, they experienced wide ranging levels of participation with a few never really feeling like a true participant in the medical community.

While students desire experiences to practice hands-on with patients and participate in the community, they also want observation and feedback on their performance. However, medical students often find feedback not forthcoming by preceptors, residents, and attendings (Bleakley et al., 2011). Many participants in this study desired feedback particularly in their early clinical experiences in second-year, but because they were rarely observed and feedback was lacking or unconstructive, they resorted to evaluating their own performance in the clinic. While internal evaluations of performance have been established as important processes of PIF (Ibarra, 1999; Pitkala and Mantyranta, 2003), descriptions of self-evaluation of performance in medical students is lacking. Haas and Shaffir (1977) claimed students evaluate their role performance based on others' perceptions of them, or so called, "impression management." If the student portrays a successful image of a doctor and if others treat the students like doctors or call them doctors, then they are more likely to feel like doctors. While the participants were often called "doctor" by patients, most deemed this a consequence of them wearing a white

coat and not indicative of their performance. Rather, for most participants, being called doctor did not make them feel more like a doctor, but gave them a degree of discomfort over the trust the patients placed on them when they felt like “just medical students.” However, some participants did use impression management to appear more confident and competent during interviews, particularly after receiving explicit feedback from patients about their nervousness. Since feedback was rare from patients, residents, and attendings, the most effective gauge of role performance was the participants’ own internal sense of how well they had fulfilled the role of a physician during that interaction.

The participants received required feedback on clinical evaluations and mid-rotation. While positive feedback was validating, it was overshadowed by the desire for actionable feedback on how to improve their performance in the clinic. Moreover, many participants felt the feedback on clerkship evaluations was somewhat inaccurate because they were rarely observed with patients and often did not feel they worked long enough with any one attending or resident for that person to truly evaluate their clinical performance. Furthermore, as also discussed by Haas and Shaffir (1977), evaluations reminded participants they were continually being evaluated and that one negative evaluation could affect residency placement and their future as a physician. The participants’ perceptions of in-person feedback and observational experiences is consistent with other research which showed that constructive feedback is lacking and that students desire observation and evaluation of their clinical performances (Van der Hem-Stokroos et al., 2003). Although it has been suggested that feedback induces PIF by conscious replication of positive behaviors and abandonment of negative behaviors (Ibarra, 1999), feedback given to medical students is often not actionable and lacks specific directions for improvement (Traser, 2017).

In the absence of relevant feedback, reflection is a process one can use to develop self-awareness, understand growth, and crystallize elements of professional identity (Sharpless et al., 2015). The importance of reflection in the medical curriculum has been well established (Wald, 2015) and research suggests reflection assists medical students to make meaning of clinical experiences (Niemi, 1997; Rucker and Shapiro, 2003), understand their transformation in physician role (Pitkala and Mantyranta, 2003), reconcile emotions and empathy (Branch et al., 1993; DasGupta and Charon, 2004), and contend with professional and ethical dilemmas (Wong and Trollope-Kumar, 2014). Furthermore, Sharpless et al. (2015) suggest reflection enables medical students to become more aware of their emerging professional selves by negotiating conflicts in identity development, evaluating core values and characteristics, and selecting a specialty. Indeed, the underlying function of the audio diaries was to encourage participants' reflections on their experiences, to make meaning of their developing professional identities, and to understand the transformation in their perceptions of professionalism (Monrouxe, 2009b). In fact, a few participants stated that without their involvement in this study, they would have been less aware of their professional development and may not have actively evaluated the professional performance of attendings and residents.

### **Implications of Role and PIF**

Lack of performance feedback from preceptors regarding clinical interactions in ICMII had a significant detrimental effect on participants' PIF that led many to self-assess their own clinical skills. While self-assessment is a critical component of lifelong learning, students inconsistently gauge their improvement, and, in this case, it is borne out of inadequate feedback by preceptors (Perrella, 2017). While students should be developing strategies for self-assessment, they should not be relying on them entirely in their early clinical training. Since the preclinical years are times when medical students are fraught with uncertainty, students need

more consistent opportunities to be observed during patient contact followed by appropriate feedback of their performance from preceptors (Bleakley et al., 2011). Ibarra (1999) exemplifies the importance of feedback to identity and role formation: “feedback that is clear, vivid, and salient at an emotional level, therefore, may play a critical role in helping the individual to narrow the search for an identity that suits the situation and can be incorporated into a more enduring sense of self” (p.785).

Early experiences practicing in the clinic during ICMII were beneficial for participants who were able to self-assess their growing competence in clinical skills. Others were seemingly less able to evaluate their progress and desired constructive feedback. The theory of deliberate practice posits that one can achieve expert performance when focusing on superior, reproducible behaviors for representative tasks in that domain (Ericsson, 2004). Even though the proximate goal for medical students is skill acquisition and expertise will come later, structuring early clinical experiences in ICM with deliberate practice may offer a framework for medical students to gauge their competence. A deliberate practice approach may guide them through skill acquisition and alleviate ambiguity in their early clinical experiences. For example, many participants began practicing by following lists to guide interviews and began to feel more competent as they were able to eliminate the list, conduct a focused H&P based on patient responses, and begin to develop a differential diagnosis. Structuring patient interviews with specific goals to accomplish may maximize the experience for students, prepare them to conduct focused interviews in clerkships, and move them closer to expert performance. Furthermore, when medical students are able to demonstrate proficiency they will be afforded opportunities for legitimate participation on the healthcare team and in patient care.

Bleakley et al. (2011) proposes to structure learning to promote identity formation by providing opportunities for legitimate participation in a community of practice, structuring

teaching around patients, and giving appropriate and integrated feedback. Early clinical experiences give students opportunities to practice skills and gain more comfort communicating with patients, and can also assist in connecting to medicine by providing respite from preclinical coursework (Littlewood et al., 2005). In particular, encouraging participation in service-learning such as volunteering at medical specialty camps (Beck et al., 2015) and outreach clinics (Farlow et al., 2015) can deepen medical students' commitment to serve patients, improve communication skills, and give them opportunities to participate in patient care before clerkship rotations. Furthermore, medical educators should encourage preclinical medical students to shadow physicians early in their training to give them more opportunities to practice in the role of a physician, identify role models, and begin to understand what it means to be a good doctor. In all, giving medical students these professionally relevant tasks earlier in their training may accelerate the formation of a professional identity (Pratt et al., 2006).

#### *Specialty Choice and PIF*

This study confirmed exploration and ultimate selection of specialty choice as essential processes in advancing professional identity. While White et al. (2011) and Niemi (1997) postulated a relationship between PIF and exploring specialty choice, this study confirmed that the specialty selection process and PIF are inextricably linked as third-year medical students are not only making sense of who they are in the context of medicine, but also in the context of a medical specialty. Indeed, the goal of many participants in the third year was to explore medical specialties and commit to one of them. Research has demonstrated that discovering the perfect specialty is a particularly impactful experience for medical students (Murinson et al., 2010), as was true for several participants in this study. Furthermore, Levine et al. (2010) discovered medical students who have specialty indecision at the start of the fourth year are likely having



difficulty connecting to medicine and processing their challenging experiences, leading them to doubt their place in medicine.

Medical students follow a complex pathway to ultimately select a specialty. While some enter medical education with an idea about the specialty they desire to enter, the majority rely on their experiences in medical school to help them decide (Burack et al., 1997). Medical students create conceptions of medical specialties, and since many have little interaction with specialties in the first two years, much of what they hear is word-of-mouth (Hunt et al., 1996). In a retrospective study, students reported that “badmouthing” about their prospective specialty had no effect on their specialty choice (Hunt et al., 1996). However, the authors caution against this conclusion as it may be difficult for students to decipher how much past experiences influenced their current decisions. In this study, many participants had negative preconceptions of the surgery clerkship which shaded their perceptions as they entered the clerkship and likely influenced their openness to consider the specialty. However, participants were candid in discussing their biases about specialties and whether their experiences in that clerkship confirmed or contradicted their expectations. While on clerkships, two participants considering becoming EM physicians discussed other physicians badmouthing their potential specialty, and while it shocked and disappointed them, it had yet to negatively affect their decision.

Most medical students’ conceptions of specialties are created from stereotypes until they have experiences with the specialty. Experiences within clerkships varied for participants and even negative experiences within a particular clerkship did not deter some participants from deciding on that specialty as a career choice. This suggests that while experiences are important for some medical students, others rely on additional considerations in specialty selection. The factors utilized by participants in this study were consistent with other studies (Burack et al., 1997; White et al., 2011) where patient contact and scope of practice were important

considerations of specialty choice and salary was one of the least important. While salary was not necessarily a prominent factor, lifestyle was an important consideration for many participants and the trend to select a specialty based on controllable lifestyle (i.e., control of work hours and free time) is common among this generation of medical students (Levine et al., 2010). While several considered surgery as a potential specialty, few selected it as a specialty due to a lack of controllable lifestyle. Even for those who decided on surgery, the potential of limited lifestyle outside of medicine was still of concern.

Other than factors specific to each specialty (e.g., patient population, procedures), Burack et al. (1997) identified role models as having a significant influence on specialty choice as students described role models demonstrating role within a specialty and exemplifying personal and professional characteristics to emulate. Furthermore, the authors described role models as representations to evaluate personal fit within a specialty and likened the process to “trying on possible selves” (p. 540). These results are comparable to the processes of imitating and envisioning in this study where participants sought out specialty role models and attempted to see themselves within a specialty or as a specialty physician. Whether or not a participant could see themselves within that specialty had a great impact on their specialty choice.

Medical specialties differ so widely in regard to work settings, duties, and interests that specialties may constitute their own distinct professions (Borges and Savickas, 2002). While professional identities are certainly forming in medical school, the process of exploring specialty choices may steer medical students toward the formation of a professional identity that is more consistent with their future identity as a practicing physician. Pratt et al. (2006) noted a generalized professional identity among first-year residents in internal medicine, surgery, and radiology specialties and argued this was likely a manifestation of fairly uniform undergraduate medical education curriculum and clinical experiences. The residents then built onto their

professional identities and customized them to fit within their chosen specialty. However, the residents had expectations of their role within the specialty which did not match with their reality and necessitated identity customization processes. This suggests that the perceptions medical students create about their chosen specialty during the specialty selection process may be conflated and impact how residents customize their professional identities in residency.

While it was not of concern for any participant in this study, students who are experiencing career indecision at the start of fourth-year are often encouraged to take a personality assessment to assist in identifying specialties that are best fit for their personality (Levine et al., 2010). In a review of the literature on relationships between personality factors and medical specialties, Borges and Savickas (2002) determined there was more variation in personality traits within specialties than between them. The authors advise medical students not to rely entirely on results of personality assessments in specialty selection, but to identify specialties that attract their interests, meet their personal and professional goals, and align with their values.

#### **Implications of Specialty Choice and PIF**

While the majority of participants in this study were not experiencing career indecision, the participants did attempt to match their personality to specialties. However, personality is just one aspect of identity that influences professional identity and professional choices (Levine et al., 2010). Medical students should be encouraged to explore specialties that meet their interests, personal and professional goals, and values in order to discover a specialty is a good fit for who they want to be as a physician. Providing medical students with early opportunities to shadow physicians in varying specialties may allow them to connect to a specialty sooner and spend more time envisioning themselves within that specialty during third- and fourth-year clerkship rotations.

### *Forming Identity as the “Good Doctor”*

One goal of medical education is to impart the values, attitudes, and character of a good doctor to medical students. The participants in this study discussed the values and characteristics of the good doctor extensively before entering the clinic daily during clerkship rotations. In the second year, participants had certain expectations of good physicians and actively evaluated physicians they observed for demonstrations of those characteristics. However, the importance of certain attributes often changed with new experiences.

As a whole, the list of traits and values of the good doctor compiled by participants is consistent with expected values and characteristics of physicians from the standpoint of patients (Bendapudi et al., 2006), medical students (Hafferty, 2002; Rudland and Mires, 2005; Maudsley et al., 2007), medical residents (Wright, 1996), and medical educators (Pellegrino, 2002). While Monrouxe (2009a) established that medical students developed their professional identities in the context of their idealized notions of a good doctor, she did not elaborate on specific characteristics or values. Other research has discussed how particular characteristics and/or values impact professional identities, such as caring (Konkin and Suddards, 2012) and competence (MacLeod, 2011).

