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INSTRUCTIONAL PRACTICES TO FOSTER THE DEVELOPMENT OF AUTONOMY: A QUALITATIVE PHENOMENOLOGICAL STUDY OF THE RESIDENT EXPERIENCE

Rachelle Musgrave Aker
University of Kentucky, rachelleaker@aol.com
Author ORCID Identifier:
https://orcid.org/0009-0002-4970-6285
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Rachelle Musgrave Aker, Student

Dr. Ryan M. Crowley, Major Professor

Dr. Ryan M. Crowley, Director of Graduate Studies

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DISSERTATION

A dissertation submitted in partial fulfillment of the
requirements for the degree of Doctor of Philosophy in the
College of Education
at the University of Kentucky

By

Rachelle Musgrave Aker

Lexington, Kentucky

Co- Directors: Dr. Ryan M. Crowley, Associate Professor of Curriculum and Instruction

and Dr. Zitsi Mirakhur, Assistant Professor of Educational Policy Studies and Evaluation

Lexington, Kentucky

2024

https://orcid.org/0009-0002-4970-6285

ABSTRACT OF DISSERTATION

INSTRUCTIONAL PRACTICES TO FOSTER THE DEVELOPMENT OF AUTONOMY: A QUALITATIVE PHENOMENOLOGICAL STUDY OF THE RESIDENT EXPERIENCE

A growing concern in graduate medical education (GME), research indicates that some graduating residents are unprepared to enter unsupervised practice. The aim of this qualitative phenomenological study is to illuminate the resident experience surrounding the development of autonomy in clinical decision making relative to teaching practices. Research questions include: (1) What is the dual role of learner/teacher like for residents as they attend to their own and others' development of autonomy in clinical reasoning and decision making? (2) Which teaching methods do they commonly experience as the learner and practice as the teacher relative to this development, and which methods are associated with experiences most and least valued for growth in autonomy? (3) How are these teaching methods acquired? (4) How do residents experience and interpret the provision of autonomy by supervising teachers?

The researcher obtained a purposive sample of eight participants from GME programs in a large public university in the south, representing residents in early training to post-training as chief residents, from the specialties of Internal Medicine, Pediatrics, and the combined specialties of Internal Medicine-Pediatrics and Internal Medicine-Psychiatry. The researcher conducted in-depth interviews supported by member checks and memos. Consistent with the phenomenological framework, In-Vivo and Process Coding enabled identification of meaning units and experiential themes. The interpretative phenomenological analysis (IPA) method was used to conduct data analysis.

Findings revealed that these residents experience difficulty and uncertainty in their dual role of learner/teacher, attaching meaning to the experience as an unsteady balance between the two roles. Despite this challenge, they particularly value their teaching role for their own learning and autonomy development. A lack of formal teaching training, however, means that residents rely on acquiring teaching practices through observation and imitation of others, often resulting in the adoption of underdeveloped or misaligned methods for teaching clinical reasoning. Teaching methods included the traditional apprenticeship methods of behavioral modeling, coaching and

scaffolding early in the intern year, transitioning to cognitive apprenticeship limited to learner articulation of clinical reasoning, coaching, scaffolding and most often, modeling of the clinical decision or plan of care. Exceptional teaching for growth in autonomy was differentiated by modeling of the clinical reasoning process and a climate of psychological safety, often including self-directed learner reflection and exploration. All participants experienced a variable provision of autonomy, attributing the willingness of some faculty to grant autonomy to other factors besides patient needs and entrustment in resident ability, which may jeopardize the experience needed for unsupervised practice.

KEYWORDS: Autonomy Development, Cognitive Apprenticeship, Entrustment, Instructional Practices, Teaching

Rachelle Musgrave Aker

04/14/2024

Date

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By
Rachelle Musgrave Aker

Ryan M. Crowley, PhD
Co-Director of Dissertation

Zitsi Mirakhur, PhD
Co-Director of Dissertation

Ryan M. Crowley, PhD
Director of Graduate Studies

04/14/2024
Date

DEDICATION

To my husband, Charlie.
For no other reason than I had a goal I wanted to pursue, he adopted it as his own. Everyone should be so blessed to share the load of an arduous journey with the kind of person who lightens it just by their presence. I dedicate this dissertation to the one who has never failed to love and support me, from the first day we met.

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This dissertation reflects a tremendous amount of support given to me throughout my academic journey. I would like to thank my committee members, Drs. Ryan Crowley, Zitsi Mirakhur, Laura Fanucchi, and Kun Huang, for giving their time and offering candid and helpful feedback to help me on my way. I recognize the commitment it takes to the task of guiding a novice researcher like me, and I am truly grateful.

From my first introduction in the graduate medical education (GME) space, three program directors in particular helped me grasp the intricacies and challenges facing residency education. This guidance, though given long ago, helped me throughout this work. Many thanks to Drs. Christopher Feddock, Kristy Deep, and Jacqueline Gibson.

I thank the residents who volunteered to participate, without whom this study would have been impossible. Their sacrifice of evenings to interview with me after a busy day at the hospital did not go unnoticed. I appreciated their willingness to openly share their experiences and answer my questions thoughtfully.

Special thanks to my husband, Charlie, who kept the family and household intact. He never once wavered in his support and he may never know just how much it meant to me when told me (often) “I am so proud of you.” Likewise, thanks to my children, Ross, Tori, and Meredith, and grandchildren, Evelyn, Carter, Kylar, and Ben, who tolerated a largely absent Mom and Nana for the good part of a year, I love you and thank you for your patience. I hope that you will remember that it is never too late

to accomplish a dream, and with family and loved ones in your corner, you can do just that.

Thank you to my wonderful friends who stood beside me through turned-down get-togethers and long stretches of silence when I had my head down in my paper. You understood what I needed and cheered me on. Not surprising when you've always been there for me and Charlie. Quite simply, you are the best.

Not least by any means, my parents deserve credit for instilling in me a lifelong love for learning. Curiosity encouraged from childhood makes an intellectual endeavor like this so satisfying. I hope this work makes you and the rest of our family proud.

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CHAPTER 1. INTRODUCTION

1.1 Background and Context

1.1.1 Graduate Medical Education and the Development of Resident Autonomy

Graduate medical education (GME) encompasses the residency period of physician training after medical school. With the length of training varying by medical specialty, residents complete a series of 'rotations', blocks of time in various clinical experiences aimed to increase their medical knowledge, hone their patient care skills, and gain experience in clinical reasoning and decision making. Teachers during these learning experiences may be clinical faculty members in the specialty and/or fellows in a subspecialty, or senior residents teaching more junior residents, all under the supervision of GME clinician faculty. This period marks a transition from the novice physician, to one who attains the competence, proficiency and readiness to practice without supervision. Autonomous clinical decision-making and readiness for independent practice is the aim of all GME residency training programs. This aim frames my study's topic, the development of autonomy in the resident physician.

I selected the topic of resident autonomy development and related teaching practices because it is one that ties my personal experience working with residency programs to my educational background in curriculum and instruction. In my experience, programs regularly grapple with developing effective teaching practices to prepare residents for autonomous practice. The struggle is becoming even more important to the present time, as the literature reflects. My study aims to address a growing concern across the GME landscape: some graduating residents are unprepared to practice independently, without the guidance or supervision in place during residency (Crockett et al., 2019; George et al., 2017; Jain et al., 2021; Mieczkowski et al., 2021; Plesac & Olson, 2019; Sanaee et al., 2019). This problem compromises patient safety, undermines

public confidence, and calls into question the quality of residency education. In particular, it questions how well the resident learning experience lends itself to the development toward physician autonomy and independence. This question invites investigation.

Seeking to understand how residents both experience and interpret their experiences as they attend to their own and others' development of autonomy, I employed a qualitative phenomenological study design as a fit for the purpose of my study. The purpose, to illuminate the resident experience surrounding the development of autonomy in clinical decision-making through teaching methods that residents encounter and practice in their dual role of learner/teacher, addresses the research problem. The phenomenon of resident autonomy development is relevant to every GME training program across the U.S., providing the rationale for this study and indicating its practical significance.

While autonomy in clinical decision-making and readiness for practice has always stood as the goal of residency training, what has been less clear, historically, is how to reach that goal through alignment of the curriculum and instructional practices. Medical education, largely in part due to its traditional apprenticeship model of learning from the time of ancient philosophers and physicians such as Plato, (described succinctly as "See one, do one, teach one" by surgical educator William Halsted in the early 19th century), has lagged in applying conceptual frameworks for learning and adopting teaching practices from the general education field. As more constructivist approaches led to more learner-centered curricula on the general education landscape of the 1960's, we see a lag of about 20 to 30 years until these ideas take hold in the 80's and 90's in medical education, with medical schools beginning to restructure their curricula to incorporate adult learning principles (Dienstag, 2011). GME began work on curricular revision about a decade later, with efforts led by multi-specialty committees under the guidance of the

national accreditation body, the Accreditation Council for Graduate Medical Education (ACGME), (Edgar et al., 2020).

With the introduction of competency-based education (CBE) principles to medical education [distinguished as competency-based medical education (CBME)], the ACGME in its regulatory capacity adopted the framework as well. However, I will show that a post-positivist stance by the ACGME departed from the constructivist roots of CBE, leading programs in a curricular, assessment, and instructional direction that may compromise teaching to foster autonomy growth in the GME community.

1.1.2 Post-Positivist Stance of the ACGME

My review of accreditation initiatives and accompanying documents outlining requirements shows that they reflect a cognitive-behavioral stance of post-positivism. In my view, the *ACGME Common Program Requirements (Residency)* (ACGME, 2023) define discrete measurable ways of knowing or reaching truth (as post-positivism is described) for determining resident competence and proficiency. While 'truth' translates to overall competence, the 'ways of knowing' are equivalent to physician competencies and sub-competencies; learning experiences as content areas of the curriculum; learner assessment as observable behaviors; and the learning environment as a clean, safe space where there are ample patients and resources for learning needs. In the *Clinician Educator Milestones* document (ACGME et al., 2022a), 'ways of knowing' for teacher proficiency are measurable, individual characteristics and professional duties to carry out, a teacher-centered summary.

It follows that the post-positivist approach reveals itself in the development of the residency program's curriculum, then, where there may be more effort devoted to

ensuring required rotations on each resident's schedule according to their PGY-level (time in program defining content needed) and to meeting clinical service needs in busy hospitals and clinics (which directs learner engagement). This practice opposes deliberately designed learning activities within the context of patient care and selecting the learning experience based on its alignment to learning opportunity (to further autonomy), and by default, to teaching strategies. Narrative descriptions of how residents actually experience these teaching practices shed light on missing or weak strategies and open opportunities for teaching development.

I turn next to the CBME framework to explain its constructivist roots and to show how it spurred various efforts by the ACGME intended to foster resident autonomy in preparation for unsupervised practice. As I will discuss, accountability and curricular efforts, and recently, faculty development efforts, fail in many respects to achieve this goal.

1.1.3 Competency-Based Medical Education (CBME)

CBE, from which CBME is derived, is a learner-centered, mastery-based, and outcomes-based framework (Bleich & Jones-Schenk, 2016; Gervais, 2016; Holmboe et al., 2017; ten Cate, 2017). It is not time-dependent for achieving learning outcomes, but rather dependent on the learner's individual path to mastery of a set of standards. Time is relevant only in the sense of marking how the learner has progressed developmentally (Holmboe et al., 2017). CBE began to make its way into higher education and medical education in the late 1990's as a response to the public's greater demand for accountability for quality in both educational arenas. For the GME community, accountability meant defining competencies and ensuring physician graduates had

reached targeted outcomes before entering practice. Much of the accountability was spearheaded by the ACGME, a regulatory body, differentiating CBME from higher education's CBE (Vasquez et al., 2021).

In 1999, the American Board of Medical Specialties (ABMS), in collaboration with the ACGME, approved six core competencies required for practice as a physician: Patient Care, Medical Knowledge, Practice-Based Learning and Improvement, Systems-Based Practice, Professionalism and Interpersonal and Communication Skills. After working to establish a framework for assessment of the competencies (the Outcome Project), the first version of milestones was released in 2012. Six years later, in response to challenges reported, the ACGME began work on the revised Milestones 2.0, in place today (Edgar et al., 2020). Edgar and her colleagues (2020) explained the reason for the challenges:

> Program directors and faculty members struggled since the launch of the Outcome Project to understand what the Competencies meant and, more importantly, what they should 'look like' in practice. This lack of shared understanding (i.e., shared mental models) hampered curricular changes, as well as development and evolution of better assessment methods. The challenges to operationalizing the Competencies was not restricted to the United States, and during the last 18 years several notable advancements have emerged in an effort to enable more effective implementation of CBME (pp. 5-6).

I would add that the lack of a shared mental model extended beyond curriculum design and assessment methods; there was also no consensus or recommendation at the time addressing teaching practices to facilitate the learner's development in the identified competencies. There were, however, various efforts by the ACGME intended to foster resident autonomy.

1.1.4 Efforts to Foster Resident Autonomy

In the sections that follow, I will summarize the efforts by the ACGME to foster resident autonomy after the introduction of CBME to GME in 1999. I categorize these

efforts into accountability, curricular, and faculty development to provide background for teaching practices in use today. Accountability efforts include residency program requirements, milestones, and faculty development. Some efforts have been more helpful than others for furthering progress toward the learning outcome of independence, as I will explain.

1.1.4.1 Accountability Efforts

One of the first efforts I describe is accountability. The ACGME, by way of awarding accreditation, requires program accountability in many areas to ensure the quality of GME. The recently updated program requirements for accreditation are detailed in the *ACGME Common Program Requirements (Residency)* (ACGME, 2023). Milestones 2.0, as the updated milestones for each specialty are collectively termed, also serve as an accountability gesture, as their implementation as an assessment reporting tool is required as part of semi-annual resident evaluation. Last, faculty evaluation is an accountability effort. A discussion of each accountability effort relative to fostering learner autonomy follows.

1.1.4.1.1 ACGME Program Requirements

Accreditation mandates are detailed in the *ACGME Common Program Requirements (Residency)* (ACGME, 2023) for all medical specialties and in each specialty's accompanying program requirements document. Core requirements, if not met by a program during its annual review cycle, may earn a citation, warning, or more serious consequences affecting accreditation status, including suspension of the program or withdrawal from consideration. Resident autonomy appears as a core requirement in multiple sections of the document under these headings: Educational Components;

Curriculum Organization and Resident Experiences; Resident Evaluation; Supervision and Accountability; and Professionalism.

The program requirements describe resident autonomy as gradual over time, with earned privileges according to the learner's ability, experience, patient acuity and complexity, within a balance of supervision and learner autonomy determined by the program's faculty. While the emphasis in requirements and accountability measures by the ACGME may be considered appropriate and may have stimulated faculty development for those programs who took the initiative to do so, no amount of regulatory enforcement guides the faculty in understanding good teaching principles or applying specific teaching strategies for increasing autonomy and decreasing supervision such as scaffolding and fading (Pinelli et al., 2018; Rivard et al., 2022; Stefaniak, 2018; van de Pol et al., 2010). This accountability measure is limited, then, in fostering resident autonomy.

1.1.4.1.2 ACGME MILESTONES

The second accountability effort pertains to the collective set of milestones for each medical specialty. The milestones framework, fitting inside the CBME framework, serves as both a self-assessment tool for the resident, a curricular mapping tool for the program, and an assessment reporting form of learner progress to the ACGME. (See Figure 1.1 for an excerpt from the specialty of Internal Medicine.) The original tool attempted to combine aspects of not only CBME, but also of various conceptual models deemed applicable and beneficial for the GME setting, as Holmboe et al. (2017) explain:

> We strongly believe medical education reform should not be reduced to an "either/or" approach but should blend theories and approaches to suit the needs and resources of the populations served. The incorporation of milestones and entrustable professional activities within existing competency frameworks speaks to the dynamic evolution of CBME, which should not be viewed as a fixed doctrine, but rather as a set of evolving concepts, principles, tools, and approaches

> that can enable important reforms in medical education that, in turn, enable the best outcomes for patients (p. 574).

We clearly see a mix reflected in the milestone narratives: mastery learning echoing Bloom's Taxonomy (Anderson & Kraithwohl, 2001; Bloom, 1956) informing the choice of phrasing for simpler cognitive processes of clinical reasoning to more complex; the Dreyfus Model of Skill Acquisition informing the labels of 'novice' to 'expert' (Batalden et al., 2002; Dreyfus & Dreyfus, 1980); and Miller's Pyramid of Clinical Competence depicting a progression from simply knowing to teaching others (Miller, 1990). With evidence provided for the blended, albeit post-positivist framework (Edgar et al., 2020), the milestones attempt to provide helpful journey markers to both faculty and learners for recognizing development in the six identified competencies, toward the goal of autonomy.

As the Milestones Guidebook reminds programs, however, the milestones were never intended to serve as curriculum or a sole assessment instrument, but rather to "guide a thoughtful analysis of curriculum to identify strengths and gaps…there was an understanding that the Milestones would not cover all areas essential to the unsupervised practice of medicine" (Edgar et al., 2020, p. 8). I suggest, however, that an accreditation compliance mindset may steer the program's focus away from tailoring the curriculum to learner needs, especially for the development of autonomy and learning activities such as fostering PIF, for example. In other words, although the milestones were not intended to serve as the curriculum, they may very well be doing just that when program compliance is the overarching concern.

1.1.4.1.3 Evaluation of Faculty

The written evaluation of faculty members by residents is an accreditation requirement and therefore tied to the ACGME's accountability efforts for fostering resident autonomy. If the overarching purpose of residency is to achieve readiness for

independent practice, then it follows that learners would be evaluating how well teaching contributed to fostering growth toward that end. Yet, great variability exists for teaching constructs measured as I have noted from my own experience and the literature (Shellito et al., 2021; Van Der Leeuw et al., 2016). Very few articles point directly to evaluating the effectiveness of a specific teaching strategy, although several have attempted to identify characteristics of effective teachers (Haydar et al., 2014; Sharma et al., 2022) or an effective balance of supervision with the provision of independence (Crockett et al., 2019), implying yet stopping short of identifying specific teaching strategies in the constructs to be evaluated.

In my experience as an education specialist working with many GME programs in both academic and private health care institutions, I have noted a great deal of variety in survey items for resident evaluation of faculty teaching. Some items align with the purpose of ascertaining the faculty member's fulfillment of program responsibilities, drilling down to attendance at didactic or faculty development sessions; some focus on resident satisfaction with faculty availability or approachability; some center on professionalism attributes; still others strive to gauge the faculty member's interest in teaching and maintenance of a positive learning climate. Some attempt for an eclectic mix. An astounding few ask residents to assess or provide feedback on specific teaching strategies targeting growth toward independence. Evaluation of faculty as it exists today, then, is limited as an accountability effort to foster the growth of autonomy.

1.1.4.2 Curricular Efforts

While the ACGME has clearly stated that the milestones are not intended to serve as the curriculum because they are not all-encompassing of competencies for practice, programs may be motivated to design their curricula in accordance with the ACGME program requirements because of the negative reinforcement provided through

accreditation adverse actions. I submit that most programs are not motivated to construct learning experiences apart from the requirements that would align with individual needs in developing more autonomy. In fact, there are barriers to this practice.

First, the residency curriculum within any specialty is largely a one-size-fits-all program of content with rotations (clinical experiences) common to each postgraduate (PGY) level. With only rare exceptions, learners progress through each level with their PGY class, for the total of years required by the specialty. Recall that a hallmark feature of CBE adopted by CBME is that learners progress along the trajectory toward meeting competency standards at their own pace, as individuals, not dependent upon a time constraint for mastery. The ACGME explains that milestones mark expected developmental points of progress, thereby pulling the opposing poles of the standards criteria and PGY graduation norms together for what essentially creates a frictional, time-based model. An acknowledgement of this "hybrid model" between actual development and standard length of training time appears in the Milestones Guidebook (Edgar et al., 2020, p. 4), although it remains in conflict with CBME.

While the ACGME supports a program's decision to delay graduation for those residents who may not have progressed to practice readiness at the same rate as their peers (Edgar et al., 2020), there are barriers to this process. Resident stipends not forecasted for extensions in training, the delay in entering a work force to pay off student debt, and the risk of social stigma delayed graduates may suffer, may make programs reluctant to individualize length of training. This reluctance, while understandable, impedes the full incorporation of CBME and the teaching strategies needed to individualize instruction for learners at varying stages of autonomy development especially when the end of training looms. This issue raises implications for future study in connection to my study's findings, as I will discuss in Chapter 5.

The literature provides an example of a curricular component required by the ACGME driving a determination of resident readiness. In the multi-authored study for

the Surgery specialty concluding that residents were not ready to perform their core procedures independently by the end of their residency training, the authors found that resident autonomy had not been progressively increased. They suggested that surgery case volume requirements (a curricular component stipulated by the ACGME) drive competency assessment rather than the more appropriate measure of autonomy toward independence (George et al., 2017). In connection to my study, they propose "another possibility is that faculty are not trained (and some may not be comfortable) providing trainees with meaningful autonomy even when those residents are otherwise ready for increased responsibility" (p. 588).

This brings me to a discussion of faculty development efforts, in particular the recent release of the *Clinician Educator Milestones* (ACGME et al., 2022a).

1.1.4.3 Faculty Development Efforts

Faculty development relative to growth "as an educator and evaluator" (versus other types of professional development such as clinical knowledge and skills) is required by the ACGME at least annually (ACGME, 2023, pp. 12-13). There is no corresponding requirement for resident development as an educator. With no accompanying longitudinal curriculum as a guiding compass for teaching development to correspond with curricular and assessment initiatives since CBME arrived to GME, residency programs plan faculty development on their own, relying heavily on internal resources that are variable by program. The quality, breadth, and depth of development have no accreditation standards to meet. The recently released initiative by the ACGME, the *Clinician Educator Milestones* (ACGME et al., 2022a), attempts to fill this gap by recommending progress points in a clinical teacher's development. I will explain,

however, that this approach steers the focal point away from improving teaching strategies.

1.1.4.3.1 Clinician Educator Milestones

The *Clinician Educator Milestones* (ACGME et al., 2022a) are fashioned after the milestones for residents, although they are not required for accreditation purposes. While it remains to be seen how helpful their adoption and use by programs will be, the ACGME's shift to recognizing the teacher in a learner role, and the presence of co-learners within the community of practice (CoP), enters the GME stage. Yet, the same post-positivist behavioral stance describes the trajectory of development through evolving characteristics of the teacher, and commitment to professional responsibilities, as a proficient clinical educator is envisioned in the document.

The ACGME and its collaborators present the *Clinician Educator Milestones* (2022a) as a tool for faculty self-assessment to improve as educators. The milestone narratives within assume that there is a level of knowledge and understanding of teaching strategies obtained elsewhere than from the document, since there is no explanation of their specifics. Although the accompanying *Clinician Educator Supplemental Guide* (ACGME et al., 2022b) intends to provide guidance, it is similarly vague. While a step in the right direction to recognize that faculty are learners progressing along a continuum from the novice teacher to the expert, the assumption that they are familiar enough with effective teaching strategies to know what they are and how to implement them, for individual learners and across learning contexts, and can discern at what level of expertise development they place themselves as clinician educators, is unrealistic. For this reason, even though intended by the developers as a self-assessment tool and not a primer in teaching techniques, I contend that the constructs must be sufficiently described and understood for meaningful self-assessment. If not understood, then I must conclude

that the milestones for clinician educators are ineffective as a faculty development strategy to improve teaching. And if not helpful for this purpose, they cannot directly impact the development of resident autonomy.

1.1.5 Co-Ownership of the Learning-Teaching Experience

Residents and faculty are co-owners of the learning and teaching experience by virtue of their participation together in it. They are co-members of the CoP, sharing professional commitment and values (Dong et al., 2021; Lave & Wenger, 1991). It stands to reason, then, that both residents and faculty would contribute to one another's development through shared attention to crafting and continuously improving the residency learning experience. To closely parallel full membership in the CoP, rather than peripheral, residents need to be engaged in what faculty are engaged in, that is, figuring out how to balance supervision with autonomy and finding the best way to facilitate their learning path toward independence.

Residents are recognized as stakeholders by the ACGME, yet practical inclusion of them in programs' curricular and instructional efforts are lacking as evidenced by the paucity of literature citing resident involvement. This concern was expressed by some soon after the release of the first version of the milestones (Heist et al., 2013). Edgar and her co-authors (2020), on behalf of the ACGME, pointed out the inherent integration of the learner into a CBME framework, writing, "Education is always co-created and co-produced between teacher and learner …Learners in a CBME system must be active agents co-guiding both the curricular experiences and the assessment activities" (p. 14). Note that there is no mention of co-guiding instructional activities, although they are assumed within curricular experiences.