Altruism has been characterized as a fundamental value of physicians (MacLeod, 2011) and is often described as the central construct of the social contract between physicians and patients (Pellegrino, 2002). However, altruism was the least commonly cited value by participants in this study and when it was discussed, it was simply used to describe physicians who go above and beyond for their patients, rather than placing patient interests above their own. This is an interesting finding as the first objective of the professionalism competency at IUSM relates to altruism and stipulates that graduates will “be responsive to the whole patient in a manner that supersedes self-interest... by employing strategies to reduce the effect of their

own needs, beliefs, values, interests, vulnerabilities, conflicts and biases on patient care” (IUSM, 2017). The apparent absence of this professional value may be reflective of role modeling that does not exemplify or make altruism an explicit attribute, or a failure of the administration to formally emphasize its importance. After interviewing matriculating medical students, Hafferty (2002) came to a more grim conclusion that medical students have a fundamental misunderstanding of altruism as a core professional value and, therefore, have no appreciation of what it means to be a physician. As discussions of work-life balance far outweighed those of beneficence, it does appear as if current medical students are prioritizing lifestyle choices over one of the classic virtues of being a doctor.

While today it is considered an explicit goal of medical education to impart the values of the profession, throughout history it was assumed that a medical student’s character was fully developed upon admission to medical school (Kenny et al., 2003). Hitlin (2003) conceptualized that values are an intrinsic aspect of personal identity and individuals define themselves in terms of the values they hold, such that, behaviors are enacted as a result of value-identities and can dictate how one reacts within a specific situation. Following experiences, reflection on those values can result in shifts in one’s sense of self and can also shape other identities and behaviors. Indeed, most participants held the vast majority of the values and characteristics of the good doctor as important to their sense of self as a future physician. However, when they had experiences in which they enacted that value as a part of their identity, it often became enriched and the participants gained a deeper understanding of that value within their professional identities.

Even though participants were in general agreement about the characteristics of the good doctor, there was a degree of variability in the importance of some qualities. Hitlin (2003) concluded that values are hierarchical and individuals may place greater priority on one value

over another. He claims that the hierarchy of values could explain why even though there is a commonality of values among members of a social group, there exist value differences between individual members. One goal of medical education is to impart the values of the profession onto its future members (Maudsley et al., 2007), however, research indicates that medical educators may not be effective at producing physicians that all share the standards and values that are desirable of a member of the medical profession (Stern, 1998; Hafferty, 2002; Frost and Regehr, 2013). The results of this study indicate the process of prioritizing values results in differential internalization of those attributes and is often based on a sense of mutual exclusivity, as one value is deemed more important than another within a particular context.

Prioritizing was the process used by the participants to hierarchically structure the importance of the values of the good doctor to their professional identities. Even though one goal of medical education is to cultivate humanistic values, the focus on biomedical knowledge and technical skills often dominates over interpersonal characteristics (Li, 2006). MacLeod (2011) investigated how discourses of caring and competence influence professional identities and discovered professional identities of competence to be most common; however, each value was emphasized depending on context. Participants in this study did indeed prioritize some values of the good doctor over others, with caring, competence, and duty being the most commonly prioritized. However, while the prioritization of competence over caring was often contextual (e.g., surgeons prioritize competence over caring in the OR), for those participants who prioritized caring over competence, caring was viewed as an essential value regardless of context.

Of the characteristics of the good doctor, being empathetic and caring are how most beginning medical students envision themselves as future physicians. However, Haas and Shaffir (1977) view these qualities as idealistic and suggest medical student idealism is fated to wane

due to the stringencies of the curriculum and as they adopt the emotionally neutral ideology of the medical professional. They argue that waning idealism manifests in emotional detachment and objectification of the patient. At the end of this study, most participants were idealistic and this was particularly evident when discussing specialty choice. The few who appeared less idealistic had become jaded about the intrinsic aspects of the clerkship process, such as evaluations and the grueling hours. However, some participants were certainly complicit in the objectification of patients, for example, observing a patient disparaged while under anesthesia in the OR and not reporting the unprofessional behavior nor confronting the offender. These results are worrying as those who witness unethical behaviors are significantly more likely to act unethically themselves and to feel an erosion in their professional values (Feudtner et al., 1994).

Detachment was used as a coping mechanism to contend with situations where physicians did not meet participants' idealized notions of the good doctor. Detachment from patients has been reported in medical students with declining idealism and becoming overwhelmed with the emotional aspects of medicine (Haas and Shaffir, 1977). A few participants discussed the need to emotionally detach from patients during significant, emotional experiences (e.g., end-of-life, palliation) in order to remain objective and save a part of themselves for life outside of medicine. Others may have felt detached because they lacked the experience to appropriately display characteristics of the good doctor, such as empathy. While detaching from caring and empathy were relatively rare for participants in this study, research indicates detachment is a common theme throughout medical education (Madill and Latchford, 2005; Monrouxe, 2009a), with a steep decline in empathy over the third year of medical school, particularly in males and in those entering technical specialties (e.g., surgery, anesthesia) (Hojat et al., 2009). This might explain why detachment and loss of idealism were

less prominent themes in this study as more than half of the participants were female and six of nine participants discussed entering medical rather than technical specialties.

Observation of physician role models is the most powerful force in shaping medical students opinions about the professional values and characteristics of the good doctor (Pellegrino, 2002; Hendelman and Byszewski, 2014). Teaching of professional values is found primarily in the informal curriculum, during observations of and interactions with role models (Stern, 1998). Medical students look to physician role models as exemplars of the good doctor and form their professional identities by emulating desired characteristics, knowledge, and skills (Weaver et al., 2011; Wong and Trollope-Kumar, 2014). Furthermore, this study demonstrates that medical students choose role models who exude characteristics consistent with their personal and desired professional values. Encountering an exceptional role model has been shown to be a particularly meaningful event for medical students (Murinson et al., 2010) and for some participants in this study it was described as the most significant event of their third year of medical school. Identifying a significant role model gave many participants not only an exemplar to emulate, but also allowed them to see who they could be as a physician.

### **Implications of Forming Identity as the Good Doctor**

Professional identity formation occurs throughout a physician's career but the most significant changes may take place early in training concurrently with formative development (Cruess et al., 2014). Indeed, while each of the processes of identity formation resulted in a transformation of professional identity, the process of internalizing values and characteristics of the good doctor was the most malleable process. This suggests that with appropriate targeting in the curriculum, institutions can foster appropriate values and characteristics in medical students. While medical education is unlikely to fully remove previously held values (Hafferty and Franks, 1994), educational experiences could be structured in a way to enrich and prioritize



certain core professional values. There was usually a degree of discontent when considering prioritizing values, which suggests it would benefit medical educators to explicitly address these areas of common concern (e.g., prioritizing timeliness over thorough interactions with patients), particularly during role modeling. The experiences that impacted a significant change in medical students' perceptions of the good doctor were role modeling of attributes (good and bad) and having opportunities to demonstrate characteristics to patients.

Physician role models need to make the characteristics and behaviors they are role modeling explicit by becoming more consciously aware of what they are modeling, debriefing with the students following the patient interaction, and consciously articulating what is being modeled, when possible (Cruess et al., 2008). The most impactful experiences cited by participants were observing physicians in extremely emotional situations, such as delivering bad news, discussing end-of-life care, and withdrawing life-support. These are prime situations to model values of the good doctor. However, it is particularly important to debrief after these events not only because of their emotional nature, but because medical students may have difficulty envisioning themselves performing in these situations later in their careers. Specifically, physicians need to make the implicit explicit by explaining their approach in the situation, how they think it went, and how the encounter has impacted them (Cruess et al., 2008). Explicit role modeling is also a valuable method to give medical students a feeling that they are a part of the team and their voice matters in patient care (Dornan et al., 2007).

Research suggests that some medical students may unconsciously replicate unethical and unprofessional behaviors observed in physician role models (Feudtner et al., 1994). While participants admitted the problematic nature of observing unprofessional behaviors, they felt as if they were well-equipped to evaluate those negative behaviors and filed them under "*what not to do* as a physician." Many claimed that the reflective nature of the audio diary prompts made

them more aware of the behaviors the physicians were modeling and without reflecting they may not have consciously evaluated the physicians they observed. These results suggest that giving medical students platforms to reflect on professional dilemmas may equip them to consciously assess poor behavior and reduce internalization and replication of these behaviors.

A curriculum transformation at IUSM nearly two decades ago targeted the informal curriculum to reinforce professional values (Suchman et al., 2004), and while changes may have initially been effective (Litzelman and Cottingham, 2007), some physicians continue to demonstrate behaviors that conflict with the values of the institution. Witnessing physicians behaving counter to their perceptions of the good doctor was particularly challenging for participants. In the absence of broad oversight and sweeping changes to institutional culture, the next best solution may be to arm medical students with examples of what they may experience in the clinic (perhaps using the previous cohort's internal medicine professionalism journals of both exemplary and poor behaviors) and open a lively discussion about the reflections. Facilitated by a clinician, students could be encouraged to discuss the characteristics of good doctors and why they are important to patients, physicians, and society as a whole.

### **Discussion of Professionalism Transformation**

Analyses of interviews and audio diaries, as well as results from the Professionalism Assessment Tools (PATs), revealed that the participants' perceptions of professionalism and their own professionalism behaviors transformed across the second and third years of medical school. From the literature on professionalism, Monrouxe et al. (2011) categorized several broad discourses of professionalism that included individual, collective, interpersonal, and complexity. Similarly, Epstein and Hundert (2002) created a framework for assessment of professionalism that included cognitive, technical, contextual, relational, and moral dimensions.

Students who included more dimensions or categories of professionalism in their discussions were described as having a more refined understanding of professionalism (Monrouxe et al., 2011). Participants drew on their experiences in the clerkships to expand their understanding of professionalism and many concluded professionalism was far more complex and nuanced than they had come to understand in the first two years of medical school.

As participants described their experiences with professionalism, their perceptions of professionalism and what it meant to be a professional were comparable to medical student definitions in the literature (Hafferty, 2002; Jha et al., 2006; Wagner et al., 2007). These results were similar to a cross-sectional analysis of pre-clinical and clinical students, where the majority of participants in second-year focused on individual aspects of professionalism and discussions in third-year expanded to include professionalism as collective, interpersonal, and complexity. While the cross-sectional results of Monrouxe et al. (2011) suggest understanding of professionalism changes over time, the longitudinal results of this study conclude that it does, as most participants reported a transformation in their perceptions of professionalism with experiences in the clinic. These results support Whitcomb (2005) who asserts professionalism is learned through personal experiences as students learn what it means to be a professional physician and to act in the interests of their patients and the society they serve.

The results of the PAT analysis confirmed participants' discussions about the transformation in their understanding of professionalism. The PAT is a validated, self-reported measure of professionalism behaviors that was validated on pharmacy students. The tool, however, has not been validated for use in other professional programs or for longitudinal use but the authors extended a claim that future research should examine these possibilities (Kelley et al., 2011). Nevertheless, the domains and the items within them were felt to be appropriate for use in this study to evaluate medical students' perceptions of their professionalism

behaviors. Furthermore, even with a small sample size, this study supports the use of this measure to assess professionalism behaviors longitudinally as the participants demonstrated significant improvements in each of the five domains. Based on discussions with participants about the differences between PAT1 and PAT2, individualized reports could allow students to reflect on areas of strength and weakness.

### *Influence of Curriculum on Perceptions of Professionalism*

Debates amongst medical educators regarding professionalism typically revolve around how to best define it, whether or not to assess it, and determining the best method to foster it in medical students (Irby and Hamstra, 2016). The participants claimed interpersonal interactions with faculty (i.e., informal curriculum) had the most profound impact on their perceptions of professionalism. This is consistent with the literature (Birden et al., 2013) and is one of the justifications for a formal inclusion of professionalism in the curriculum to combat modeling of unprofessional behaviors observed in informal interactions and also from the unstated influences of the hidden curriculum (Byszewski et al., 2012). As previously stated, the participants openly admitted the dangers of potentially modeling unprofessional behaviors observed, but felt well-equipped to evaluate which behaviors to emulate. While participants openly admitted to gaining a more complex understanding of professionalism from observations in the clinic, they were seemingly less aware of how formal and hidden curricular attributes influenced their perceptions of professionalism.