I submit that residents may be limited in providing this co-guidance. The hyper-focus on meeting accreditation requirements may mean that some programs tend to view curriculum, assessment and teaching as checklist approaches to learning that program leadership undertakes. A good example of this limited involvement by residents is expressed by Imani. When I asked who collaborates on curricular sequencing and scheduling relative to what may be best for developing autonomy, Imani responded, "Our program leadership and the ACGME kind of dictates that together." Especially poignant is Imani's choice of the verb "dictates".

Programs focused on compliance may ask if they have the right number of months of inpatient and outpatient experiences, if they have adequately provided coverage for the ICU, if they have sent evaluation forms of teachers to residents, if they have recorded attendance at faculty development sessions, for example. These questions, while certainly important for accreditation compliance, miss the mark for creating meaningful learning experiences and contextualizing curricular elements and instructional practices within those experiences. Holmboe et al. (2017) argue on behalf of the ACGME that the essence of CBME principles provide counterpoint to critics that say the competencies are "reduced to a checklist approach", writing "CBME must be implemented wisely, with keen attention to context" (pp. 578-579). I suggest that this deliberate attention to context, the learning experience as the residents and faculty plan for it, live it, reflect on it, and assign meaning to it, may shed light on our question of fostering learner autonomy.

1.1.6 Current State in GME

Despite the CBME initiative over twenty years ago, there is no clear consensus currently within the GME community with respect to effective clinical teaching practices (Hartford et al., 2017; Huang et al., 2019; Pierce et al., 2020; Ricotta et al., 2020) or specific teaching strategies targeting the learner's development of autonomy in the clinical environment (Anderson et al., 2022; Kempenich & Dent, 2021; Neufeld, 2021). Although attention to curricular sequencing is suggested for optimal development toward proficiency and independence (Arora et al., 2020; Chen et al., 2015a; Newton et al., 2023; Van Melle et al., 2019), no GME blueprint exists for the alignment of teaching strategies that foster a resident's independence with sequencing of clinical learning experiences. While the research continues to explore resident autonomy development, the process is still poorly understood (Carbo & Huang, 2019; Crockett et al., 2019; Neufeld, 2021; Sawatsky et al, 2022). These gaps point to the need for my study to explore the resident experience relative to the connection between autonomy development and teaching.

1.2 Problem Statement

Some graduating residents are unprepared to enter practice without the guidance or supervision in place during residency (George et al., 2017; Jain et al., 2021; Mieczkowski et al., 2021; Plesac & Olson, 2019; Sanaee et al., 2019). This national problem, impacting patient care quality and safety, drives the purpose, questions and rationale for my research study. The General Surgery specialty raised attention in the GME community through a multi-authored study concluding that across the U.S., residents were not ready to perform core surgical procedures by residency training's end

(George et al., 2017). The authors found that faculty had provided limited progressive autonomy necessary for the learner's growth and suggested that even the amount of autonomy achieved might not ensure readiness for the "entire spectrum of independent practice" (p. 582). Other specialties have begun to echo similar concerns (Crockett et al., 2019; Jain et al., 2021; Mieczkowski et al., 2021; Plesac & Olson, 2019; Sanaee et al., 2019), indicating an urgent need for further research across specialties to address this problem.

While resident and faculty perceptions of autonomy-supportive teacher behaviors appear in the literature, primarily for the Surgery specialty (Chen et al., 2015b; Kempenich & Dent, 2021; Oliver et al., 2023; Seegmiller et al., 2020; Smith et al., 2019; Torbeck et al., 2015; Williams et al., 2022; Rivard et al., 2022; Sharma et al., 2022), most of these studies fall short of describing specific instructional strategies to facilitate the development of autonomy. With most of the authorship stemming from a single procedure-driven specialty, the literature indicates a need to broaden studies across non-surgical specialties. This gap presents an opportunity to address the problem from the non-surgical specialties. Together, the specialties represented by my study sample encompass over one-third of all residents in accredited programs in the U.S. (ACGME, 2022), offering transferability as one measure of this study's trustworthiness. The study will combine the insights of the researcher as a non-medical educator and residents in their dual roles of medical educators and learners. The unique perspective of this study's co-participants opens channels for creative problem solving among a wider population in the GME arena.

1.3 Statement of Purpose and Research Questions

The purpose of this interpretative phenomenological study is to illuminate the resident experience surrounding the development of autonomy in clinical decision-

making through teaching methods that residents encounter and practice in their dual role of learner/teacher. To speak to this purpose, I sought to answer these research questions (RQs):

RQ1. What is the dual role of learner/teacher like for residents as they attend to their own and others' development of autonomy in clinical reasoning and decision making?

RQ2. Which teaching methods do they commonly experience as the learner and practice as the teacher relative to this development? Which methods are associated with experiences most and least valued for growth in autonomy?

RQ3. How are these teaching practices acquired?

RQ4. How do residents experience and interpret the provision of autonomy by supervising teachers?

The purpose of the study aligns with the research design, a qualitative study using an interpretative phenomenological design. The purpose also guided research questions as I explored the resident narratives of their learning experiences to identify the embedded teaching practices. Initially, I considered 'teaching practices' broadly as any actions, methods, or strategies that teachers demonstrated during a learning experience. This conceptualization enabled me to consider all possibilities from the data for connection to the phenomenon of autonomy development.

1.4 Rationale and Significance

The rationale for my study lies in its practical significance to GME. The phenomenon of resident autonomy development in readiness for independent practice is relevant to every accredited GME training program across the U.S., as evidenced by its inclusion in the *ACGME Common Program Requirements (Residency)* (ACGME, 2023) and the Milestones (ACGME, 2020) for residents' development in the core competencies

for physicians (Edgar et al., 2020). These documents detail standards for educational program quality and resident performance essential to delivering quality and safe patient care. In fact, the provision of graded authority under faculty supervision and conditional independence is articulated as a core principle of GME (ACGME, 2023).

Yet, the phenomenon of resident autonomy development is poorly understood at this time (Carbo & Huang, 2019; Crockett et al., 2019; Neufeld, 2021; Sawatsky et al, 2022). This lack of understanding may contribute to the problem of some residents' unpreparedness to enter practice (George et al., 2017). My study sought to understand how residents both experience and interpret their experiences of learning and teaching others to reason and make clinical decisions, in particular how they attach meaning to teaching practices. I aimed to identify the teaching practices they commonly experience during residency hoping to make a connection to how these practices may facilitate or inhibit resident autonomy development, impacting their readiness for independent practice. While this study will contribute to greater understanding of the resident experience in non-surgical specialties, the study may also indirectly contribute to greater value placed on the potential collaboration of residents with faculty on matters of curricular and instructional alignment, a role that programs have not traditionally espoused. Further, understanding the resident experience may lend insight into why the problem noted has surfaced in GME and what might be considered to address it.

1.5 Research Design Overview

Based on the problem, purpose and questions I have described, a qualitative research design and methods are appropriate for this study. Reflecting a constructivist and interpretivist paradigm, and an inductive approach to understanding people's lives, qualitative methods steer away from the positivist and post-positivist nature of quantitative inquiry, data, and analysis (Bloomberg & Volpe, 2019; Maxwell, 2013;

Tracy, 2020). This paradigmatic approach aligns well with my worldview. Because I want to investigate how actions or processes may be related to a phenomenon (the development of autonomy), or contributing to its lack of development, this exploration of causality in the context of the participants' work lives, is a better fit with a qualitative approach than a quantitative approach (Maxwell, 2013).

I chose a qualitative phenomenological study design (Heidegger, 1971; Peoples, 2021) with the interpretative phenomenological analysis (IPA) approach (Smith et al., 2009; Smith & Nizza, 2022). This study design and approach investigates a phenomenon through participants' experiences and their sense-making of the experiences, with the researcher also contributing to sense-making and interpretation. The examination of the lived experience emphasizes exploration under the theoretical framework that underpins IPA (phenomenology, hermeneutics, and ideography), which will be discussed further in Chapter 3.

1.6 Role of the Researcher

1.6.1 Positionality

My positionality has evolved over time from my life and work experiences and continued to morph during data collection through exploration of perspectives I had not considered before (Clift et al., 2018). Adopting a reflective stance to prompt myself to look at data from multiple angles helped me to ensure credibility and confirmability of the study, addressing trustworthiness (Bloomberg & Volpe, 2019). Despite a determination to remain open-minded to the thoughts of participants, I acknowledge that my positionality may have informed the way I approached, examined and analyzed the data. The lenses through which I viewed this project in its entirety and the influences I brought to bear on the participants, data collection, analysis and interpretation of results, follows.

1.6.2 Paradigmatic Lenses

I am a mature, white woman, a former public-school teacher and career educator working in GME. During my upbringing, I was afforded a privileged learning opportunity in a specialized context and setting, regularly assisting my veterinarian father with patients during his clinical diagnosis and treatment. This early experience working with my father provided me with a familiarity and comfort working in the clinical space, as well as a basic working knowledge of clinical reasoning (I had listened to my dad's 'think aloud' diagnostic process) and the inductive approach of developing a theory based on data collected. Yet, there was also an emphasis on seeking practical solutions for the problems at hand, often for pet owners with limited means, instilling in me a healthy appreciation for the pragmatist approach. I believe this early experience learning alongside my father shaped my paradigmatic lenses.

My worldview reflects a constructivist or interpretivist paradigm. I seek to understand the 'why' and 'how', allowing research participants a voice in making sense of their interpretations of experiences while drawing on my own background to understand findings and make them useful (Tracy, 2020). So much of my approach blends this worldview with experiences from my upbringing, my training and career as a teacher, and my subsequent career as an education specialist in GME. Since these experiences have inevitably shaped my research, I will discuss a few relevant connections next.

I believe that my worldview has been shaped by interactions with those around me, which is an assumption of the constructivist (or interpretivist) paradigm. Yet I also tend to problem-focus and propose solutions, a tenet of the pragmatist paradigm. Sometimes I lean more into one approach than the other, depending on the research question. Because problems demand creativity for solving, I believe that I need to be a

creative researcher, exploring multiple realities and solutions to today's problems. I also believe that reflexivity ensures that awareness of my positionality contributes to the overall creative effort of the project.

1.6.3 Education and Experience

During the early years of my teacher training, I was heavily influenced by cognitive learning theory (Anderson & Krathwohl, 2001; Bloom, 1956) as well as sociocultural learning theory (Vygotsky, 1978), incorporating those influences into the principles of mastery learning long embraced by my discipline. As a teacher of middle and high-school adolescents learning to acquire a second language, I found the blend of cognitive and sociocultural conceptual models relevant for not only explaining their developmental process of skill mastery, but for providing a framework upon which to build curriculum and instruction that was responsive to their developmental stage. Conceptual integration of cognitive and social learning theory framed my efforts for planning the long-range curriculum, designing learning activities to foster developmental stages of mastery, tailoring instructional strategies to goals and learning contexts, and assessing learning outcomes. This experience has largely informed my approach to GME learning and teaching; I tend to look at educational problems with an eye toward the influence of curricular decisions made and teaching practices that frame the learning experience, or what I consider the 'curriculum in action'.

1.6.4 Impact upon Research Participants

I considered how my experiences and paradigms I embrace might impact my research participants. I realize that I am an 'outsider' because I am not a resident learner nor a physician, placing me firmly outside medicine's CoP. My experience in the clinical

setting, both in my father's practice and later with residency programs, straddles the 'insider'/'outsider' role, as sometimes my familiarity and comfort level with clinical practice allow me to feel like an insider in this setting, even though I am not. In fact, since I am in many ways both 'insider' and 'outsider', I am also neither, but rest somewhere in-between (Lu & Hodge, 2019; Merriam et al., 2001; Moore, 2012).

Being neither resident nor faculty member, yet an educator nonetheless, I position my experience and training as a teacher as valid contribution to the study, consistent with my phenomenological study design. I believe there is value in co-constructing meaning for the great variability and flexibility in 'best teaching practices', especially for learners who believe them to be so, and feel empowered to define them for the good of their own education. In this way, I invite the participants to be 'insiders' as educators with me.

I considered my experience as an educator relative to the participants who are novice educators. I reassured them by explaining how my background in curriculum and instruction was integral to pairing with the residents' background in learning and teaching medicine, with subjectivities from both merging together to strengthen findings (Tracy, 2020, p. 63). I felt that reassurance would enable the participants to be forthcoming, on which my interview data depended. While I am not sure if this reassurance was responsible, I found the participants openly shared their experiences without hesitation.