Discussions about professionalism in the second year were focused primarily on individual aspects of professionalism centering on conduct, attire, and fulfilling responsibilities and were likely the result of receiving emails from administration which included threats of being assigned an isolated deficiency (ID) in the professionalism competency for not meeting expectations. Many claimed the threats of IDs formally presented professionalism as “what not

to do,” but these participants asserted this presentation was relatively meaningless as they were not explicitly told expectations of professionalism. The irony of threatening students with IDs in the professionalism competency for the above conduct is that the professionalism competency does not include any of those actions within its objectives. However, those expectations are listed under professional conduct in the student handbook. Furthermore, the participants’ discussions of professionalism rarely encompassed all components of professionalism competencies at IUSM. Participants commonly discussed the need to demonstrate compassion, respect, and responsibility for patients and the need to maintain patient privacy and confidentiality. However, there was little discussion of altruism, advocating for diverse populations, ethics, or managing conflicts of interest (IUSM, 2014, 2017).

Monrouxe et al. (2011) concluded professionalism cannot be formally taught using static policy documents and lectures alone. The authors discovered differences in understanding of professionalism between pre-clinical and clinical medical students at three medical schools with varying formal presentations of professionalism. Students who took part in formal small group sessions about professionalism led by clinicians had the most sophisticated understandings of professionalism, while students at institutions that relied on policy documents to formally convey professionalism had difficulty conveying their understanding of professionalism. Students in this study reported very little formal introduction to professionalism with a few citing a specific professionalism session in ICMI and an emphasis on professionalism during the Internal Medicine clerkship. Within the student handbook at IUSM resides policy documents on professionalism including dress code, mission and core values of professionalism, and professional conduct. Additionally, students can access information on the institution’s core competencies, including the professionalism competency and the included expectations. The degree to which these static policy documents were utilized by participants is unclear as the

documents and other formal professionalism sessions were rarely discussed by participants. However, at the beginning of the second year, in particular, participants had a difficult time conveying their understanding of professionalism and it did not appear participants drew on any of those policy documents during their discussions of professionalism. However, a few participants discussed preceptor-led small group sessions in the internal medicine clerkship where professionalism journals were discussed.

Participants would often claim to be immune to the forces of the informal and hidden curricula by noting behaviors that they would *not* emulate in future practice. However, they would hesitate to label the behavior as unprofessional or unethical and would often attempt to rationalize the action of the physician if they perceived it to not directly harm the patient. This is consistent with what Coulehan (2005) describes as “nonreflective professionalism” where medical students consciously adhere to traditional medical values while unconsciously rationalizing behaviors on opposing values, under the assumption that poor behaviors simply characterize the complexities of medicine (p. 895). Since there was no observational component to this study, it is unclear whether participants’ nonreflective understanding of professionalism influenced their own behaviors but many did not consider the hypocrisy in some of their reflections on professionalism. Coulehan (2005) proposes promoting a narrative-based professionalism approach, versus a competency-based approach, to immerse medical students in their own experiences and those of others to allow them to bear witness to the ways they conduct themselves.

### **Implications for the Influence of Curriculum on Perceptions of Professionalism**

For some medical students, the word “professionalism” invokes negative emotions as professionalism education often focuses on how students behave *unprofessionally* rather than what it means to *be a professional* (Leo and Eagen, 2008). The manner in which professionalism

was formally received (and perceived) in the second year by participants created a strong negative perception of professionalism. For some, it was difficult to strip away their negative opinion and this resulted in an impediment to a complex understanding of professionalism in the context of medicine. Medical educators need to be aware of how messages about professionalism are perceived by medical students. If professionalism is going to be assessed as a competency, educators need to be clear about expectations for grading within that competency. Specifically, the administration must clarify whether behaviors that fall under the auspices of “professional conduct policies” and “core values of professionalism” are also to be graded as professionalism competencies or if they are to be evaluated elsewhere. However, educators must bear in mind that a formal presentation of professionalism emphasizing individual aspects of professionalism and conduct may result in medical students misunderstanding the collective importance of professionalism to medicine.

Overall, there was not a strong sentiment of understanding professionalism as a social contract between physicians and the society they serve. Indeed, it is argued that the danger in conveying professionalism as a list of competencies or behaviors is that the reason for creating such lists is lost (Wynia et al., 2014). In a competency-based curriculum, professionalism must be formally addressed to ensure that professionalism is not considered a threat or coercion tool to control students’ behavior and cannot be reduced to a list of behaviors that students can check off. This researcher recommends medical educators adopt the ABMS definition to formally present professionalism. In its short form, states:

Medical professionalism is a belief system about how best to organize and deliver health care, which calls on group members to jointly declare (“profess”) what the public and individual patients can expect regarding shared competency standards and ethical values, and to implement trustworthy means to ensure that all medical professionals live up to these promises (2012, pg.2).

Within this framework, professionalism can further be articulated into competencies, behaviors, and values, but all aspects of professionalism are understood in the context of medicine's social contract with society. Professionalism education often focuses on how to act professionally, but teaching professionalism as the social contract will emphasize why professionalism is important to medicine (Cruess and Cruess, 2008).

This study demonstrates that the informal and hidden curricula are continuing to cultivate attitudes and beliefs antithetical to the mission of medical education. Foremost, physicians are continuing to model unprofessional behaviors and values to medical students (Karnieli-Miller et al., 2010). While it was certainly not the experience of all participants, many discussed a "culture" within surgery that was far more likely than other specialties to act unprofessionally by disrespecting and objectifying patients. Even with measures in place for reporting mistreatment (e.g., Teacher Learner Advocacy Committee [TLAC]), students feared repercussions for reporting unprofessional behavior, particularly of those who would be evaluating them. This suggests the hidden curriculum is exerting a more powerful force than the formal curriculum as values of obedience, allegiance to hierarchy, emotional detachment, and objectification are triumphing over professionalism (Reddy et al., 2007). These results suggest IUSM needs to convey professionalism as a necessary attribute for every person in the AHC and give students additional approaches to resolve conflicts in the hidden curriculum. Hafferty and Franks (1994) contend the issue with the hidden curriculum is not to completely rid the institution of impurities, but to recognize their presence and to take steps to counter the undesirable elements.

The results of this study illuminate two potential avenues to foster complex understandings of professionalism and to cope with how curricula influence those perceptions. First, when speaking about clinician-led small group discussions on professionalism in the



internal medicine clerkship, participants had complex deliberations about the meaning of professionalism. Others have established small-group, case-based discussions as being particularly beneficial and effective at conveying professionalism (Monrouxe et al., 2011; Byszewski et al., 2012). Implementing case-based discussions of professionalism in the preclinical years may assist medical students in navigating the complexities of professionalism and create a more nuanced understanding before entering the clinic. Second, participants demonstrated more sophisticated understandings of professionalism during clerkships which may have been fostered through immersion in a clinical setting and using the audio diaries as a reflective medium to make meaning of their experiences. Medical educators should encourage reflections about professionalism during early clinical experiences and throughout clerkship rotations as reflecting on experiences assists students in understanding and analyzing professionalism (Stark et al., 2006). These two methods will allow medical students to contend with competing messages about professionalism from the formal, informal, and hidden curricula (Monrouxe et al., 2011) and may result in decreased likelihood for professionalism lapses (Hoffman, 2014).

### **Discussion of the Influence of Professionalism on PIF**

Based on the results of this study it is clear that professionalism and PIF are intrinsically linked. The PIF process of internalizing professional values and characteristics relates to one component of professionalism, holding and enacting the values of the profession. Medical students enter medical education with vague understandings of professional values but are uncertain of their importance to patients, the profession, and to the professional identity of physicians. Furthermore, medical students lack the experience to be able to demonstrate the core professional values of good doctors to patients. During their training they are not only

learning how to enact professional values (i.e., professionalism) but are understanding the importance of those values to who they want to be as physicians (i.e., professional identity).

Several researchers have hypothesized on the relationships between professionalism and professional identity. Some have proposed PIF is a necessary foundation of professionalism (Crossley and Vivekananda-Schmidt, 2009) while others contend the purpose of professionalism education is to assist students in forming a professional identity (Cruess et al., 2016). Others have proposed framing professionalism in the context of PIF and becoming a good doctor. Proponents of this framework claim internalizing professional values and forming a professional identity results in demonstration of professionalism (Martimianakis et al., 2009; Irby and Hamstra, 2016). Participants in this study evaluated physicians' professionalism and considered their behaviors to be outward manifestations of their internal values and professional identities. After observing a trait or behavior in a physician, participants would reflect on whether it was something the participant would or would not want to emulate in the future. When given the opportunity, those values were enacted, increasing their importance, and leading to the internalization of those values into their professional identities. Therefore, it appears as if an understanding of professionalism is necessary to first begin internalizing professional values by determining the salience of those traits to who the student wants to be as a physician. Professionalism can then be consciously demonstrated as a result of internalizing those values as a component of their professional identity.

#### *Implications of Professionalism and PIF*

While it was not the purpose of this study to discuss assessment strategies for professionalism and professional identity, several authors have recommended frameworks for the assessment of PIF based on professionalism frameworks (Cruess et al., 2016) and stage-theory models (Kalet et al., 2017). While the results of this study suggest PIF should be formally

discussed and implemented in the medical curriculum, assessing it may be problematic for several reasons. First, the models proposed as frameworks did not encompass the breadth of variation in PIF of students in this study, focused on skill and value acquisition, and neglected individual and social aspects of PIF that are nonetheless important to the process. Secondly, medical students feel an extreme amount of pressure from the sheer number of high-stakes examinations and uncertainty about their performance and ability to endure training can result in doubt and inhibition of PIF. Even if PIF was formatively, rather than summatively assessed, students may still feel doubt if their scores were not as high as expected or if were found to be lower than their peers (Kalet et al., 2017). Finally, the results of this study demonstrate the importance of feedback to PIF, and therefore, PIF should not be assessed unless mechanisms have been firmly established to provide students with appropriate, constructive, and actionable feedback on their results. These assessments could be detrimental if educators could not give medical students actionable suggestions to advance their low PIF scores.

The results of this study demonstrate that greater attention to professionalism and PIF benefits students by making them more consciously aware of how others are exemplifying profession and of their own professional development. However, participants initially had difficulty parsing out the differences between professionalism and PIF. Once they began to evaluate the professionalism of others and reflect on how those experiences influenced who they wanted to be as a physician, the differences became clearer. When considering integrating PIF into medical curriculum, it is important that medical students understand the difference between the two constructs: PIF is the process of *becoming a physician* while professionalism is *how physicians meet expectations* of patients and society.

Reflection has been shown to be an invaluable means to gain a deeper understanding of professionalism and PIF (Rucker and Shapiro, 2003). Furthermore, thinking reflectively and

critically are necessary skills for physicians to make meaning from their decisions and improve clinical reasoning (Swick, 2000). Encouraging reflections on professionalism and professional identity concurrently may increase relevance to medical students as they can attend to their own development as future physicians and begin to understand the importance of professionalism to medicine. Reflections on significant experiences could use the following template: Describe the experience. How did the experience challenge/confirm your understanding of professionalism or attributes of a good doctor? What did you learn from this experience? What did you learn about yourself from this experience? How would you have handled the situation? How has this experience shaped who you want to be as a physician?

While medical students may be sure they want to be doctors, they may be unsure of the doctor they want to be. Evaluating the professionalism of physicians gave the participants ideas of who they could be as physicians. The results of this study indicate an understanding of professionalism is necessary for developing a professional identity. However, framing professionalism in the context of the social contract may assist in the development of a professional identity that is more consistent with the characteristics and values expected of medical students as they become physicians. Professionalism, as the social contract, refocuses professionalism education as a framework for preserving trust of patients and society and may make the term more meaningful for medical students (Leo and Eagen, 2008). Without the social contract, the true meaning of being a physician may be lost (Hafferty, 2002).

Cruess et al. (2014) propose shifting attention away from professionalism and toward PIF. That is, shifting from doing the work of a physician toward becoming a physician. While these two constructs are related, they are not mutually exclusive and professionalism education need not be abandoned. Part of how medical students develop a professional identity is learning to do the work of a physician and internalizing the values and characteristics of physicians.