1.6.5 Researcher Assumptions

I entered the study with several assumptions. First, I assumed honest responses from the study participants upon which analysis and interpretation of the data depended. To promote truthfulness from participants, I preserved anonymity and confidentiality of their responses, assigning pseudonyms to all file records. Further, I asked participants to omit faculty names when describing details from learning experiences. In this way, participants were assured that I did not have identifying information of faculty to connect

back to their descriptions of teaching practices. The privacy of faculty members was also protected in this way, even though they were not participants, ensuring ethical practice within the community I studied. Ensuring anonymity of faculty members and confidentiality for residents intended to foster truthfulness during interviews. I also conducted member checks, honoring the meaning that participants attached to their experiences as the truth they expressed.

Integral to this study was my assumption that principles of adult learning are relevant to the GME setting, in particular to the design of the clinical learning experience including its teaching practices, and therefore, by default, to the development of resident autonomy. This assumption has directed my review of the literature beginning with a broad overview of adult learning and exploring related theories and conceptual models stemming from earlier work in adult learning theory. Areas of inquiry during interviews explored various aspects of these models, including teaching strategies in cognitive apprenticeship, engagement in self-directed learning, and situated learning's impact upon the resident's development of autonomy. Importantly, however, I did not force the data in this direction, but remained open to other possibilities.

Another of my assumptions was that residents continue to be underrepresented in collaborative decision-making concerning their education, especially in matters of curriculum and instruction. These decisions, from my experience, are typically made by the program director(s) and core faculty. Yet, developing instructional goals and strategies, and aligning teaching methods are well within the collaborative capability of the resident, an adult learner as well as teacher of other learners. Despite having little clinical experience, residents are entrusted to teach medical students and more junior residents, yet seemingly not entrusted to participate as teachers alongside the faculty in developing instructional practices to further the goal of all learning experiences, growth toward independence. In this way, they are marginalized within a power hierarchy of educational decision-making and problem-solving. By spotlighting their experiences

surrounding teaching practices relative to autonomy development, I am acting on this assumption by empowering their stakeholder role to address the problem this study addresses. I believe that this empowerment of the participants to shed light on a concern shared by their physician colleagues across GME appropriately engages them more fully in medicine's CoP, medical education, which brings me to my next assumption.

I am assuming a social context of learning applied to autonomy development (Lave & Wenger, 1991; Wakatsuki et al, 2018) that will drive my exploration of influences upon teaching practices. As discussed, the social context is part of learning theory that influenced me during my teacher training (Vygotsky, 1978). I ascribe to Situated Learning Theory (Lave & Wenger, 1991), believing that the residency period represents situated learning, or the residents' membership, role, and activities within a professional, social workplace, the CoP. Learning and teaching are activities situated in the CoP to which residents already belong as aspirants to a career in medicine. The theory suggests that one is accepted into, yet participates peripherally at first, learning from more senior members of the community. In this model, faculty members serve as the experts from which residents learn to be independent medical practitioners.

Extending this concept of novices learning from experts in the micro-community of academic medicine, I make an important assumption that I support from my experience working in faculty development in both the academic and private health care sectors: the faculty and residents are *both novices* in their role of learning to be expert teachers. As learners and teachers in the same CoP as the faculty, residents are positioned well to reflect, as novices, with their faculty colleagues upon instructional practices intended to contribute to their development.

In summary, I acknowledge these assumptions that I cannot prove but can reasonably support, honest and truthful responses from participants ensuring trustworthy data analysis, an underrepresented resident perspective worthy of contribution to knowledge in the field, and appropriate positioning of residents in a collaborative

capacity with faculty on matters of curriculum and instruction. These assumptions led me to explore my research questions through my lens as an educator, believing that learners have much to teach, and teachers much to learn.

1.7 Definitions of Key Terminology

The following terms that appear throughout this paper may be used in the GME context differently from standard usage. Here I define them in my own words for the purposes of this paper:

Attending: the supervising physician who may be an upper-level resident, subspecialty fellow, or faculty member

Autonomy: the ability to act independently and without supervision

Chief resident: a resident serving as a liaison and mentor, in either their final year or immediately following their final year of training (depending on their specialty)

Intern: a first-year resident

Rotation: a clinical learning experience, typically one month in duration

Upper level: a resident past the first year of training

Resident: a physician who has graduated from medical school and has entered a specialty training program, or "residency", with completion required to practice independently

Rounds: the process of visiting patient rooms as a physician team, discussing each patient, and reaching clinical decisions for the plan of care

Senior: a resident in their final year of training

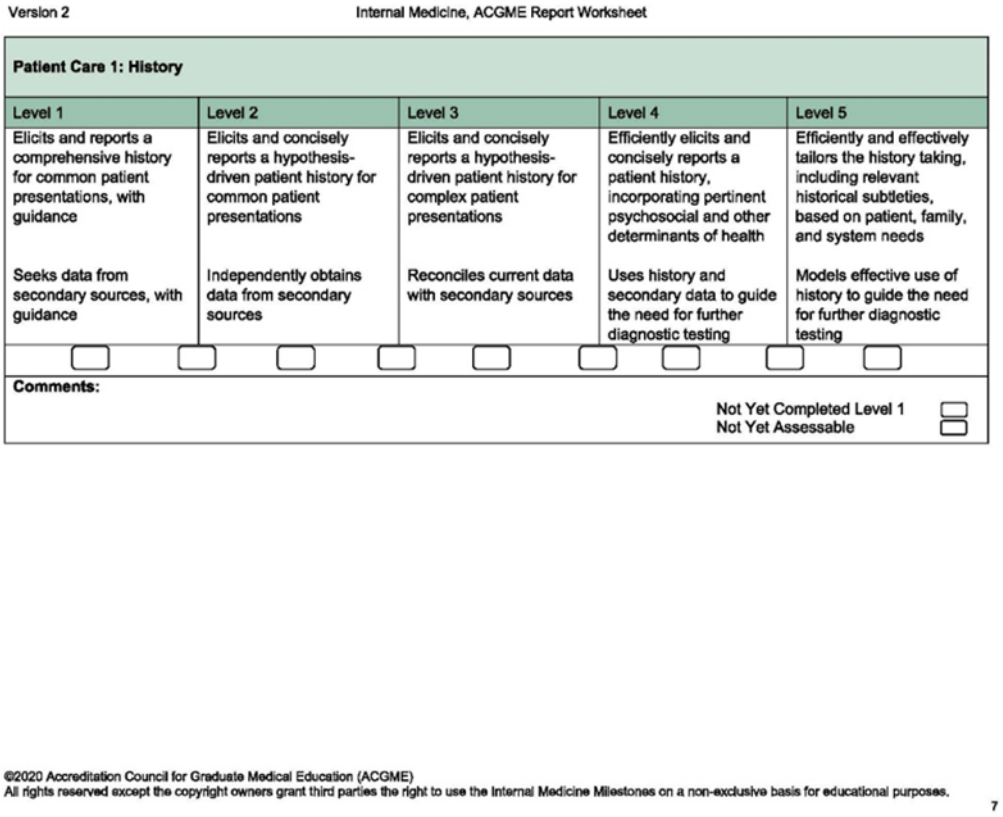
Wards: an inpatient service referring to the hospital "wards" for patients

1.8 Organization of the Dissertation

This chapter introduced my study, including the purpose and problem it sought to address, for a topic that is timely for its contribution to GME and the greater community that physicians train to serve. The research questions, an overview of the study design, and the study's rationale and significance are all well aligned with the study's purpose and the problem it addresses. Additionally, I have discussed my role as the researcher and assumptions I brought to the study. These assumptions may have impacted the study's direction and focus, which I acknowledge. I accept that subjectivity necessarily reflects my own biases and those of the residents.

The remaining chapters will present a state-of-the-art literature review (Chapter 2) and related ACGME document review; a deeper description of the qualitative methodology and approach used in my research, including the setting, participants, methods for data collection and analysis, and the study's trustworthiness and limitations (Chapter 3). The study's findings representing my integrated analysis, interpretation and synthesis of results appear in Chapter 4, and my conclusion along with implications and recommendations for future, as well as my final thoughts, study sum up the study in Chapter 5.

Figure 1.1 Excerpt from Internal Medicine Milestones



Version 2 Internal Medicine, ACGME Report Worksheet

Patient Care 1: History				
Level 1	**Level 2**	**Level 3**	**Level 4**	**Level 5**
Elicits and reports a comprehensive history for common patient presentations, with guidance	Elicits and concisely reports a hypothesis-driven patient history for common patient presentations	Elicits and concisely reports a hypothesis-driven patient history for complex patient presentations	Efficiently elicits and concisely reports a patient history, incorporating pertinent psychosocial and other determinants of health	Efficiently and effectively tailors the history taking, including relevant historical subtleties, based on patient, family, and system needs
Seeks data from secondary sources, with guidance	Independently obtains data from secondary sources	Reconciles current data with secondary sources	Uses history and secondary data to guide the need for further diagnostic testing	Models effective use of history to guide the need for further diagnostic testing
☐	☐	☐	☐	☐

Comments:

Not Yet Completed Level 1
Not Yet Assessable ☐

7

Note: From "Internal Medicine Milestones" by Accreditation Council for Graduate Medical Education, 2020, p. 7 *(https://www.acgme.org/globalassets/pdfs/milestones/internalmedicinemilestones.pdf*). Retrieved September 16, 2023.

CHAPTER 2. LITERATURE REVIEW

2.1 Introduction

The purpose of this interpretative phenomenological study is to illuminate the resident experience surrounding the development of autonomy in clinical decision-making relative to teaching methods they encounter and practice in their dual role of learner/teacher. To align with the intent to address why the problem cited may manifest itself in GME today, I selected a literature review methodology to explain why a current state exists, the state-of-the-art review (Barry et al., 2022; Grant & Booth, 2009).

This methodology, for which the historical perspective is key, involves the understanding of a phenomenon that has developed and why, questions whether decisions at certain points might have been made differently and offers new insights based on the researcher's path of inquiry (Barry et al., 2022). The state-of-the-art review provides a historical frame: "This is where we are in our understanding of this topic. This is how we got here. This is where we could go next" (Barry et al., 2022, p. 285). This review methodology fits my project well.

Four ontological principles of the state-of-the-art review help frame why this type of review aligns well with my study. The phenomenon studied (1) is subject to authors' differing views and data interpretations that offer multiple perspectives in the literature; (2) can only be partially understood because of limitations such as researchers' orientations; (3) has a subjective reality because of the researchers shaping our understanding of it; and (4) has a context for the review of evidence that informs the review, including a historical perspective (Barry et al., 2022, p. 284). I submit that the question of how the development of resident autonomy may be influenced by teaching practices common to resident experiences, is such a phenomenon.

2.2 Review Procedure

Following the steps suggested by the authors, I initially approached the literature for a broad overview of adult learning to get a sense of the developments across time (I selected decades as approximate markers). I selected the following databases for my inquiry: ProQuest, Academic Search Complete, ERIC, and APA PsychInfo for research in education and PubMed to capture work in GME.

Following the streams of work stemming from the introduction of adult learning theory (Knowles, 1968) and branching further into the cognitive, psychological, and social aspects of learning per the multiple perspectives, I began a more focused search into the literature within the last ten years surrounding learner autonomy. In tandem with the search terms "learner autonomy" and "autonomy development", I branched into themes I uncovered from the overview with new related search terms including "learner-centered", "self-directed learning", "professional identify formation", "cognitive apprenticeship", "scaffolding (teaching technique)", "situated learning", "community of practice", and "teaching strategies". I looked for connections that I considered applicable to autonomy development during residency.

Next, I determined a timeframe for turning points in GME relevant to the question of adult learning and autonomy development to pull together conceptually the historical developments from the field of adult learning relevant to learner autonomy with where we are today in GME with attempts to foster resident independence. I performed this stage of the literature search tailored to GME, using PubMed for the subject terms "learner autonomy" AND "learner independence" OR "resident autonomy" AND "resident independence", limited to publications in English, obtaining 252 initial results. After excluding articles based on non-relevance, such as studies in which the term 'resident' pertained to residential living in a care facility, or autonomy simply being a

desired attribute of a program expressed by an applicant, etc., 201 articles were included for thematic analysis.

2.3 Review of the Literature

2.3.1 Adult Learning

I began with Knowles's model of assumptions (1984) for better understanding of other authors' work in andragogy (adult learning) that followed his lead. Knowles initially listed assumptions and principles that set andragogy apart from pedagogy, or the teaching of children (1968). Initially proposing a model of four assumptions about adult learners, he later expanded the model to five assumptions (1980), finally settling on an expanded model of six assumptions with further application of accompanying teaching strategies (1984). With his later revisions incorporated, he characterized adult learners as follows: (1) they become more independent and self-directed, relying less on others for what is learned, which informs their self-concept; (2) their lifetime experiences serve as a learning resource; (3) their readiness to learn corresponds to what they consider is needed to perform tasks in a specific social/work role; (4) they desire to apply learning to immediate problem-solving, demonstrating performance of what has been learned; (5) they are intrinsically motivated to learn and continue to develop as lifelong learners; and (6) they need to know why they are learning (1968; 1980; 1984; Merriam, 2001).

Revision from his earliest work no longer separated learners into categories by their age, but rather according to their learning roles. He acknowledged that learning context, rather than learner age, could distinguish between a dependent or student role (in which case pedagogy may be appropriate) while the non-dependent learner in a 'member' role within a CoP provides the context for andragogy (Knowles, 1980). This helped explain to his critics why some adults at the novice skill level still looked to their expert

for more teacher-directed guidance (a hallmark of pedagogy), instead of being self-directed, for example.

The 1970's and 80's reflect work with a similar approach as Knowles, by observing adult learners and noting their characteristics, preferences, and tendencies (Kidd, 1977; Long, 1983; Mast & Van Atta, 1986 as cited by Cyr, 1999). Aside from the issue of the lack of empirical testing to qualify as learning theory, some questions arose about whether there was too much emphasis on learner characteristics when other influences deserved study. Some authors questioned whether Knowles's andragogy assumptions fit all adult learning contexts (Dailey, 1984; Marshak, 1983). This consideration of the learning context as superseding learner characteristics laid the groundwork for further investigation into the social and cultural forces that impacted adult learning (Cross, 1981; Knox, 1980; Mezirow, 1981). Knowles continued to remain true to one of his major themes throughout all his work, that it is up to the teacher, as a facilitator of learning, to understand the learner's motivation and employ teaching strategies accordingly (1989). This devoted stance to learner-centeredness in developing teaching strategies for adults paved the way for further theory development in the next decade.

2.3.1.1 Adult Learning Theories

During the two decades starting in the 1990's, authors deepened study into one or more of Knowles's assumptions. For example, we see Self-Directed Learning (SDL) formalize into a theory (Candy, 1991; Garrison, 1992) and several authors providing insights into SDL's overlap with Transformative Learning (Cranton, 1994; Mezirow, 1991). Some researchers wondered if more attention should focus on other influencing factors upon adult learning such as the social aspects of culture, politics, and the setting (Brookfield, 1993; Cranton, 1994; Merriam, 1996; Pratt, 1993 as cited by Merriam,

2001). Situated Learning Theory (SLT) within a professional CoP was suggested (Lave & Wenger, 1991), laying the groundwork for more work to follow studying social interactions as influences upon learning. Cognitive Apprenticeship Theory (CAT) (Collins et al., 1991) provided the think-aloud model so integral to understanding how a learner patterns cognitive processes after the expert who articulates them, differentiating itself from the traditional, behavioral apprenticeship model that involved only observing the expert's performance, as was common in the medical education setting (Lyons et al, 2017). Each of these models provides concepts and theory central to my topic.

2.3.1.1.1 Situated Learning Theory (SLT)

SLT, proposed by Lave & Wenger (1991), speaks to an adult's membership, role, and activities within a professional, social workplace, called a 'community of practice' (CoP). Medicine is a CoP that encircles micro-communities of practice, such as medical education. Learning, then, is situated in the CoP to which learners already belong as aspirants to a career in medicine. Key to the conceptual model is the idea that one is accepted into, yet participates peripherally at first, learning from more senior members of the community. Participation of the novice increases as more is learned across time from the expert until full participation is achieved (Lave & Wenger, 1991; Dong et al., 2021). However, a limitation of CoPs, that communities often perpetuate power structures and identities over time that may not represent ideals to emulate, is worthy of consideration relative to this study (Roberts, 2006).

With learning dependent on engagement within the CoP, I wondered from the resident perspective, what level of participation they are welcomed into, and what marks movement from peripheral participation to full membership. This inquiry relates to how residents attach meaning to the support of the development of autonomy within the larger CoP as a physician, and I would also argue, within the smaller but no less important

micro-community of practice, medical education (in their role as teachers). The line of inquiry also supports how their professional identity develops toward that of a physician capable of independent practice, reflecting full-fledged membership in the CoP. I began thinking that residents' roles as teachers also included professional identity formation (PIF) from a novice clinician educator into the autonomous clinician educator. I will discuss PIF next.

2.3.1.1.2 Professional Identity Formation (PIF)

The work of Cruess and colleagues (2014; 2019) applies modern applications of the PIF framework to GME. The authors propose that the development of professional identity is cognitively and socially based (a cognitive and social constructivist perspective) rather than behaviorally based. When explicitly stated as a learning objective in the curriculum, teaching practices and assessment follow. They further suggest that learner engagement in the goal-setting process, with explicit instruction in the identity's norms with self-reflection are key to successful integration in the CoP, which leads to the desired professional identity. Looking through this lens, I examined the literature for relevant connections to resident autonomy development and teaching.

Studies in PIF during residency training provide a correlation between increased participation from the periphery to full inclusion in the CoP, and the influence of increased autonomous clinical decision-making on PIF (Chew et al., 2021; Hansen et al., 2019; Sawatsky et al., 2020; Torralba et al., 2020). Research specific to residents in a Clinician Educator Training (CET) program showed positive PIF as a clinician after development as an educator, with existing tensions between the two roles noted (Byram et al, 2022).

Additionally, collaborative curricular planning between the faculty and residents resulted in residents' reflective practice, and perceptions of the relevance of the

curriculum by making connections across learning experiences (Hansen et al., 2019). These outcomes also frame the activities of a self-directed learner who is developing the ability to make clinical decisions independently, connecting PIF to Self-Directed Learning (SDL) and the development of resident autonomy.

2.3.1.1.3 Self-Directed Learning (SDL)

SDL is the process by which a learner takes initiative and responsibility for her/his own learning, making learning decisions with or without the teacher as a facilitator (Candy, 1991; Garrison, 1992; Loeng, 2020; Tough, 1978). SDL is a learner-centered process that is at once individual and collaborative (Morris, 2019). Many adults are self-directed in some situations but not others, with varying ability (or stages) of being able to self-direct (Loeng, 2020), supporting Knowles's claim forty years earlier that pedagogy and andragogy are not separated by learner age but by learning context (1980). This context includes the culture of the learning environment, particularly interactions with faculty (Ginzburg et al., 2021; Loeng, 2020).

Recent research continues to reinforce the foundational tenets of SDL, steering away from positioning self-directiveness as an inherent learner characteristic (Kruszelnicki, 2020) and other departures from its conceptual intent. The teacher's role in gauging the learner's self-direction and working to facilitate its development is key to the process (Kruszelnicki, 2020; Loeng, 2020), yet the faculty member's comfort with his/her role as facilitator may be a barrier to SDL even extending to a reluctance to give up an authoritative position held in teacher-directed learning (Morris, 2019; Nasri, 2017). Because self-direction derives from a constructivist paradigm that is learner-centered, this reluctance to depart from a teacher-centered approach (a positivist paradigm with a behaviorist epistemology) poses a conflict for both teacher and learner. The issue of opposing paradigms is also relative for analysis of the ACGME documents for

paradigmatic and epistemological evidence that may conflict with SDL and the learner-centered instruction it embodies.

2.3.1.1.4 Person-Process-Context (P-P-C)

A conceptual model derived from SDL is Person-Process-Context (P-P-C) (Hiemstra & Brockett, 2012). This model suggests a dynamic interplay between three dimensions: the adult's characteristics such as those shaped by experiences, personality, self-concept (the "person"); the skill needed to engage in SDL (the "process"); and the learning environment shaped by social interactions, culture, politics, power (the "context"). This model effectively pulls together consideration of individual learner characteristics that persist in the literature as a determinant for SDL (Ginzburg et al., 2021) while recognizing SDL as a developmental process responsive to the learning context.

Research suggests that a balance of the three dimensions of P-P-C is most effective for SDL; the person is inclined to be self-directed, the learning and teaching process promotes SDL, and the learning climate supports it (Sawatsky et al., 2020, pp. 158-159). Probing learners for their impression of this balance helped to give meaning to the learning experience, or an interpretation of the curriculum in action.

2.3.1.1.5 Cognitive Apprenticeship Theory (CAT)

As mentioned in Chapter 1, medicine has a long history of the traditional, behavioral apprenticeship model for transference of skill from the expert physician to the novice student, resident, or fellow. This traditional model served to situate the learner in an observer role, which worked well for learning technical skills (such as surgical procedures) and clinical skills such as the physical examination. Because the cognitive

processes of an expert cannot be observed, it became imperative to translate those processes into a form that could be conceptualized and emulated by novices. CAT (Collins et al., 1991) contributed the 'think aloud' method of communicating steps in clinical reasoning through the articulation of them, allowing the cognitive process to be spoken out loud and heard, by either the expert or the learner. This distinguishing characteristic of cognitive versus traditional apprenticeship is significant because modeling, scaffolding, and coaching are methods within both apprenticeship models.

CAT connects four parts of the learning environment into a contextual whole for teaching, or apprenticing the learner: content (knowledge), method (teaching strategies), sequence (increasing difficulty in learning tasks), and sociology (interactions with others) (Collins et al., 1991; Lyons et al., 2017). The cognitive apprenticeship (CA) model organizes teaching strategies in the methods domain into a continuum of scaffolding, modeling, coaching, articulation, reflection, and exploration, as part of situated learning within a positive learning climate. These strategies, not always linear, flow iteratively depending on learner needs.

Scaffolding refers to the expert's provision of support to the learner while learning, with fading, or withdrawing support when no longer needed, inherent in the process. Modeling is provided by the expert so that the learner has a standard to emulate. Coaching by the expert may include various techniques such as questioning, probing, providing hints, bridging between prior knowledge and that required for the present task, and may integrate scaffolding and modeling. Articulation refers to the learner's think-aloud process, demonstrating the level of mastery of the cognitive task. Teacher articulation may be used as modeling. Learner reflection and exploration are largely self-directed activities but are included as teaching methods because of the teacher's role. The teacher moves the learner toward identifying gaps between the novice's performance and the expert's standard (reflection), as well as crafting goals needed to apply what has been learned to future endeavors and interests (exploration) (Collins et al., 1991).

The application of the CA model has gained popularity in medicine and other health professions since its introduction (Butler et al., 2019; Dong et al., 2021; Minshew et al., 2022) although some authors have cautioned that successful application requires faculty development in teaching skills associated with the model (Konishi et al., 2020) as well as considering curricular limitations such as the configuration of learning experiences (Stalmeijer et al., 2013).

Narrowing the corpus further to connect my focal point of the resident experience shaped by the integration of teaching strategies to foster autonomy within an intentional curriculum aimed at this goal (again, influenced by my background and orientation) to the CA model, I found relevant work by authors that reflected an integration of these ideas. Strategies such as curricular and task sequencing, allowance for time-to-struggle, and supervisory fading techniques (Carbo & Huang, 2019; Chen et al., 2015b; Kempenich & Dent, 2021; Shoirah et al., 2018) are supported by the CA model.

The literature provided disparate learner perceptions of faculty application of CA teaching strategies, with results varying for the most apparent and effective methods of the six in the CA model (Shaddel et al., 2016; Tariq et al., 2021). Authors raised issues such as whether some strategies were more easily identifiable than others by learners, the need for more education on the model's components, and level-appropriateness of some of the strategies for novices and advanced learners (Shaddel et al., 2016; Merritt et al., 2018; Tariq et al., 2021).