Medical students observe and evaluate the professionalism of physicians and incorporate those attributes into their developing professional identities. Explicit discussions and reflections on professionalization may allow medical students to attend to their understanding of professionalism, how socializing aspects of medical school are influencing their professional identities, and characteristics they expect of good physicians and of themselves as future physicians.

### **Limitations**

While attempts were made to minimize confounding factors and potential sources of bias, this research is not without limitations. Concerns regarding the generalizability of the results, participant demographics, campus assignment, self-selection bias, solicitation of audio diaries, analyzing from audio files, inter-rater reliability, and choice of professionalism measurement tool all need to be addressed.

### ***Generalizability***

This study occurred at one institution, with one cohort, and a limited number of medical students. One must be careful when generalizing these results to other institutions or cohorts at IUSM. However, by providing results with rich descriptions, one can evaluate whether these results are transferable to other medical students and medical institutions who have had similar experiences (Lincoln and Guba, 1985).

Of note, the participants cited a general discord between the cohort and the administration that they felt was borne out of a mutual feeling of one not meeting the other's expectations. From the administration, it included the students dressing inappropriately, not responding to emails in a timely manner, and not attending required events or lectures. From the students, it included the administration not meeting expectations with regard to getting

their third-year schedules to them in a timely manner. The professionalism theme of Threat was likely manifested from this adverse relationship between the cohort and administration and may not have been a prominent theme if data had been collected from another cohort. Regardless, this theme demonstrates how the formal curriculum, whether it is in the form of lectures, policy documents, or communication from administration, does have an impact on medical students' perceptions of professionalism.

### *Participant Demographics*

Participants were solicited for participation in this study randomly from a roster of MS2s at IUSM, Indianapolis campus. Following the solicitation email, participants then decided whether they agreed to participate in the study. Since participants self-selected for the study, the sample of participants does not represent the diversity of their cohort. Thus, there is an overrepresentation of females (63%) and underrepresented minorities (45%).

### *Campus Assignment*

Medical students from the Indianapolis campus were recruited to participate in the study due to their proximity to the researcher to facilitate in-person, rather than video or phone interviews. However, one participant from a regional campus was solicited and agreed to participate as that participant had recently transferred to the regional campus. Experiences in medical education have a profound impact on how professional identity is formed and the experiences of the participant at the regional campus was at times markedly different from participants at the academic health center (AHC) in Indianapolis. Having one participant at a regional campus provided the study with additional richness of the experiences of a medical student interacting with patients and physician role models at rural clinics and hospitals rather than an AHC. Having one participant situated in a more rural locale in Indiana highlighted another potential limitation of this study in that medical students at regional campuses are

exposed to different experiences and, therefore, may form their professional identities differently.

### *Self-Selection Bias*

The participants who agreed to participate in this study may have already had an interest in professional identity formation and/or professionalism. Their perceptions of PIF and professionalism may be different than those who declined participation in the study and others in their cohort who were not recruited.

### *Solicitation of Audio Diaries*

A solicited audio diary protocol was selected to collect a comparable quantity of audio diaries from participants and to reduce a potential bias from unequal representation of data. It was decided to solicit diaries at two-month intervals as to not overwhelm participants with study-related tasks during their already heavy medical school curriculum. However, there are a few potential limitations with this solicited audio diary protocol. First, for some audio diaries participants only responded to the directed prompts generated from previous audio diary prompts and would not respond to the final three questions that appeared on every audio diary asking about their particular experiences with professional identity formation and professionalism (See appendix B). For some, they had difficulty recalling experiences they had over the past two months, while others claimed to not have had any such experiences. Many resorted to writing down their significant experiences or submitting an audio diary once they had one worth discussing. Perhaps if the audio diaries were unsolicited and participants were encouraged to submit an audio diary when they had a significant experience, participants may have had more experiences to discuss. However, few participants were timely with their submission of audio diaries and several would wait until the final reminder to submit their audio

diary. This suggests that had the researcher implemented an unsolicited audio diary protocol there may be been fewer audio diary submissions.

### *Analyzing from Audio Files*

Proponents of transcribing audio data may consider analyzing from audio files, rather than transcribing audio verbatim, to be a limitation of this research. However, analyzing from audio files is becoming increasingly accepted among qualitative researchers because it maintains the voice of the participant and is far less time consuming (Tessier, 2012). Furthermore, OneNote was a very useful platform for data analysis as the codes could be saved among the audio files and the codes were easily populated and aggregated using the search function. Lastly, codes were easily listened to by simply playing the play button next to the code, thus keeping the data in its original form.

### *Inter-rater Reliability*

Only one researcher coded and analyzed the data. While it likely would not have been feasible for an additional researcher to code the entire dataset, a common method of inter-rater reliability is to have another researcher code a segment of data and compare coding. However, due to the longitudinal nature of the study, the amount of data to analyze, and the familiarity of the researcher with the data, an analysis of inter-rater reliability from a segment of data would be unlikely to produce any substantial changes to the thematic analysis (Morse, 1997).

### *Choice of Professionalism Measurement Tool*

The Professionalism Assessment Tool (PAT) was chosen to supplement qualitative data about the participants' perceptions of professionalism because it is a self-reported measure of professionalism behaviors. However, the tool has not been validated on medical students, nor has it been validated for longitudinal use (Kelley et al., 2011). Furthermore, while the performance-level descriptors on the scale were designed to minimize ceiling effects, they



created a degree of confusion and the participants likely needed more direction on how to address each item using the scale. For example, participants had difficulty determining whether “Shows” meant that they had *actually performed* the behavior or, if given the opportunity, they would be *able to perform* the behavior. This discrepancy could have exaggerated significant differences between PAT1 and PAT2 as participants claimed to not have the opportunity to perform many of the behaviors on the PAT until after they had entered the clinic in the third year. However, most were able to correctly identify areas of improvement within the PAT before seeing their results and elaborated on how they felt they had transformed across the study period.

### **Future Directions**

To the researcher’s knowledge, this study was the first to (1) examine processes used by medical students to form professional identity during the second and third years of medical school, (2) explore how perceptions of professionalism in medical students transformed across the second and third years of medical school, and (3) investigate how medical students perceive professionalism influences PIF. While this study has presented a cohesive picture of how professional identity is formed in second and third year medical students and how professionalism influences the developmental process, there are several key areas for future research.

This study bounded participation to MS2s at the Indianapolis campus for the purpose of convenience and in-person interviewing. The inclusion of one participant from a regional campus illuminated the value of examining PIF and professionalism perceptions of medical students at regional campuses. A benefit of this research is that it investigated PIF in the context (i.e., student experiences) in which the developmental process was occurring. Since regional

campuses provide medical students with different educational contexts than the Indianapolis campus (i.e., an urban, academic health center), future research is needed to investigate PIF of medical students at regional and rural campuses to determine if they develop their professional identities differently than students at urban campuses and AHCs. Furthermore, since perceptions of professionalism are heavily influenced by context, future research is needed to investigate how perceptions of professionalism transform in medical students at regional campuses.

Since doubting had a significant negative impact on PIF in this study, it warrants additional research to investigate doubt, tolerance for ambiguity, and the processes that contribute to persistence or withdrawing from medical education. During a recent curriculum reform, IUSM transformed the pre-clinical curriculum from a grade-based to a pass/fail system (among other modifications). Grading on a pass/fail scale is associated with increased medical student well-being, reduced stress, and eased anxiety (Bloodgood et al., 2009). One source of doubt in this study was as result of examination performance and relative standing among peers. For that reason, it would be worthwhile to investigate whether the pass/fail grading system reduces medical student doubt. However, a longitudinal analysis may be more beneficial as students in pass/fail grading systems will still have the pressure to perform well on licensing examinations later in medical school (e.g., taking the USMLE Step 1 at the end of the second year). Pressure to perform well on the Step 1 created a substantial amount of stress and anxiety among participants in this study.

By the end of the third year, participants had discussed a relative hierarchy of values important to their professional identities. While there was sufficient variation in priority of values among participants, the sample was too small to make any inferences on prioritization of values of the good doctor based on specialty choice. Future research should investigate if

medical students begin to align their values with members of their chosen specialty beginning in medical school. This might explain some of the variability among the importance of specific professional values. In a study of surgery culture, Cope et al. (2017) examined the values and behaviors of residents and attendings to determine whether they transformed during surgical training. The authors found several values and behaviors of surgery residents were incorporated during training primarily through role modeling of attendings. This suggests that residents bring their value structure created from undergraduate medical education into residency, but training has a significant impact on internalization of values. Additionally, a future study should evaluate the hierarchy of values among medical specialties and investigate how aspects of residency training transform professional values and characteristics.

A future study should implement PAT to a larger cohort of medical students to validate its use in this population and also for longitudinal assessment of professionalism behaviors. Based on the small sample in this study, there appears to be utility in using this tool across all four years of medical education. For PAT1, most participants selected “Knows How/Shows” while in PAT2 most participants felt they had improved to “Shows/Shows How,” with average item scores of 2.7 and 3.7, respectively. It would be worthwhile to provide first-year medical students with the survey to determine a baseline of their understanding of professionalism behaviors at matriculation and then to provide the students with the survey again at the end of second year and before graduation.

## **Conclusions**

Professional identity formation is central to the process of becoming a physician. The results of this study provide contextual evidence of processes that medical educators can emphasize to assist medical students in the formation of a professional identity. Reflection on

PIF may assist medical students in understanding how they are connecting to the medical community, how they are adapting to their identity as a medical student, and how their personal values are beginning to align with those of the medical profession and society's expectations of good doctors. Furthermore, these results suggest that PIF can be fostered in early clinical experiences by setting goals for practicing and communicating with deliberate practice and by providing constructive and actionable feedback on clinical performances. As students move into clerkships, opportunities to participate and feel a sense of responsibility in patient care significantly advance PIF. Finally, medical students should be encouraged to shadow physicians early in their training to connect to role models sooner, explore medical specialties, and learn the importance of values and characteristics of the good doctor to their own professional identities.

This study demonstrated how the formal, informal, and hidden curricula impact students' understanding of professionalism across the second and third years of medical school. Experiences with the hidden and informal curriculum need to be formally addressed by medical educators, and medical students should be given additional opportunities to reflect on their experiences to understand how these experiences are influencing their professional development. Furthermore, educators need to be aware that professionalism is being perceived as a threat and coercion tool and to be cognizant of how professionalism is being formally presented. Finally, additional efforts need to be taken to ensure the institution is fostering positive perceptions of professionalism by discussing the meaning of professionalism in terms of the social contract.

The results of this study should be used to guide medical educators in the integration of PIF into undergraduate medical education. This study provides empirical evidence that demonstrates how professionalism influences PIF in medical students. These results indicate

that medical students should be encouraged to evaluate the professionalism of physicians they observe and reflect on how those experiences are influencing their internalization of professional values and characteristics. Furthermore, medical students in this study viewed professionalism as an outward representation of professional identity, and thus, the physicians who exuded professionalism served as exemplars of who they could be as physicians. Educators should incorporate more opportunities for reflection into the medical curriculum to allow students to bear witness to the formation of their professional identities and to understand how interactions with physician role models, patients, and the medical community are influencing this process. Medical students want to become good doctors and reflecting on their development in the context of the social contract is necessary to have a greater awareness of the doctor they are expected to be and the doctor they want to be.

## APPENDIX A: INTERVIEW PROTOCOLS

### Interview 1

- Tell me about background:
- What factors influenced your decision to become a physician?
- What does it mean to be a “medical student”?
- How has professionalism been taught to you so far in your undergraduate medical curriculum?
- Can you give examples as to what would be considered unprofessional behaviors for medical students or physicians?
- What attributes do you think make a good physician?
- What have you learned about professional identity in medical school?
- How would you say your professional identity is developing as you progress through medical school?
- Which factors have influenced the way in which you have constructed your professional identity throughout medical school?
- Can you think of a specific example in which a situation/person acted as a mediator or barrier to the construction of your professional identity?
- What has helped you to navigate through your medical education?
- How have positive/negative experiences influenced the way you construct your professional identity or understand professionalism?
- How have your demographics influenced the way in which you have constructed your professional identity?
- Please discuss your thoughts on the PAT. Which professionalism behaviors did you rate yourself low or high, and why?
- On the items with high performance ratings, how did you learn these professionalism behaviors?
- How important are these professionalism behaviors to your professional identity?