2.3.1.2 GME Timeline

An approximate timeline for GME's attention to the development of resident autonomy emerged as follows: First appearance of the topic with one article connecting it to self-directed learning activities approximately forty years ago (Levchuk, 1983); nine articles during the next decade and a half identifying associated teaching behaviors (Irby

et al., 1991) including a prevailing interest in the impact of the learning experience's structure on autonomy within the hospital setting (Freed et al., 2009; Landrigan et al., 2003; Moreno & Shaffer, 2006; Ozuah & Curtis, 2001; Roey, 2006). A steep increase during the period 2010-2019 (89 articles) included movement from further study of the impact of the structure of learning experiences theme (Kerlin & Halpern, 2012; Rappaport et al., 2012; Rosenberg et al., 2011), to an exploration of teaching behaviors promoting autonomy (Biondi et al., 2015; Chen et al., 2015b; Torbeck et al., 2015) to various effects upon autonomy prompted by specific teacher actions of increasing and decreasing supervision (Finn et al., 2018; Smith et al., 2019). Finally, an even greater uptick (98 articles) represents studies for less than a three-year period (January 2020 to August 2023), reflecting more inquiry into social and psychological aspects of the learning experience that may impact autonomy development (Sawatsky et al., 2020; Young et al., 2020); continued study of perceptions of the balance of supervision and autonomy (Makdissi et al., 2022; Skelly et al., 2020); and perceived threats to patient safety relative to this balance (Oliver et al., 2023; Seegmiller et al., 2020; Williams et al., 2022). Most of the authorship during the last twenty years in GME stems from the specialty of Surgery, which indicates a need to broaden study of this topic across other medical specialties.

By reviewing the timeline representing literature specific to GME, I situated its summary relative to a document review of accreditation mandates by the ACGME that shaped curriculum and assessment, looking for historical congruence between the two. While the literature in GME explored and applied what was known from adult learning theories and related models to developing autonomy during residency, although appearing more slowly than these concepts appeared in the general corpus of literature, my document review revealed a surprisingly slower lag. I uncovered an ontological and epistemological stance that precedes the constructivist, learner-centered stance of CBME. This evidence may frame the ACGME's approach to curriculum and assessment,

suggesting that the approach also impacts teaching practices to correspond to curriculum and assessment. The approach may not reflect current thinking in developing a resident's autonomy within the social setting of the CoP.

2.4 Document Review

I suggest that a significant part of where we are today with resident autonomy development may be related to the ACGME's accreditation requirements. Since educational efforts in GME programs are largely driven by the ACGME as a regulating body, the analysis of ACGME documents for their approach to GME curriculum and instruction is appropriate for a state-of-the-art review (Barry et al., 2022). Because knowledge synthesis reflected in medical curricula and accreditation requirements continues to inform decisions beyond the program level (Barry et al., 2022), a narrow stance there may have inadvertently limited the approach across GME programs in crafting the learning experience, inadvertently impacting autonomy development. This approach may be driven by programs attempting to satisfy curricular requirements rather than developing intentional learning experiences with teaching strategies geared specifically to foster growth in autonomy.

To understand how today's GME efforts to address resident autonomy developed historically, I reviewed four seminal actions initiated by the ACGME on the heels of CBME's introduction. I suggest that three of these shaped an approach to curriculum and assessment, in turn shaping teaching practices, and the most recent may shape an approach to teacher versus teaching development. Those events are: (1) the introduction in 1999 of intent to use a competency-based educational framework to develop standards of competence for each medical specialty as a response to the public's demand for increased accountability for the quality of GME (Edgar et al., 2020); (2) release of the first version of the developmental milestones for each medical specialty defining

residency progress point standards for a physician's competence and proficiency in 2012; (3) release of the revised version of the milestones for learners in each specialty in 2020 (ACGME, 2020); and (4) release of the newly created Clinician Educator Milestones (ACGME et al., 2022). The first three actions by the accreditation body outlined a learning and assessment path for educators to gauge residents' readiness for autonomous practice, and the fourth action established learning progress points for faculty in their development toward competence and proficiency as an educator, couched in the same milestone framework used for trainees.

Revisiting these turning points in GME history and drawing on my background in curriculum and instruction to analyze the documents, I wondered how the approach to resident autonomy development was reflected in them, and if this approach mirrored current understanding supported by the literature. Serving as background evidence supporting the state-of-the-art literature review, the documents provided ontological, epistemological and paradigmatic evidence of approaches to learning and teaching relevant to my topic.

I contend that at each decision-making juncture, opportunity existed for GME to reflect a more constructivist and interpretivist view of learning consistent with research at the time that suggest that the development of autonomy and independence involves more than behavioral and cognitive development of the individual. Recognition of the sociocultural process of learning, which includes interactions between residents and faculty, and an interpretation of the curriculum by residency programs as a learning experience to co-craft with participants in those experiences, would have signaled a shift to a constructivist and interpretivist view of learning supported by the literature, even at the time these accreditation initiatives were introduced.

2.4.1 Document 1: ACGME Common Program Requirements

The development of resident autonomy over time toward the graduation target of independence is a requirement for every medical specialty in GME, appearing in multiple sections of the *ACGME Common Program Requirements (Residency)* document (ACGME, 2023). As discussed in Chapter 1, the program requirements describe resident autonomy as gradual over time, with earned privileges according to the learner's ability, experience, patient acuity and complexity, within a balance of supervision and learner autonomy determined by the program's faculty. The entrustment of autonomy and the ability to fade supervision as required, rests within two assumptions: an expertise level for teaching strategies that will accomplish this goal, and a teacher-centered approach to determining the balance of supervision and autonomy.

First, regarding teaching expertise, the literature indicates that there is no clear consensus currently with respect to effective clinical teaching practices (Hartford et al., 2017; Huang et al., 2019; Pierce et al., 2020; Ricotta et al., 2020) or specific teaching strategies targeting the learner's development of autonomy in the clinical setting (Anderson et al., 2022; Kempenich & Dent, 2021; Neufeld, 2021). Because the process of autonomy development itself is poorly understood (Carbo & Huang, 2019; Crockett et al., 2019; Neufeld, 2021; Sawatsky et al, 2022), it would be unlikely to assume faculty expertise in teaching strategies to meet that goal at present.

Second, the teacher-centered approach is not reflective of CBME, which is built upon foundational adult learning principles (Bleich & Jones-Schenk, 2016; Gervais, 2016; Holmboe et al., 2017; ten Cate, 2017). The learner-centered approach is evident in conceptual models and learning theories derived from adult learning principles such as those I have selected: SL (Lave & Wenger, 1991); PIF (Cruess et al., 2014; 2019); SDL (Candy, 1991; Garrison, 1992; Tough, 1978); CA (Collins et al., 1991); and P-P-C (Hiemstra & Brockett, 2012). No matter which of the multiple sections of the *ACGME*

Common Program Requirements (Residency) (ACGME, 2023) addresses resident autonomy, if true to the intent of CBME, the learner-centered approach would be reflected there. Therefore, both of these assumptions reflected in the documents, teacher expertise and a teacher-centered approach for autonomy determination, misguide the direction for identifying, developing, and implementing teaching strategies to fulfill the ACGME's program requirement for an appropriate level of supervision and autonomy. The intention to develop residents along the path toward independence may be hindered by the lack of direction for instructional methods to accomplish the goal.

2.4.2 Document 2: ACGME Milestones for Residency

In Chapter 1, I explained that the milestones narratives for assessment of resident progress in the competencies and sub-competencies indicate a mix of learning models; Bloom's Taxonomy, (Anderson & Krathwohl, 2001; Bloom, 1956) informing the choice of phrasing for simpler cognitive processes of clinical reasoning to more complex; the Dreyfus Model of Skill Acquisition informing the labels of 'novice' to 'expert' (Batalden et al., 2002; Dreyfus & Dreyfus, 1980); and Miller's Pyramid of Clinical Competence depicting a progression from simply knowing to teaching others (Miller, 1990). All of these models reflect teacher-centered learning, a behaviorist approach to learning, contrary to the intent of CBME introduced by the ACGME in 1999. While each specialty determines their own set of milestones, or progress points for their learners, they apply the same milestones framework established for all specialties by the ACGME.

A limitation of the milestone framework is its neglect of the social aspect of learning within the community of practice and the associated development of professional identity. Part of this development is the learner's perception of themselves as a fit among the other members of the community of practice (CoP) with similar expertise and values (Cruess et al., 2014). As my findings will show, professional identity

formation (PIF) may be impacted for the resident when the integrated role of expert clinician educator is not held up in the CoP as a model for autonomous practice. However, the milestones were written to reflect observable behaviors that residents demonstrate as indicators of their progress, which does not translate well to measurement for social learning. The development of professional identity, progress in self-directed learning, or level of functioning in cognitive apprenticeship (such as learner response to scaffolding or fading techniques) may also indicate markers of progress in growth toward independence. I suggest that the milestones framework may be limiting in this respect.

2.4.3 Document 3: ACGME Clinician Educator Milestones

The recent release of the *Clinician Educator Milestones* (ACGME, 2022a) perpetuates the behaviorist approach to learning (Conti, 2007; Murtonen et al., 2017), this time intended to develop teachers along points of progress using the same milestone framework as for residents (see Figure 2.1). Because the same framework is utilized, the same limitations I've already described apply to this document as well. Additionally, the document does not describe discrete skills as points of progress in teaching practices, instead it centers on defining and developing characteristics of a clinician educator. In this study, I propose that more effort in identifying, developing, and improving teaching practice would sustain teaching quality for GME programs across time rather than developing the characteristics of an individual faculty member with only temporal longevity during her/his tenure. The notion of revising the Clinician Educator Milestones to make them clearer for residents developing competencies as teachers is supported in the literature (Liang et al., 2022).

2.5 A Compass for GME

I return now to the competency-mapped pathways initiated by the ACGME: the introduction of CBME and intent to implement a milestone framework for learner assessment in 1999; the release of the two versions of milestones in 2012 and 2020, and the introduction of the *Clinician Educator Milestones* in 2022. I position these again at the crossroads for considering alternatives for the journey toward the destination of resident autonomy. With the assumption that "*we haven't gotten there yet*" (Barry et al., 2022, p.285) and backed by the evidence from the literature that many specialties have valid concerns regarding residents' readiness for independent practice (Crockett et al., 2019; George et al., 2017; Jain et al., 2021; Mieczkowski et al., 2021; Plesac & Olson, 2019; Sanaee et al., 2019), I suggest a compass pointing programs toward a focus on examining the learning experience and implementing teaching strategies specifically geared to promote learning autonomy, while honoring CBE principles. This focus remains true to adult learning assumptions, as they "become a personal interactive agreement between the learner and the learning endeavor, the 'experience'" (Birzer, 2004; as cited by Taylor & Kroth, 2009, p. 7).

2.6 Theoretical Framework

For this phenomenological study with an interpretative phenomenological analysis (IPA) approach, three theoretical roots form the framework: phenomenology, hermeneutics, and ideography (Smith et al., 2009; Smith & Nizza, 2022). Phenomenology (Husserl, 1970; Heidegger, 1971) studies a phenomenon through the lens of participants' experiences as they recount them, considering them the experts for meaning constructed about daily happenings in their life. The theory asserts that the way to understanding a phenomenon and its characteristics is via the experts. In my study, the participants are experts who have experienced the phenomenon of autonomy

development and the teaching practices targeting this development, so I believed them to be best positioned to shed light on this topic.

Faced with a choice between two different philosophical approaches to phenomenology, I adopted the hermeneutical approach, finding that it aligned well with my research purpose and questions. The philosophy of hermeneutics (Heidegger, 1971), or interpretation of study participants' experiences, branches from earlier phenomenology, recognizing the researcher's own experience as a lens that contributes to meaning and sense-making. This philosophy framed my contribution alongside the participants who, while experiential experts, are also novice educators unfamiliar with identification of teaching methods and developmental learning strategies. I engaged in sense-making and interpretation of their experiences, too, a hallmark of hermeneutics.

Last, ideography underpins the interpretative phenomenological framework. Ideography focuses on the individual's meaning, recognizing nuanced interpretations without striving to generalize to a group, although patterns are noted and useful in helping to understand the phenomenon under study (Smith & Nizza, 2022). I applied this philosophy through careful examination of each participant's interview data, essentially looking at each within the context of that single person's experience, before looking at the whole. Similarities naturally arose and were clustered by theme, but I also illustrated participants' individual and unique interpretations of the same phenomenon through contextualized quotations.

The IPA framework aligns well with the research problem and study purpose, as I intend to illuminate the resident experience surrounding the development of autonomy in clinical decision-making relative to teaching methods they encounter and practice. As experiential experts, the study participants are positioned to enlighten the GME community through their interpretation of practices and processes perhaps not considered before. As the process of resident autonomy development is poorly understood at this time (Carbo & Huang, 2019; Crockett et al., 2019; Neufeld, 2021; Sawatsky et al, 2022),

and there is no clear consensus on effective clinical teaching practices (Hartford et al., 2017; Huang et al., 2019; Pierce et al., 2020; Ricotta et al., 2020), or for specific teaching methods targeting the development of autonomy (Anderson et al., 2022; Kempenich & Dent, 2021; Neufeld, 2021), application of the IPA framework in this study will contribute to research in a meaningful way for GME.