## Interview 2

- How well do you think your preparations helped prepare you for Step 1?
- What were some of the highlights of your second year?
- What were some of the low points of your second year?
- How do you feel that you have developed as an individual during this time?
- What are you most looking forward to in the third year?
- What professional goals do you want to accomplish upon completion of the third year?
- What is going to help you to accomplish these goals?
- What is your lean in specialty choice?
- What is it about your personal or professional identities fits well within that specialty?
- How do you think that your professional identity has developed throughout your second year of medical school?
- How are you beginning to feel more like a doctor?
- Were there any experiences that were particularly meaningful that transformed who you want to be as a physician?
- In thinking about the physician you want to become, which characteristics or attributes are the most important to your PI?
- How did these characteristics become so important to your PI?
- How have your demographics influenced your PI?
- How has your understanding of professionalism transformed throughout your second year of medical school?
- Which influences had the greatest impact on how you understand professionalism?
- What does professionalism mean to physicians?
- What is the importance of professionalism to your professional identity?

### **Interview 3**

- How has the third year of medical school helped you to develop as a professional?
- Which characteristics or values are the most important to your PI?
- How did these characteristics/values become most important to your PI?
- How do you think that your professional identity has developed throughout your third year of medical school?
- How has your personal identity transformed throughout your medical training?
- How did you come to decide on a specialty choice?
- What is it about your identity that fits well within that specialty?
- How does this specialty meet your personal and professional goals?
- How are you beginning to feel more like a doctor?
- What kind of tools have you used to evaluate your professional identity formation?
- How have your experiences in the third year been integrated into your professional identity?
- How have your demographics influenced your PI?
- How would you define medical professionalism?
- How has your understanding of professionalism transformed throughout your third year of medical school?
- Which influences had the greatest impact on how you understand professionalism?
- What kind of tools have you used to evaluate your level of professionalism?
- What is the importance of professionalism to your professional identity?
- How has your specialty choice (or goals as a future physician) influenced the way that you view professionalism?
- In the 5 domains evaluated on the PAT, which, if any do you feel that you have had a significant development on over MS2 and MS3?
- How do you feel that you have developed in those areas?
- Please examine your PAT1 and PAT2 and reflect on your results.



## Appendix B: AUDIO DIARY PROMPTS

### Audio Diary 1

- Do you think professionalism (or professionalism behaviors) should be formally taught/introduced to undergraduate medical students? Why or why not? If so, what types of things should be covered in these lessons?
- How have your medical education courses thus far taught you how to be a doctor and what behaviors are appropriate/inappropriate for doctors? Can you share any examples?
- Since your last audio diary, how have any recent experiences influenced your developing professional identity?
- Since your last audio diary, how have any recent experiences influenced the way that you understand professionalism?
- Since your last audio diary, how have any experiences with professional and/or unprofessional behaviors influenced your developing professional identity?

### Audio Diary 2

- Can behaviors expected of medical professionals such as showing empathy, compassion, and respect be taught in medical school or are those behaviors simply innate? What does this mean for you as a developing medical professional?
- It has been suggested medical students should have more clinical experiences (whether it be through shadowing physicians or having more patient interactions during ICMI and ICMII) during the pre-clinical years. Do you agree/disagree? How would more clinical experience in the pre-clinical years influence your professional identity? Where would this fit into the curriculum and what courses would potentially have to be removed/adjusted?
- Since your last audio diary, how have any recent experiences influenced your developing professional identity?
- Since your last audio diary, how have any recent experiences influenced the way that you understand professionalism?
- Since your last audio diary, how have any experiences with professional and/or unprofessional behaviors influenced your developing professional identity?

### Audio Diary 3

- How much does or will biomedical knowledge (as opposed to clinical skills, interpersonal skills, or any other valued aspect of physician identity) weigh into your professional identity?

- Do you view one aspect of being a physician as more important than others?
- What have you learned from your patients during patient interactions? Specifically, what have patients shared with you about their expectations of physicians and what they perceive to be positive/negative attributes of physicians?
- How have these experiences with patients influenced your developing professional identity?
- Since your last audio diary, how have any recent experiences influenced your developing professional identity?
- Since your last audio diary, how have any recent experiences influenced the way that you understand professionalism?
- Since your last audio diary, how have any experiences with professional and/or unprofessional behaviors influenced your developing professional identity?

#### **Audio Diary 4**

- Have you tried modeling any of the behaviors you have observed in clinical faculty with patients? Please describe the encounter(s).
- How do you think it went?
- How did it make you feel?
- Since your last audio diary, how have any recent experiences influenced your developing professional identity?
- Since your last audio diary, how have any recent experiences influenced the way that you understand professionalism?
- Since your last audio diary, how have any experiences with professional and/or unprofessional behaviors influenced your developing professional identity?

#### **Audio Diary 5**

- What is your initial impression of the clerkship process?
- How are you adapting to your new role as a clerk?
- What do you foresee that might be challenging for you or where you might flourish?
- How have any recent experiences transformed your professional identity or understanding of professionalism?

### **Audio Diary 6**

- How have you been utilizing your basic science and clinical knowledge in your clerkship rotations?
- How are you beginning to feel more confident in your history taking and physical examination skills?
- Since your last audio diary, how have any recent experiences influenced your developing professional identity?
- Since your last audio diary, how have any recent experiences influenced the way that you understand professionalism?
- Since your last audio diary, how have any experiences with professional and/or unprofessional behaviors influenced your developing professional identity?

### **Audio Diary 7**

- What have you learned during your clerkships that you were not taught in your first two years of medical education?
- Since your last audio diary, how have any recent experiences influenced your developing professional identity?
- Since your last audio diary, how have any recent experiences influenced the way that you understand professionalism?
- Since your last audio diary, how have any experiences with professional and/or unprofessional behaviors influenced your developing professional identity?

### **Audio Diary 8**

- How do you think that personality influences a physician's professional identity?
- Which aspects of your personality do you think will contribute the most to your professional identity as a physician?
- Since your last audio diary, how have any recent experiences influenced your developing professional identity?
- Since your last audio diary, how have any recent experiences influenced the way that you understand professionalism?
- Since your last audio diary, how have any experiences with professional and/or unprofessional behaviors influenced your developing professional identity?

### **Audio Diary 9**

- How would you describe the feedback you have been given in your clerkship evaluations and/or the feedback you have received in-person?
- On your clerkship evaluations, do you feel that the feedback (written and scaled) have been reflective of your true abilities? How so?
- How has the feedback you have received impacted your professional identity formation?
- Since your last audio diary, how have any recent experiences influenced the way that you understand professionalism?
- Since your last audio diary, how have any experiences with professional and/or unprofessional behaviors influenced your developing professional identity?

### **Audio Diary 10**

- Please describe the most significant experience you have had over the third year of medical school.
- How has this experience impacted you?
- How has this experience helped you develop as a future physician?
- Since your last audio diary, how have any recent experiences influenced your developing professional identity?
- Since your last audio diary, how have any recent experiences influenced the way that you understand professionalism?
- Since your last audio diary, how have any experiences with professional and/or unprofessional behaviors influenced your developing professional identity?

APPENDIX C: PROFESSIONALISM ASSESSMENT TOOL (PAT)

Confidential

Page 1 of 3

Professionalism Assessment Tool 2

Use the following descriptors to complete the survey below.

Knows I accurately describe the responsibilities in this domain but may perform one or more inconsistently at times.

Knows How I accurately describe the responsibilities in this domain and perform individual responsibilities in a reliable, consistent and accountable manner.

Shows Without prompting or support from instructors, preceptors or managers, I determine when and how to engage in these responsibilities.

Shows How I am confident in assisting others with these responsibilities or proposing or creating options to fulfill these responsibilities.

Teaches How I have mastered these responsibilities and desire to learn more and share my learning with others. I demonstrate maturity, confidence and an ability to educate others in these areas through the use of evidence and strong interpersonal skills.

Thank you!

Citizenship & Professional Engagement

Table with 5 columns: Knows, Knows How, Shows, Shows How, Teaches How. Rows include: Engaging with organizations or communities in a reciprocal learning/teaching situation that applies and generates knowledge for the direct benefit of external audiences; Actively and productively participating in the broader community; Serving society by using expertise to solve problems; Actively and productively participating in the profession.

---

**Reliability, Responsibility, and Accountability**

	Knows	Knows How	Shows	Shows How	Teaches How
Fulfilling responsibilities in a quality manner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fulfilling responsibilities in a reliable manner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Demonstrating accountability and accepting responsibility for own actions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Undertaking activities in a self-directed manner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Demonstrating a desire to exceed expectations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

**Relationships with Others**

	Knows	Knows How	Shows	Shows How	Teaches How
Being sensitive to the needs of peers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Being sensitive to the needs of patients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Relating well to fellow students, staff and faculty in a learning environment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Empathizing with the situations of others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Establishing rapport	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Managing emotions in difficult or stressful situations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Establishing and maintaining appropriate boundaries in work and learning situations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Work with a team to effect change and resolve conflict	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Providing effective and constructive feedback	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

**Upholding Principles of Integrity and Respect**

	Knows	Knows How	Shows	Shows How	Teaches How
Being respectful of colleagues and patients.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Maintaining honesty and integrity in academic and professional contexts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Protecting patient confidentiality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Using professional language and being mindful of the environment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Respecting the diversity of race, gender, religion, sexual orientation, age, disability, or socioeconomic status	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dressing in a professional manner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Resolving conflicts in a manner that respects the dignity of every person involved	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Contributing to an atmosphere conducive to learning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

**Lifelong Learning & Adaptability**

	Knows	Knows How	Shows	Shows How	Teaches How
Evaluating successfulness of learning and documenting competency	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Initiating and implementing personal learning plans	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Incorporating feedback in order to make changes in behavior	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recognizing limitations and seeking help	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Self-assessing to identify strengths and weaknesses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Accepting constructive feedback	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Adapting to change	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## LITERATURE CITED

- AAMC. 2016. U.S. Medical School Applications and Matriculants by School, State of Legal Residence, and Sex, 2016-2017. Washington, DC: Association of American Medical Colleges.
- ABIM. 1995. Project professionalism. Philadelphia, PA: American Board of Internal Medicine.
- ABMS. 2012. ABMS Definition of Medical Professionalism. Chicago, IL: American Board of Medical Specialties.
- Altheide DL. 2000. Identity and the definition of the situation in a mass-mediated context. *Symbolic Interaction* 23:1-27.
- Apker J, Eggly S. 2004. Communicating professional identity in medical socialization: Considering the ideological discourse of morning report. *Qualitative Health Research* 14:411-429.
- Babaria P, Bernheim S, Nunez-Smith M. 2011. Gender and the pre-clinical experiences of female medical students: A taxonomy. *Medical Education* 45:249-260.
- Beagan B. 2001a. Micro inequities and everyday inequalities: " Race," gender, sexuality and class in medical school. *Canadian Journal of Sociology* 26:583-610.
- Beagan BL. 2001b. "Even if I don't know what I'm doing I can make it look like I know what I'm doing": Becoming a doctor in the 1990s. *Canadian Review of Sociology* 38:275-292.
- Bebeau MJ. 2006. Evidence-based character development. In: Kenny N, Shelton W, Eds. Lost virtue: Professional character development in medical education. Netherlands: Elsevier. p 47-86.
- Beck J, Chretien K, Kind T. 2015. Professional identity development through service learning: A qualitative study of first-year medical students volunteering at a medical specialty camp. *Clinical Pediatrics* 54:1276-1282.
- Becker HF, Geer B, Hughes EC, Strause AL. 1961. Boys in white: Student culture in medical school. Chicago, IL: University of Chicago Press.
- Bendapudi NM, Berry LL, Frey KA, Parish JT, Rayburn WL. 2006. Patients' perspectives on ideal physician behaviors. *Mayo Clinic Proceedings* 338-344.
- Beran T, Hecker K, Coderre S, Wright B, Woloschuk W, McLaughlin K. 2011. Ego identity status of medical students in clerkship. *Canadian Medical Education Journal* 2:4-10.
- Birden H, Glass N, Wilson I, Harrison M, Usherwood T, Nass D. 2013. Teaching professionalism in medical education: A Best Evidence Medical Education (BEME) systematic review. BEME Guide No. 25. *Medical Teacher* 35:e1252-e1266.
- Bleakley A, Bligh J, Browne J. 2011. Medical education for the future: Identity, power and location. London: Springer.



- Bloodgood RA, Short JG, Jackson JM, Martindale JR. 2009. A change to pass/fail grading in the first two years at one medical school results in improved psychological well-being. *Academic Medicine* 84:655-662.
- Borges NJ, Savickas ML. 2002. Personality and medical specialty choice: A literature review and integration. *Journal of Career Assessment* 10:362-380.
- Boudreau JD, Macdonald ME, Steinert Y. 2014. Affirming professional identities through an apprenticeship: Insights from a four-year longitudinal case study. *Academic Medicine* 89:1038-1045.
- Branch W, Pels RJ, Lawrence RS, Arky R. 1993. Becoming a doctor: Critical-incident reports from third-year medical students. *New England Journal of Medicine* 329:1130-1133.
- Brater DC. 2007. Viewpoint: Infusing professionalism into a school of medicine: Perspectives from the dean. *Academic Medicine* 82:1094-1097.
- Brosnan C. 2009. Pierre Bourdieu and the theory of medical education. In: Brosnan C, Turner B, Eds. *Handbook of the Sociology of Medical Education*. New York: Routledge. p 51-68.
- Burack JH, Irby DM, Carline JD, Ambrozy DM, Ellsbury KE, Stritter FT. 1997. A study of medical students' specialty-choice pathways: Trying on possible selves. *Academic Medicine* 72:534-541.
- Burford B. 2012. Group processes in medical education: Learning from social identity theory. *Medical Education* 46:143-152.
- Byszewski A, Hendelman W, McGuinty C, Moineau G. 2012. Wanted: Role models-medical students' perceptions of professionalism. *BMC Medical Education* 12:115.
- Castellani B, Hafferty FW. 2006. The complexities of medical professionalism: A preliminary investigation. In: Wear D, Aultman J, Eds. *Professionalism in Medicine: Critical Perspectives*. New York: Kluwer Academic Publishers. p 3-23.
- Caulfield M, Andolsek K, Grbic D, Roskovensky L. 2014. Ambiguity tolerance of students matriculating to US medical schools. *Academic Medicine* 89:1526-1532.
- Cohen JJ. 2007. Viewpoint: linking professionalism to humanism: What it means, why it matters. *Academic Medicine* 82:1029-1032.
- Cohen MJ, Kay A, Youakim JM, Balaicuis JM. 2009. Identity transformation in medical students. *The American Journal of Psychoanalysis* 69:43-52.
- Cooke M, Irby DM, O'Brien BC. 2010. *Educating physicians: A call for reform of medical school and residency*. San Fransisco, CA: Jossey-Bass.
- Cope A, Bezemer J, Mavroveli S, Kneebone R. 2017. What attitudes and values are incorporated into self as part of professional identity construction when becoming a surgeon? *Academic Medicine* 92:544-549.

- Costello CY. 2005. Professional identity crisis: Race, class, gender, and success at professional schools: Vanderbilt University Press.
- Côté JE, Levine CG. 2002. Identity formation, agency, and culture: A social psychological synthesis. Mahwah, NJ: Psychology Press.
- Cottingham AH, Suchman AL, Litzelman DK, Frankel RM, Mossbarger DL, Williamson PR, Baldwin Jr DC, Inui TS. 2008. Enhancing the informal curriculum of a medical school: A case study in organizational culture change. *Journal of General Internal Medicine* 23:715-722.
- Coulehan J. 2005. Today's professionalism: Engaging the mind but not the heart. *Academic Medicine* 80:892-898.
- Creswell JW. 2013. Qualitative inquiry and research design: Choosing among five approaches, 3rd ed. Thousand Oaks, CA: Sage.
- Crossley J, Vivekananda-Schmidt P. 2009. The development and evaluation of a Professional Self Identity Questionnaire to measure evolving professional self-identity in health and social care students. *Medical Teacher* 31:e603-e607.
- Cruess RL, Cruess SR. 2008. Expectations and obligations: Professionalism and medicine's social contract with society. *Perspectives in Biology and Medicine* 51:579-598.
- Cruess RL, Cruess SR, Boudreau JD, Snell L, Steinert Y. 2014. Reframing medical education to support professional identity formation. *Academic Medicine* 89:1446-1451.
- Cruess RL, Cruess SR, Boudreau JD, Snell L, Steinert Y. 2015. A schematic representation of the professional identity formation and socialization of medical students and residents: A guide for medical educators. *Academic Medicine* 90:718-725.
- Cruess RL, Cruess SR, Steinert Y. 2016. Amending Miller's Pyramid to include professional identity formation. *Academic Medicine* 91:180-185.
- Cruess SR, Cruess RL, Steinert Y. 2008. Teaching Rounds: Role modelling - making the most of a powerful teaching strategy. *BMJ* 336:718.
- Daaleman TP, Kinghorn WA, Newton WP, Meador KG. 2011. Rethinking professionalism in medical education through formation. *Family Medicine* 43:325-329.
- DasGupta S, Charon R. 2004. Personal illness narratives: Using reflective writing to teach empathy. *Academic Medicine* 79:351-356.
- De Fina A, Schiffrin D, Bamberg M. 2006a. Discourse and Identity. United Kingdom: Cambridge University Press.
- De Fina A, Schiffrin D, Bamberg M. 2006b. Discourse and identity: Cambridge University Press.
- Doherty EM, Nugent E. 2011. Personality factors and medical training: A review of the literature. *Medical Education* 45:132-140.

- Dornan T, Boshuizen H, King N, Scherpbier A. 2007. Experience-based learning: A model linking the processes and outcomes of medical students' workplace learning. *Medical Education* 41:84-91.
- Dryburgh H. 1999. Work hard, play hard: Women and professionalization in engineering - adapting to the culture. *Gender & Society* 13:664-682.
- Dunatov LJ. 2013. An exploration of emerging professional identity in women osteopathic medical students: Does gender matter? North Carolina State University. p 239.
- Dyrbye LN, Harris I, Rohren CH. 2007. Early clinical experiences from students' perspectives: A qualitative study of narratives. *Academic Medicine* 82:979-988.
- Ellingson LL. 2014. "The truth must dazzle gradually" Enriching relationship research using a crystallization framework. *Journal of Social and Personal Relationships* 31:442-450.
- Epstein RM, Hundert EM. 2002. Defining and assessing professional competence. *JAMA* 287:226-235.
- Ericsson KA. 2004. Deliberate practice and the acquisition and maintenance of expert performance in medicine and related domains. *Academic Medicine* 79:S70-S81.
- Erikson EH. 1968. Identity: Youth and crisis: WW Norton & Company.
- Erlandson DA, Harris EL, Skipper BL, Allen SD. 1993. Doing naturalistic inquiry: A guide to methods. Newbury Park, CA: Sage.
- Farlow JL, Goodwin C, Sevilla J. 2015. Interprofessional education through service-learning: Lessons from a student-led free clinic. *Journal of Interprofessional Care* 29:263-264.
- Feudtner C, Christakis DA, Christakis NA. 1994. Do clinical clerks suffer ethical erosion? Students' perceptions of their ethical environment and personal development. *Academic Medicine* 69:670-679.
- Fnais N, Soobiah C, Chen MH, Lillie E, Perrier L, Tashkhandi M, Straus SE, Mamdani M, Al-Omran M, Tricco AC. 2014. Harassment and discrimination in medical training: A systematic review and meta-analysis. *Academic Medicine* 89:817-827.
- Forsythe GB. 2005. Identity development in professional education. *Academic Medicine* 80:S112-S117.
- Frost HD, Regehr G. 2013. "I am a doctor": Negotiating the discourses of standardization and diversity in professional identity construction. *Academic Medicine* 88:1570-1577.
- Gaufberg EH, Batalden M, Sands R, Bell SK. 2010. The hidden curriculum: What can we learn from third-year medical student narrative reflections? *Academic Medicine* 85:1709-1716.

- Geller G. 2013. Tolerance for ambiguity: An ethics-based criterion for medical student selection. *Academic Medicine* 88:581-584.
- Glaser BG, Strauss AL. 1967. The discovery of grounded theory: Strategies for qualitative research. Chicago, IL: Aldine Publishing Co.
- Goldie J. 2012. The formation of professional identity in medical students: Considerations for educators. *Medical Teacher* 34:e641-e648.
- Grant L. 1988. The gender climate of medical school: Perspectives of women and men students. *Journal of the American Medical Women's Association* 43:109.
- Green MJ. 2015. Comics and medicine: Peering into the process of professional identity formation. *Academic Medicine* 90:774-779.
- Grotevant H. 1987. Toward a process model of identity formation. *Journal of Adolescent Research* 2:203-222.
- Gude T, Vaglum P, Tyssen R, Ekeberg Ø, Hem E, Røvik JO, Finset K, Grønvold NT. 2005. Identification with the role of doctor at the end of medical school: A nationwide longitudinal study. *Medical Education* 39:66-74.
- Haas J, Shaffir W. 1977. The professionalization of medical students: Developing competence and a cloak of competence. *Symbolic Interaction* 1:71-88.
- Haas J, Shaffir W. 1982. Ritual evaluation of competence: The hidden curriculum of professionalization in an innovative medical school program. *Work and Occupations* 9:131-154.
- Hafferty F. 2002. What medical students know about professionalism. *Mount Sinai Journal of Medicine* 69:385-397.
- Hafferty F, Castellani B. 2009. The hidden curriculum. In: Brosnan C, Turner B, Eds. *Handbook of the Sociology of Medicine*. New York: Routledge. p 15-35.
- Hafferty FW. 1998. Beyond curriculum reform: Confronting medicine's hidden curriculum. *Academic Medicine* 73:403-407.
- Hafferty FW, Franks R. 1994. The hidden curriculum, ethics teaching, and the structure of medical education. *Academic Medicine* 69:861-871.
- Haidet P, Hatem DS, Fecile ML, Stein HF, Haley H-LA, Kimmel B, Mossbarger DL, Inui TS. 2008. The role of relationships in the professional formation of physicians: Case report and illustration of an elicitation technique. *Patient Education and Counseling* 72:382-387.
- Haidet P, Stein HF. 2006. The role of the Student-Teacher relationship in the formation of physicians. *Journal of General Internal Medicine* 21:S16-S20.

- Harter LM, Kirby EL. 2004. Socializing medical students in an era of managed care: The ideological significance of standardized and virtual patients. *Communication Studies* 55:48-67.
- Helmich E, Bolhuis S, Dornan T, Laan R, Koopmans R. 2012. Entering medical practice for the very first time: emotional talk, meaning and identity development. *Medical Education* 46:1074-1086.
- Hendelman W, Byszewski A. 2014. Formation of medical student professional identity: Categorizing lapses of professionalism, and the learning environment. *BMC Medical Education* 14:1-10.
- Henry MS. 2006. Uncertainty, responsibility, and the evolution of the physician/patient relationship. *Journal of Medical Ethics* 32:321-323.
- Hilton SR, Slotnick HB. 2005. Proto-professionalism: How professionalisation occurs across the continuum of medical education. *Medical Education* 39:58-65.
- Hitlin S. 2003. Values as the core of personal identity: Drawing links between two theories of self. *Social Psychology Quarterly* 66:118-137.
- Hoffman LA. 2014. An exploration of reflective writing and self-assessments to explain professionalism lapses among medical students. Anatomy and Cell Biology: Indiana University.
- Hojat M, Vergare MJ, Maxwell K, Brainard G, Herrine SK, Isenberg GA, Veloski J, Gonnella JS. 2009. The devil is in the third year: A longitudinal study of erosion of empathy in medical school. *Academic Medicine* 84:1182-1191.
- Holden M, Buck E, Clark M, Szauter K, Trumble J. 2012. Professional identity formation in medical education: The convergence of multiple domains. *HEC Forum* 245-255.
- Holden MD, Buck E, Luk J, Ambriz F, Boisabuin EV, Clark MA, Mihalic AP, Sadler JZ, Sapire KJ, Spike JP. 2015. Professional identity formation: Creating a longitudinal framework through TIME (transformation in medical education). *Academic Medicine* 90:761-767.
- Holtman MC. 2008. A theoretical sketch of medical professionalism as a normative complex. *Advances in Health Sciences Education* 13:233-245.
- Hunt DD, Scott C, Zhong S, Goldstein E. 1996. Frequency and effect of negative comments ("badmouthing") on medical students' career choices. *Academic Medicine* 71:665-669.
- Ibarra H. 1999. Provisional selves: Experimenting with image and identity in professional adaptation. *Administrative Science Quarterly* 44:764-791.
- Inui T. 2003. A flag in the wind: Educating for professionalism in medicine. Washington, DC: Association of American Medical Colleges.