2.7 Chapter Summary

From the literature review, knowledge regarding resident autonomy and related teaching practices primarily reflected the Surgery specialty, for which teaching in operative procedures differs markedly from non-surgical specialties where the focus is on diagnostic and therapeutic decision making. My study's sample reflects non-surgical (and non-procedural) specialties, helping to fill the literature gap. Teacher behaviors and characteristics promoting autonomy are addressed in the literature (Biondi et al., 2015; Chen et al., 2015b; Torbeck et al., 2015), while my study focuses on cognitive teaching strategies. Social and psychological aspects of the learning experience that may impact autonomy development are presented in the literature (Sawatsky et al., 2020; Young et al., 2020), setting up my study well for exploration of the resident's dual role of learner and teacher, as well as their PIF of clinician educator.

The latest research finds no effects upon patient safety when autonomy is increased (Finn et al., 2018; Oliver et al., 2023; Seegmiller et al., 2020; Smith et al., 2019; Williams et al., 2022), indicating the value of my study's exploration with participants on their interpretation of supervisors' provision of autonomy. My study also explores other factors upon which faculty determine the provision of autonomy, contributing to knowledge in this area as well as providing implications for further study on the effects of these factors.

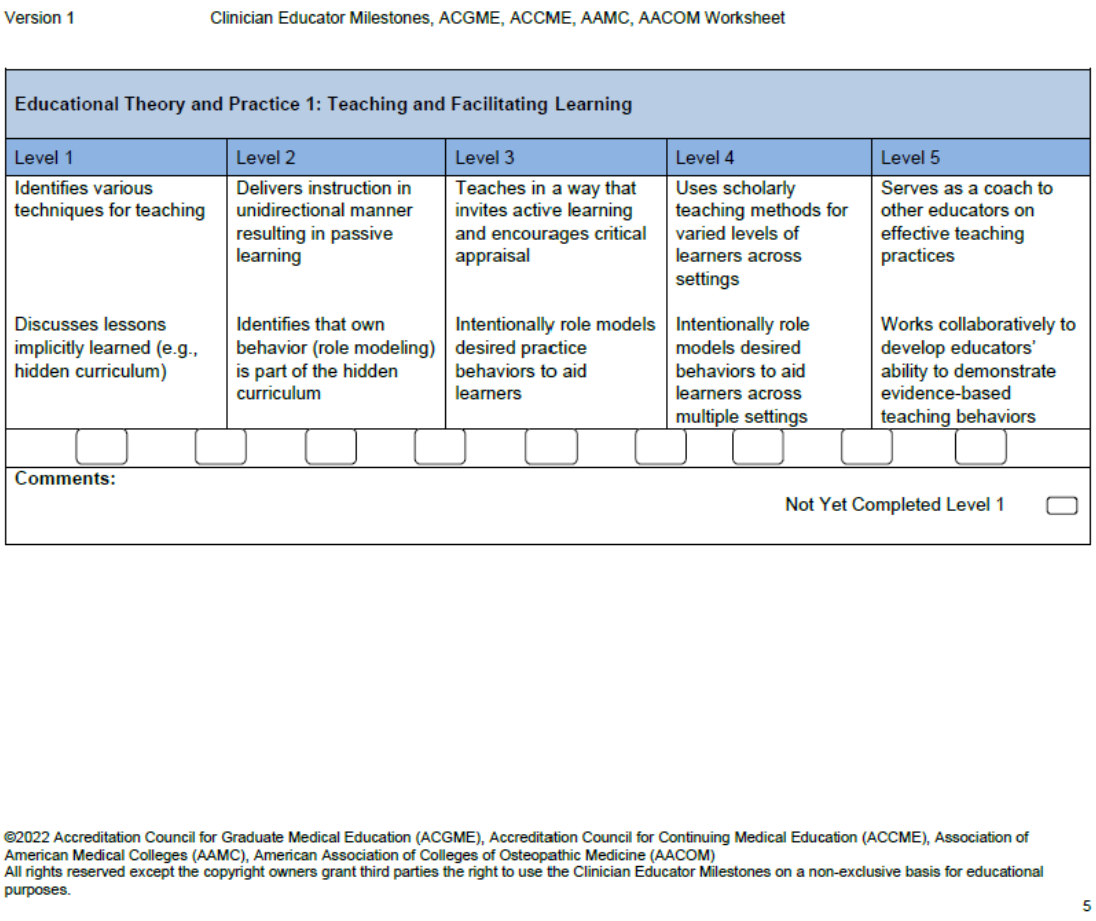
Studies of the resident experience of autonomy development reflected in a qualitative phenomenological study design, as I have conducted, represent a gap in the literature. Only one study in Anesthesiology, a procedure-driven specialty similar to Surgery's focus, appeared with this study design related to the topic (Wakatsuki et al., 2018).

My review of ACGME documents, as background to the state-of-the-art literature review (Barry et al., 2022), revealed a post-positivist, behaviorist stance contrary to CBE principles reflecting constructivist learning theories (Conti, 2007). This may have inadvertently hindered teaching development and its alignment to a curriculum designed to meet residents' individual learning needs, as I have explained. Despite CBME's introduction more than twenty years prior to the latest release by the ACGME of the specialty milestones (ACGME, 2020), and the *Clinician Educator Milestones* (ACGME et al., 2022a), these documents still neglect to address much of what is known from adult learning theories, such as social learning in the CoP, PIF of the clinician educator, and specific evidence-based teaching practices.

Consistent with the inductive IPA approach (Smith & Nizza, 2022), and distinct from quantitative studies, I will discuss additional studies from the literature in connection to my findings and conclusions in Chapters 4 and 5. Because I did not know what my results would yield, this chapter set the stage for entering the study. Additional searches in the literature helped me to understand my findings.

In the next chapter, I will discuss the methodology and research approach for my study. My study's design, phenomenology, maintains congruence between its methodology and the state-of-the-art literature review approach I have described in this chapter. My investigative path continues from the literature review to collecting data from the participants to help bridge "*This is where we are in our understanding of this topic*" and "*This is how we got here*" (Barry et al., 2022, p. 285) to "*This is where we are now.*"

Figure 2.1 Excerpt from Clinician Educator Milestones



Version 1 Clinician Educator Milestones, ACGME, ACCME, AAMC, AACOM Worksheet

Educational Theory and Practice 1: Teaching and Facilitating Learning				
Level 1	Level 2	Level 3	Level 4	Level 5
Identifies various techniques for teaching	Delivers instruction in unidirectional manner resulting in passive learning	Teaches in a way that invites active learning and encourages critical appraisal	Uses scholarly teaching methods for varied levels of learners across settings	Serves as a coach to other educators on effective teaching practices
Discusses lessons implicitly learned (e.g., hidden curriculum)	Identifies that own behavior (role modeling) is part of the hidden curriculum	Intentionally role models desired practice behaviors to aid learners	Intentionally role models desired behaviors to aid learners across multiple settings	Works collaboratively to develop educators' ability to demonstrate evidence-based teaching behaviors

Comments:

Not Yet Completed Level 1

5

Note: From "Clinician Educator Milestones" by Accreditation Council for Graduate Medical Education, Accreditation Council for Continuing Medical Education, Association of American Medical Colleges, & American Association of Colleges of Osteopathic Medicine, 2022, p. 14 (*https://www.acgme.org/globalassets/pdfs/milestones/standalone/2022/clinicianeducatorsupplementalguide.pdf*). Retrieved April 9, 2023.

CHAPTER 3. METHODOLOGY AND RESEARCH APPROACH

3.1 Introduction and Overview

The purpose of this qualitative phenomenological study is to illuminate the resident experience surrounding the development of autonomy in clinical decision-making relative to teaching methods. Throughout this study I looked for clues to the research problem that brings into question residents' readiness for unsupervised practice (Crockett et al., 2019; George et al., 2017; Jain et al., 2021; Mieczkowski et al., 2021; Plesac & Olson, 2019; Sanaee et al., 2019). I began this research journey by wondering if a better understanding of the resident experience with teaching practices may shed light on the development of resident autonomy, a process poorly understood currently in GME (Carbo & Huang, 2019; Crockett et al., 2019; Neufeld, 2021; Sawatsky et al, 2022). Because there is also no consensus on effective clinical teaching practices (Hartford et al., 2017; Huang et al., 2019; Pierce et al., 2020; Ricotta et al., 2020), I believe that residents are best positioned to inform the GME community about lived experience with teaching and the learning it hopes to facilitate.

I selected a qualitative research design, with an interpretative phenomenological analysis (IPA) method (Smith et al., 2009; Smith & Nizza, 2022). I considered alignment of the study design, my worldview, the study aim, and the research questions to select a research design to best fit my inquiry. Focusing on the resident experience, a hallmark of phenomenology (Tracy, 2020), to identify and give meaning to teaching practices and autonomy development from the resident's perspective, fills a gap in the literature that will contribute to the field of knowledge and address the research problem.

Eight volunteers representing various non-surgical specialties and residency programs agreed to participate in this study (see Table 3.1). I conducted in-depth interviews from September to November 2023, and concluded follow-up interviews in February 2024. All participants willingly shared their experiences with me. I refer to

these participants throughout this paper by their assigned pseudonyms: Alex, Chris, Imani, Jody, Marco, Shawn, Taylor and Zahir. Participant quotations are verbatim from the transcripts that I cross-checked with the video recordings for accuracy.

This chapter will further describe my research sample, including an overview of the information I considered important to the study. I will describe my research design and methodology to fit the study's purpose. I will describe my methods for data collection, analysis and synthesis. Finally, I will include ethical considerations and issues of trustworthiness, indicating limitations and delimitations (Bloomberg & Volpe, 2019).

3.2 Research Sample

Voluntary participants in my study represent purposive sampling (Miles & Huberman, 1994; Smith et al., 2009; Smith & Nizza, 2022) from these residency program specialties: Internal Medicine (IM), Pediatrics (Peds), and the combined specialties of Internal Medicine-Pediatrics (Med Peds), and Internal Medicine-Psychiatry (Med Psych), within a large public research university in the mid-South (see Table 3.1). I deliberately selected non-surgical specialties for my study because most of the studies regarding the development of resident autonomy pertain to the Surgery specialty (Chen et al., 2015b; Kempenich & Dent, 2021; Oliver et al., 2023; Seegmiller et al., 2020; Smith et al., 2019; Torbeck et al., 2015; Williams et al., 2022; Rivard et al., 2022; Sharma et al., 2022), indicating a need to broaden study across other specialties. Because the Surgery specialty is procedure-driven, teaching operative skills with the goal of developing autonomy may represent a significantly different experience than for non-surgical residents as my study sample represents. Although concern related to resident readiness for independence appears in the literature for Internal Medicine (Crockett et al., 2019; Finn et al., 2018; Mieczkowski et al., 2021), I am not aware of any program quality or resident readiness issues related to autonomy development in the programs I have selected.

The hospital setting for residency in this institution provides various inpatient and outpatient learning opportunities in primary and acute care. Residents from my sample are scheduled onto a longitudinal outpatient experience for the duration of their residency, known as continuity clinic. In this clinic, residents establish a doctor-patient relationship with a panel of patients they see during appointments for primary care. Their schedule also consists of rotations that typically last one month, but these may be shorter due to vacations or enabling another rotation to share the month-long time frame. Rotations typically include other outpatient clinics as well as inpatient experiences, known also as "wards", referring to the hospital wards for patients. These inpatient experiences operate under a hierarchical teaming structure with a supervising faculty member at the top, and one or two of the following, as needed to cover the demands of the service based on patient load: a fellow or upper-level resident (PGY-2, 3, 4, or 5) under the indirect supervision or oversight of the faculty member, an intern (PGY-1), and sometimes, medical students. Other inpatient services operate similarly, such as the intensive care unit. Outpatient services may vary, with some including teaming while others do not.

GME and Institutional Review Board approval were obtained on 7/25/23. I presented the opportunity to participate in this study at a resident meeting in-person on 8/21/23, with a recruitment letter sent by email on 8/22/23 inviting all residents in the IM program as well as the three chief residents serving a year post-training as mentors and liaisons within the program. Despite an additional follow-up email, I only obtained one IM participant. That participant invited a resident from another program, enabling snowball sampling (Coleman, 1958; Goodman, 1961) to obtain an additional participant. I received IRB approval to extend recruitment to additional programs. I limited recruiting to programs that combined another specialty with the IM specialty (Med Peds, Med Psych), and I also included Peds as a specialty connection to Med Peds. By expanding the programs, I obtained six more participants through extended recruiting for a total of

eight (see Table 3.1). I followed up with a second email and was not able to enroll any more volunteers. I obtained written informed consent from each participant prior to beginning the study.