- Inui TS, Cottingham AH, Frankel RM, Litzelman DK, Mossbarger DL, Suchman AL, Vu TR, Williamson PR. 2006. Educating for professionalism at Indiana University School of Medicine. In: Wear D, Aultman J, Eds. *Professionalism in Medicine: Critical Perspectives*. New York: Springer. p 165-184.
- Irby DM, Hamstra SJ. 2016. Parting the clouds: Three professionalism frameworks in medical education. *Academic Medicine* 91:1606-1611.
- IUSM. 2014. Institutional Learning Objectives. <http://mse.medicine.iu.edu/curricular-affairs/curriculum/competencies.html>. Indianapolis, IN: Indiana University School of Medicine.
- IUSM. 2017. Competencies and Institutional Learning Objectives. <https://medicine.iu.edu/education/md/curriculum/competencies/>. Indianapolis, IN: Indiana University School of Medicine.
- Jarvis-Selinger S, Pratt DD, Regehr G. 2012. Competency is not enough: Integrating identity formation into the medical education discourse. *Academic Medicine* 87:1185-1190.
- Jha V, Bekker H, Duffy S, Roberts T. 2006. Perceptions of professionalism in medicine: A qualitative study. *Medical Education* 40:1027-1036.
- Kalet A, Buckvar-Keltz L, Harnik V, Monson V, Hubbard S, Crowe R, Song HS, Yingling S. 2017. Measuring professional identity formation early in medical school. *Medical Teacher* 39:255-261.
- Karnieli-Miller O, Vu TR, Holtman MC, Clyman SG, Inui TS. 2010. Medical students' professionalism narratives: A window on the informal and hidden curriculum. *Academic Medicine* 85:124-133.
- Kegan R. 1982. *Evolving Self*. Cambridge, USA: Harvard University Press.
- Kelley KA, Stanke LD, Rabi SM, Kuba SE, Janke KK. 2011. Cross-validation of an instrument for measuring professionalism behaviors. *American Journal of Pharmaceutical Education* 75:1-9.
- Kenny N. 2006. Searching for doctor good: Virtues for the twenty-first century. In: Kenny N, Shelton W, Eds. *Lost Virtue: Professional character development in medical education*. Netherlands: Elsevier. p 211-233.
- Kenny N, Shelton W. 2006. Introduction. In: Kenny N, Shelton W, Eds. *Lost virtue: Professional character development and medical education*. Netherlands: Elsevier. p xi-xvii.
- Kenny NP, Mann KV, MacLeod H. 2003. Role modeling in physicians' professional formation: reconsidering an essential but untapped educational strategy. *Academic Medicine* 78:1203-1210.

- Konkin J, Suddards C. 2012. Creating stories to live by: caring and professional identity formation in a longitudinal integrated clerkship. *Advances in Health Sciences Education* 17:585-596.
- Langendyk V, Hegazi I, Cowin L, Johnson M, Wilson I. 2015. Imagining alternative professional identities: Reconfiguring professional boundaries between nursing students and medical students. *Academic Medicine* 90:732-737.
- Lave J, Wenger E. 1991. *Situated learning: Legitimate peripheral participation*. Cambridge, UK: Cambridge University Press.
- Lempp H. 2009. Medical-school culture. In: Brosnan C, Turner B, Eds. *Handbook of the Sociology of Medical Education*. New York: Routledge. p 71-88.
- Leo T, Eagen K. 2008. Professionalism education: The medical student response. *Perspectives in Biology and Medicine* 51:508-516.
- Levine RB, Cayea D, Shochet RB, Wright SM. 2010. Case study: A midclerkship crisis—Lessons learned from advising a medical student with career indecision. *Academic Medicine* 85:654-659.
- Li JT. 2006. The quality of caring. *Mayo Clinic Proceedings* 294-296.
- Lincoln YS, Guba EG. 1985. *Naturalistic inquiry*. Beverly Hills, CA: Sage.
- Lingard L, Garwood K, Schryer CF, Spafford MM. 2003. A certain art of uncertainty: Case presentation and the development of professional identity. *Social Science and Medicine* 56:603-616.
- Littlewood S, Ypinazar V, Margolis SA, Scherpbier A, Spencer J, Dornan T. 2005. Early practical experience and the social responsiveness of clinical education: Systematic review. *BMJ* 331:387-391.
- Litzelman DK, Cottingham AH. 2007. The new formal competency-based curriculum and informal curriculum at Indiana University School of Medicine: Overview and five-year analysis. *Academic Medicine* 82:410-421.
- Liu R, Carrese J, Colbert-Getz J, Geller G, Shochet R. 2015. "Am I cut out for this?" Understanding the experience of doubt among first-year medical students. *Medical Teacher* 37:1083-1089.
- Lucey C, Souba W. 2010. Perspective: The problem with the problem of professionalism. *Academic Medicine* 85:1018-1024.
- Luyckx K, Schwartz S, Goossens L, Beyers W, Missotten L. 2011. Processes of personal identity formation and evaluation. In: Schwartz S, Luyckx K, Vignoles V, Eds. *Handbook of Identity Theory and Research*. New York: Springer. p 77-98.

- Lynch DC, Surdyk PM, Eiser AR. 2004. Assessing professionalism: A review of the literature. *Medical Teacher* 26:366-373.
- Lyon P. 2004. A model of teaching and learning in the operating theatre. *Medical Education* 38:1278-1287.
- MacLeod A. 2011. Caring, competence and professional identities in medical education. *Advances in Health Sciences Education* 16:375-394.
- Madill A, Latchford G. 2005. Identity change and the human dissection experience over the first year of medical training. *Social Science and Medicine* 60:1637-1647.
- Mann KV. 2006. Learning and teaching in professional character development. In: Kenny N, Shelton W, Eds. *Lost Virtue: Professional character development in medical education*. Netherlands: Elsevier. p 145-183.
- Mann KV. 2011. Theoretical perspectives in medical education: Past experience and future possibilities. *Medical Education* 45:60-68.
- Marcia JE. 1966. Development and validation of ego-identity status. *Journal of Personality and Social Psychology* 3:551-555.
- Martimianakis MA, Maniate JM, Hodges BD. 2009. Sociological interpretations of professionalism. *Medical Education* 43:829-837.
- Maudsley G, Williams EM, Taylor D. 2007. Junior medical students' notions of a 'good doctor' and related expectations: A mixed methods study. *Medical Education* 41:476-486.
- Mc Kee A, Eraut M. 2011. *Learning trajectories, innovation and identity for professional development*. London: Springer
- Merriam SB. 2009. *Qualitative research: A guide to design and implementation*. San Francisco, CA: Jossey-Bass.
- Merton RK, Reader G, Kendall PL. 1957. *The student physician: Introductory studies in the sociology of medical education*. Cambridge, USA: Harvard University Press.
- Miller GE. 1990. The assessment of clinical skills/competence/performance. *Academic Medicine* 65:S63-67.
- Monrouxe LV. 2009a. Negotiating professional identities: Dominant and contesting narratives in medical students' longitudinal audio diaries. *Current Narratives* 1:41-59.
- Monrouxe LV. 2009b. Solicited audio diaries in longitudinal narrative research: A view from inside. *Qualitative Research* 9:81-103.
- Monrouxe LV. 2010. Identity, identification and medical education: Why should we care? *Medical Education* 44:40-49.



- Monrouxe LV. 2013. Identities, self and medical education. In: Walsh K, Ed. Oxford Textbook of Medical Education. Oxford, UK: Oxford University Press. p 113.
- Monrouxe LV, Rees CE, Hu W. 2011. Differences in medical students' explicit discourses of professionalism: Acting, representing, becoming. *Medical Education* 45:585-602.
- Morse J. 1997. "Perfectly healthy, but dead": The myth of inter-rater reliability. *Qualitative Health Research* 7:445-447.
- Murinson BB, Klick B, Haythornthwaite JA, Shochet R, Levine RB, Wright SM. 2010. Formative experiences of emerging physicians: Gauging the impact of events that occur during medical school. *Academic Medicine* 85:1331-1337.
- Niemi P. 1997. Medical students' professional identity: Self-reflection during the preclinical years. *Medical Education* 31:408-415.
- Olive KE, Abercrombie CL. 2017. Developing a physician's professional identity through medical education. *The American Journal of the Medical Sciences* 353:101-108.
- Pellegrino E. 2006. Character formation and the making of good physicians. In: Kenny N, Shelton W, Eds. Lost Virtue: Professional character development in medical education Netherlands: Elsevier. p 1-15.
- Pellegrino ED. 2002. Professionalism, profession and the virtues of the good physician. *Mount Sinai Journal of Medicine* 69:378-384.
- Perrella A. 2017. Room for improvement: Palliating the ego in feedback-resistant medical students. *Medical Teacher* 39:555-557.
- Pitkala K, Mantyranta T. 2003. Professional socialization revised: Medical students' own conceptions related to adoption of the future physician's role--a qualitative study. *Medical Teacher* 25:155-160.
- Pratt MG, Rockmann KW, Kaufmann JB. 2006. Constructing professional identity: The role of work and identity learning cycles in the customization of identity among medical residents. *Academy of Management Journal* 49:235-262.
- Rabow MW, Remen RN, Parmelee DX, Inui TS. 2010. Professional formation: Extending medicine's lineage of service into the next century. *Academic Medicine* 85:310-317.
- Ratanawongsa N, Teherani A, Hauer KE. 2005. Third-year medical students' experiences with dying patients during the internal medicine clerkship: A qualitative study of the informal curriculum. *Academic Medicine* 80:641-647.
- Reddy ST, Farnan JM, Yoon JD, Leo T, Upadhyay GA, Humphrey HJ, Arora VM. 2007. Third-year medical students' participation in and perceptions of unprofessional behaviors. *Academic Medicine* 82:S35-S39.

- Rosenblatt A, Kirk SA. 1982. Social roles of women in medicine, psychiatry, and social work. *American Journal of Orthopsychiatry* 52:430-439.
- Rucker L, Shapiro J. 2003. Becoming a physician: Students' creative projects in a third-year IM clerkship. *Academic Medicine* 78:391-397.
- Rudland JR, Mires GJ. 2005. Characteristics of doctors and nurses as perceived by students entering medical school: Implications for shared teaching. *Medical Education* 39:448-455.
- Sharpless J, Baldwin N, Cook R, Kofman A, Morley-Fletcher A, Slotkin R, Wald HS. 2015. The becoming: Students' reflections on the process of professional identity formation in medical education. *Academic Medicine* 90:713-717.
- Slay HS, Smith DA. 2011. Professional identity construction: Using narrative to understand the negotiation of professional and stigmatized cultural identities. *Human Relations* 64:85-107.
- Stark P, Roberts C, Newble D, Bax N. 2006. Discovering professionalism through guided reflection. *Medical Teacher* 28:e25-e31.
- Stern DT. 1998. In search of the informal curriculum: When and where professional values are taught. *Academic Medicine* 73:S28-30.
- Stern DT. 2005. Measuring medical professionalism. Oxford, UK: Oxford University Press.
- Suchman AL, Williamson PR, Litzelman DK, Frankel RM, Mossbarger DL, Inui TS. 2004. Toward an informal curriculum that teaches professionalism. *Journal of General Internal Medicine* 19:501-504.
- Swick HM. 2000. Toward a normative definition of medical professionalism. *Academic Medicine* 75:612-616.
- Tessier S. 2012. From field notes, to transcripts, to tape recordings: Evolution or combination? *International Journal of Qualitative Methods* 11:446-460.
- Traser C. 2017. "Do I really have to complete another evaluation?" Exploring relationships among physicians evaluative load, evaluative strain, and the quality of clinical clerkship evaluations. *Anatomy and Cell Biology: Indiana University School of Medicine*. p 167.
- Vågan A. 2009. Medical students' perceptions of identity in communication skills training: A qualitative study. *Medical Education* 43:254-259.
- Van der Hem-Stokroos H, Daelmans H, Van der Vleuten C, Haarman HTM, Scherpbier A. 2003. A qualitative study of constructive clinical learning experiences. *Medical Teacher* 25:120-126.

- Vignoles V, Schwartz S, Luyckx K. 2011. Introduction: Toward an integrative view of identity. In: Schwartz S, Luyckx K, Vignoles V, Eds. *Handbook of Identity Theory and Research*. New York: Springer. p 1-27.
- Vivekananda-Schmidt P, Crossley J, Murdoch-Eaton D. 2015. A model of professional self-identity formation in student doctors and dentists: A mixed method study. *BMC Medical Education* 15:1-9.
- Wagner P, Hendrich J, Moseley G, Hudson V. 2007. Defining medical professionalism: A qualitative study. *Medical Education* 41:288-294.
- Wald HS. 2015. Professional identity (trans)formation in medical education: Reflection, relationship, resilience. *Academic Medicine* 90:701-706.
- Weaver R, Peters K, Koch J, Wilson I. 2011. 'Part of the team': Professional identity and social exclusivity in medical students. *Medical Education* 45:1220-1229.
- Wenger E. 1999. *Communities of practice: Learning, meaning, and identity*. Cambridge, USA: Cambridge University Press.
- Whitcomb ME. 2005. Medical professionalism: Can it be taught? *Academic Medicine* 80:883-884.
- White MT, Borges NJ, Geiger S. 2011. Perceptions of factors contributing to professional identity development and specialty choice: A survey of third-and fourth-year medical students. *Annals of Behavioral Science and Medical Education* 17:18-23.
- Wilson I, Cowin LS, Johnson M, Young H. 2013. Professional identity in medical students: Pedagogical challenges to medical education. *Teaching and Learning in Medicine* 25:369-373.
- Witz A. 1992. *Professions and Patriarchy*. London: Taylor and Francis.
- Wong A, Trollope-Kumar K. 2014. Reflections: An inquiry into medical students' professional identity formation. *Medical Education* 48:489-501.
- Wright S. 1996. Examining what residents look for in their role models. *Academic Medicine* 71:290-292.
- Wynia M, Papadakis M, Sullivan W, Hafferty F. 2014. More than a list of values and desired behaviors: A foundational understanding of medical professionalism. *Academic Medicine* 89:712-714.

## CURRICULUM VITAE

**Jessica N. Byram**

### EDUCATION

- Doctor of Philosophy:** Anatomy and Cell Biology Dec. 2017  
Minor: Education  
Indiana University, Indianapolis, Indiana  
Dissertation Title: The Professionalization of Medical Students: A Longitudinal Analysis of Professional Identity Formation and Professionalism Perceptions in Second and Third Year Medical Students
- Master of Science:** Human Biology 2013  
Concentration: Forensic Anthropology  
University of Indianapolis, Indianapolis, Indiana  
Thesis Title: Quantifying the Shape of the Greater Sciatic Notch Using Elliptical Fourier Analysis
- Bachelor of Arts:** Anthropology 2010  
Second Major: Journalism  
Metropolitan State College of Denver, Denver, Colorado

### FELLOWSHIPS

- Postdoctoral Fellowship:** Anatomy and Cell Biology 2017-Current  
Anatomical Sciences Education  
Indiana University School of Medicine, Indianapolis, Indiana

### TEACHING EXPERIENCE

- Indiana University School of Medicine – Associate Instructor**
- Human Structure: MED X620 2016-2017
- Gave a lecture on face and scalp
  - Guided medical students through cadaveric dissection
- Basic Histology: ANAT D502 2014, 2017
- Conducted one TBL on Reproductive System
  - Aided students in histology laboratory on optic microscopes
- Human Cadaveric Anatomy: BIOL N461 2017
- Served as co-course director for dissection-based undergraduate anatomy course
  - Created laboratory exercises, quizzes, and examinations
  - Guided undergraduate students through cadaveric dissection
- Human Gross Anatomy: ANAT D501 2016
- Gave three lectures in head/neck

- Assisted students with radiology modules
- Medical Gross Anatomy: ANAT D850/D503 2015
- Gave one lecture on face
  - Guided medical students and DPTs through cadaveric dissection
- Neuroscience and Clinical Neurology: ANAT D852/D505 2015-2016
- Assisted in created of small-group sessions on clinical cases
  - Guided medical students and DPTs through brain and spinal cord laboratory
- Marian University College of Osteopathic Medicine – Associate Instructor**
- Essential Clinical Anatomy and Development: MED612 2017
- Guided medical students through cadaveric dissection
- Indiana University - Purdue University, Indianapolis (IUPUI) – Associate Instructor**
- Human Anatomy Laboratory: BIOL N261 2014-2017
- Created and presented laboratory lectures twice weekly
  - Guided students through laboratory including models, microscopes, and vertebrate specimens
- Human Anatomy Hybrid Laboratory: BIOL N261 2013-2016
- Created and presented laboratory lectures once weekly
  - Guided students through laboratory including models, microscopes, and vertebrate specimens
- University of Indianapolis – Adjunct Instructor**
- Principles of Human Anatomy: BIOL 103 2012-2013
- Created and presented lectures in an introductory anatomy course
  - Guided a once weekly laboratory session including models, microscopes, and vertebrate specimens
- University of Indianapolis – Teaching Assistant**
- Anatomy Tutoring Laboratory: Graduate Assistant 2011-2013
- Supervised daily function of laboratory including, staffing, allocation of resources, and organization of laboratory materials
  - Tutored undergraduate, graduate, and professional students in anatomy
  - Conducted dissections of vertebrate specimens
- Forensic and Historic DNA Analysis: BIOL 535-1LX 2013
- Assisted with DNA extraction, amplification, and analysis
- Human Functional Anatomy: BIOL 305 2011, 2013
- Assisted with laboratory activities, including cat dissection
- Human Gross Anatomy for Occupational Therapists: BIOL 504-OTX1 2012
- Guided graduate students through cadaver dissections

- Human Gross Anatomy for Physical Therapists: BIOL 610-01X 2011
- Guided graduate students through cadaver dissections
- Principles of Human Anatomy: BIOL 103 2011
- Assisted undergraduate students in weekly anatomy laboratory

#### PUBLICATIONS

- 2016 Byram JN, Seifert MF, Brooks WS, Fraser-Cotlin L, Thorp LE, Williams JM, Wilson AB. Using generalizability analysis to estimate parameters for anatomy assessments: A multi-institutional study. *Anat Sci Ed* 10(2):109-119, doi/10.1002/ase.1631.
- 2015 Byram JN, Brokaw JJ, Condon K. Male and Female Reproductive Systems: A Team-Based Learning Module for Histology. MedEdPORTAL Publications; 2015. Available from: <https://www.mededportal.org/publication/10225>.
- 2015 Brokaw JJ, Byram JN, Traser CJ, Arbor TC. 2015. How the distinctive cultures of osteopathic and allopathic medical schools affect the careers, perceptions, and institutional efforts of their anatomy faculty: A qualitative case study of two schools. *Anat Sci Ed* 9(3):255-264, doi/10.1002/ase.1582.

#### POSTERS/PRESENTATIONS AT PROFESSIONAL MEETINGS

- Perceptions of Professionalism: Transformation Across the Second and Third Years of Medical School** (poster) October 2017  
IUSM Postdoc Symposium  
Indianapolis, Indiana
- A Longitudinal Analysis of How Professional Identity is Formed in Second Year Medical Students** (platform) March 2017  
Central Group on Educational Affairs Spring Meeting  
Chicago, Illinois
- How the distinctive cultures of osteopathic and allopathic medical schools affect the careers, perceptions, and institutional efforts of their anatomy faculty: A qualitative case study of two schools** (poster) April 2016  
Annual Meeting of the American Association of Anatomists  
San Diego, California
- Quantifying the Shape of the Greater Sciatic Notch using Elliptical Fourier Analysis** (platform) Sept. 2015  
Annual Meeting of Forest, Lakes, and Grasslands Forensic Anthropologists  
Roscommon, Michigan
- Using generalizability analysis to establish guidelines for designing horizontally integrated anatomy assessments** (platform) March 2015  
Annual Meeting of the American Association of Anatomists  
Boston, Massachusetts

- Quantifying the Shape of the Greater Sciatic Notch using Elliptical Fourier Analysis** (poster) March 2015  
Annual Meeting of the American Association of Anatomists  
Boston, Massachusetts
- Forensic Archeology at the University of Indianapolis Archeology and Forensics Laboratory** (platform) Sept. 2012  
Annual Meeting of Forest, Lakes, and Grasslands Forensic Anthropologists  
Roscommon, Michigan
- Who's on your Shoes: Investigating DNA profiles from new and worn shoes** (poster) Feb. 2012  
Annual Meeting of American Academy of Forensic Sciences  
Atlanta, Georgia
- Fishing for Bones: A Bait Shop Recovery** (platform) Oct. 2011  
Annual Meeting of Forest, Lakes, and Grassland Forensic Anthropologists  
Roscommon, Michigan

CONFERENCES ATTENDED

**Central Group on Educational Affairs Spring Meeting**

March 2017: Chicago, IL

**Experimental Biology**

Annual Meeting of the American Association of Anatomists  
April 2016: San Diego, CA  
March 2015: Boston, MA  
April 2013: Boston, MA

**American Academy of Forensic Scientists Annual Meeting**

February 2012: Atlanta, GA  
February 2011: Chicago, IL  
February 2009: Denver, CO

**Forest, Lakes, and Grasslands Forensic Anthropologists Annual Meeting**

September 2015: Roscommon, MI  
September 2012: Roscommon, MI  
October 2011: Roscommon, MI

SERVICE ACTIVITIES

**Indiana University Center for Anatomical Science Education (IU-CASE)**

Gross Anatomy Laboratory Tour Instructor 2015-Current  
Volunteer at Celebrate Science Indiana October 2017  
Department of Anatomy and Cell Biology, IUSM  
Indianapolis, Indiana

**Education Track Seminar Series**

Invited Speaker 2016  
 Department of Anatomy and Cell Biology, IUSM  
 Indianapolis, Indiana

**FOUND: Forensics at University of Indianapolis**

Public Relations Officer and Guest Speaker 2011-2013  
 University of Indianapolis  
 Indianapolis, Indiana

**Journal Reviewer**

Journal of Biomedical Education 2016

**Brown Bag: University of Indianapolis**

Invited Presenter  
 Sept. 2015: Effective Teaching Strategies in the Anatomical Sciences  
 Oct. 2014: What's next? Your Future after Uindy  
 May 2013: Cadaver Prosection: A Model for Teaching Undergraduate Anatomy Students  
 Sept. 2012: Data Collection at Hamann-Todd Osteological Collection and W.M. Bass  
 Donated Collection  
 Feb. 2012: Who's on your Shoes: Investigating DNA profiles from new and worn shoes

PROFESSIONAL DEVELOPMENT**Workshops and Courses Completed**

Workshop to Advance Medical-Level Anatomy Education June 2016  
 2-day workshop between IUSM and MU-COM to enhance anatomy  
 instruction and education.

Forensic Anthropology Field Course Nov. 2009  
 Metropolitan State College of Denver. Recovered cast skeletal  
 remains from two graves.

Recovery of Human Skeletal Remains Oct. 2009  
 Colorado Mountain College, Leadville, CO. 1-Day recovery of human  
 skeletal casts.

**Society Memberships**

American Association of Anatomists 2013-Current  
 Student Member

American Association of Clinical Anatomists 2014-Current  
 Student Member

American Academy of Forensic Sciences, Physical Anthropology 2009-2013  
 Student Member



OTHER TRAINING AND EXPERIENCES

**Laboratory Assistant**

Archeology and Forensics Laboratory  
University of Indianapolis  
Indianapolis, Indiana

2010-2013

**Autopsy Technician**

Denver Office of the Medical Examiner  
Denver, Colorado

2009

**Reporter**

Aurora Sentinel  
Aurora, Colorado

2009

AWARDS AND NOMINATIONS

**Educational Research Platform Award Finalist**

American Association of Anatomists Meeting

2015

**Human Biology Graduate Service Award Recipient**

University of Indianapolis

2013

**Charles W. Fisher Award Recipient**

Metropolitan State College of Denver

2010