Although I obtained only eight participants, a small sample is acceptable for the qualitative study design (Miles & Huberman, 1994; Morse, 2000; Vasileiou et al., 2018; Smith & Nizza, 2022). Because the focus is understanding each individual's unique interpretation of an experience as a contribution to understanding a phenomenon, even the study of one individual's experience would be appropriate for a phenomenological study (Peoples, 2021; Smith & Nizza, 2022).

3.3 Overview of Information Needed

3.3.1 Contextual

The contextual information needed for my study describes the residency programs and the GME sponsoring institution in which the participants train. Length of training, typical clinical scheduling for residents (clinical context), and hierarchical structure of teaching roles for rotational experiences (i.e. faculty member, subspecialty fellow, resident peer) providing social context are all essential to situate the data in trustworthiness and transferability across GME. Further, participant PGY training level or status as chief resident is noted in demographic information collected. The Clinician Educator Track (CET), known as the "Academic Track" in this setting, prepares residents for a career in teaching. Because membership in a preparatory teaching track may influence the data collected on experience with teaching practices, I include this information to help address the study's rigor through impact upon participant experiences.

In addition to participant and setting information, I considered the review of external documents relevant (Barry et al., 2022; Bloomberg & Volpe, 2019). For

accredited residency programs such as the ones represented by my study participants, several areas of accreditation compliance intersect with my topic; that is, meeting ACGME requirements related to the provision of graduated autonomy by GME faculty, the faculty's assessment of resident progress toward independence, and the faculty's development of expertise as a teacher. Corresponding documents are, respectively, the *ACGME Common Program Requirements (Residency)* (ACGME, 2023), the *Internal Medicine Milestones* (ACGME, 2020), and the *Clinician Educator Milestones* (ACGME, 2022a). Review of these documents provides a sense of the efforts to address resident autonomy thus far and positions them as background evidence to the literature review (Barry et al., 2022). With this in mind, I reviewed each document through the lens of CBME, asking myself what general approach to learning and teaching manifested in the information presented within. As discussed in Chapter 2, I found that a teacher-centered, behaviorist approach in these documents conflicts with the tenets of CBME. The document review, then, provides a historical context for today's teaching practices relative to autonomy development, helping to explain, "*This is how we got here*" (Barry et al., 2022, p. 285).

3.3.2 Perceptual

Because I focused on the resident experience during interviews, perceptual information is critical to my study. For the IPA approach, this information is aptly referred to as interpretative. I needed to know how residents interpreted their experiences with teaching, how they perceived connections to and influences on the development of autonomy, and what assumptions they made as they discussed teaching (for example, where they saw themselves fitting in the social hierarchy of the CoP.) Eliciting interpretations required an open mind to the data, allowing participants to express what they believed to be true, as they interpreted events from their own experiences, and

confirming with them through member checks to address credibility (Bloomberg & Volpe, 2019). As experiential experts (the participants have lived through the experiences and are therefore rendering first-hand accounts), credibility is automatically afforded to them accordingly. I made a conscious effort during interviews to follow up with questions to participant responses that would elicit more details indicating a personal, lived experience. An example follows for an exchange between Chris and me:

> *Have you noticed, whether it's yourself or others teaching, copying the way they've seen others teach? In other words, they saw teaching modeled a certain way, and they're doing what was modeled for them? (Me)*
>
> I would definitely say so…especially like when the senior is allowed to, you know, lead rounds…Seen that pretty consistently. (Chris)
>
> *Can you give me an example of some things that might be said as prompts? What is it that they would say to the group to start that? (Me)*
>
> …when you look at them and go, 'No, but what would you do? What would you want to do?' (Chris)

I deliberately used phrases during interviewing such as "have you noticed", "how did that play out", and "tell me what happened". Also, by asking for an example attached to the experience, as I did with Chris, I am assured of the lived experience.

3.3.3 Demographic

I collected demographic data for each participant, limiting this information to gender, specialty program, length of training, and PGY training level (see Table 3.1). The IPA method actually calls for a homogeneous sample so that differences may be accounted for by individual personalities rather than demographic differences (Smith & Nizza, 2022). I considered the PGY training level important because it informs the breadth of experience the resident has to reflect upon. The chief resident role represents the greatest vantage point retrospectively in considering past experiences simply due to the entire length of residency for reflection, and while this was not weighed more heavily

in terms of data value, chiefs are inarguably positioned for a greater span of insight in terms of the broader base from which to draw reflection. Similarly, residents in their final year of training have more experience than either PGY-1 or PGY-2. However, the sole resident enrolled in the CET (Alex) may have influenced the data collected during his interview due to more intentional didactics exposure to effective teaching practices and mentoring.

3.3.4 Theoretical

From the literature, it was imperative to find out what is already known about autonomy development in adult learners and how teaching is related to that development in this very specific context of residency education. Where the connection to the residency setting was not explicit, I needed to determine relevance of studies reviewed. Because the literature reveals increased concern to date within GME for resident unreadiness for independence (George et al., 2017; Jain et al., 2021; Mieczkowski et al., 2021; Plesac & Olson, 2019; Sanaee et al., 2019), I wanted to apply theory related to my topic for the most relevant application to address the problem.

Utilizing a state-of-the-art literature review allowed me to follow an inquiry path of "*This is where we are in our understanding of this topic. This is how we got here. This is where we could go next*" (Barry et al., 2022, p. 285). This path aligns well with phenomenology, indicated when little is known about a phenomenon (as with autonomy development) and the researcher desires to illuminate it through participant experiences (Peoples, 2021). Theoretical underpinnings of the IPA approach included phenomenology (the study of experiences), hermeneutics (interpretation), and ideography (focusing on the individual's sense-making), providing a framework and lens to study participants' experiences as the experts who lived and created meaning for them. Additionally, because teaching practices that emerged from the data reflected cognitive

apprenticeship methods, CA theoretical information was essential to data analysis and interpretation.

I bring my teaching background and preparation in the area of curriculum and instruction to the process of including theoretical information. From this positionality, I combine what I know from my own experience with what I know from the literature review and what the participants know as their own truth. This integration became important to discuss the findings and form study conclusions.

3.4 Research Design and Methodology

I chose a qualitative research design and methodology for this study, reflecting a constructivist and interpretivist paradigm and an inductive approach to understanding experiences (Bloomberg & Volpe, 2019; Maxwell, 2013; Tracy, 2020), aligning well with my worldview. Because I am investigating how teaching may be related to the phenomenon of autonomy development, the qualitative approach fits this exploration of causality within people's accounts of experiences (Maxwell, 2013). A qualitative study including meaning expressed in participants' words may provide a glimpse into perceptions otherwise not seen in quantitative data (Tracy, 2020). For this reason, I selected interviews for data collection rather than surveys.

I considered phenomenology for my methodology (Husserl, 1970; van Manen, 1997; Heidegger, 1971) with various approaches, finally settling on interpretative phenomenological analysis (IPA). This approach is derived from hermeneutic phenomenology, a framework that involves sense-making of an experience by the study participants who are the experiential experts, and then by the researcher who interprets their sense-making (Heidegger, 1971; Peoples, 2021; Smith & Nizza, 2022). I felt that this was an ideal fit for me as the researcher with my background in instructional practices. Recognizing that residents are novice educators and may not always articulate

teaching practices by name or recognize their presence within experiences, the IPA approach lends validity to the incorporation of my own experience in the interpretation process. The approach also gives voice to residents who are underrepresented in the literature on the topic of autonomy development and teaching practices, which is dominated by faculty and experienced educators' perspectives (Neufeld, 2021; Oliver et al., 2023; Seegmiller et al., 2020; Skelly et al., 2020; Stalmeijer et al., 2013).

3.5 Data Collection Methods

I developed an interview guide (see Figure 3.1) at the outset of the study and tested questions for clarity and potential for yield with a resident volunteer (PGY-2) from a different institution and setting. Interview questions were developed to help address the research questions and were open-ended. Results of this field test were shared with my dissertation committee for my study proposal, satisfying us collectively that interviews along the path of inquiry I proposed would yield rich data.

Data collection via initial participant interviews took place from September to November 2023. Because I asked participants to retrospectively reflect on their clinical experiences, and the entering resident is much more limited than the others due to the July start of training, I delayed the interview with the PGY-1 participant until November, after at least four month-long rotations (clinical experiences) had taken place. This attention enabled sufficient past experiences for reflection for the beginning resident. Follow-up interviews wrapped up in February 2024. I conducted all interviews remotely via Zoom, scheduled at the participants' convenience. Most of the initial interviews took place in the early evening hours and lasted about an hour each. Follow-up interviews varied in length and frequency, with most requiring less time, and a few participants contacted more than once.

I conducted semi-structured interviews, choosing to follow the participants' direction when it led to potential discovery of clues that might help answer my research questions. Departure from the interview guide was expected and normal for semi-structured interviews (Tracy, 2020). However, I remained mindful of my research questions and even when exploring avenues that participants opened during interviews, I often would precede my questions with phrases such as "Considering your growth in making clinical decisions on your own…" or "Thinking about your residency role of being both a learner and a teacher…" to help center participant responses on desired areas of inquiry. I often used the technique of building a question based upon a participant's response that I had not anticipated. An example follows for a question I posed to Jody, "You mentioned 'really good teachers' and 'really bad teachers.' So, relative to developing autonomy, can you tell me about those? Don't name names, but just give me a feel for what that was like."

I stored video recordings and accompanying transcripts on my personal computer which is password-protected, per the IRB approval. I named files by pseudonym as a back-up measure to protect the identity of participants. Likewise, I stored the codebook (Excel spreadsheet) on my personal computer and used only pseudonyms as identifiers. My researcher memos were also stored in this manner. I provide an excerpt from a memo following the interview with the first participant (see Figure 3.2).

Other than participant interviews, data sources included ACGME accreditation documents. As I described earlier, ACGME documents provided further background and context for the regulatory body's approach to resident autonomy through curricular requirements, assessment of resident progress, and the development of clinician educators, all suggesting a link to teaching practices in residents' lived experiences. This data collection enables a document review to accompany the literature review as part of the historical perspective answering the question "*How did we get here?"* (Barry et al., 2022). Because this same question applies to teaching practices in the GME space and

connects to my research questions, the document reviews helped provide background and contextual information for data analysis, particularly for alignment of teaching practices to CBME.

3.6 Data Analysis and Synthesis

Consistent with the interpretative phenomenological analysis method, I examined the data ideographically from the first interview to each subsequent one (Smith & Nizza, 2022). This method differs from the constant comparative analysis method common to other qualitative methods. For example, after interviewing my first participant (Taylor), I performed data analysis for meaning units and themes, recognizing that Taylor's expression of his truth and reality for the experiences he shared represented a unique interpretation that would not be duplicated exactly for another individual. I approached each subsequent data set in the same manner. My job as the researcher was to then examine the phenomenon across experiences in its totality, recognizing individual interpretations contributing to the commonality of the experience (Peoples, 2021).

After reviewing both the video recordings and the transcripts of recorded interviews, I coded data inductively to keep as open a mind as possible to what participant responses might reveal. I chose to code manually to interact closely with the data. I coded on hard copy of transcripts and also on an Excel spreadsheet. First, I transferred data snippets I considered meaningful to the spreadsheet, color coding the font for each participant's quotations. I employed coding methods as follows. I constructed meaning units by using both In-Vivo and Process coding (Peoples, 2021; Saldaña, 2021). In the second cycle of coding, I developed pattern codes that helped to form experiential themes and later, I developed categories to subsume these themes (Saldaña, 2021; Smith & Nizza, 2022).

3.7 Ethical Considerations

I followed standard research protocol, ensuring the protection of privacy and confidentiality of participants, and obtaining their written consent to participate in the study. I sought and obtained IRB approval on 7/25/23 which included my affirmation of ethical considerations. However, I acknowledge that consideration of ethicality beyond what is noted on the IRB is important, such as the worthiness of the topic, the actual interactive process with participants, and anticipating actions for dilemmas that may arise like unexpected disclosures (Guillemin & Gillam, 2004). These ethical issues required reflexivity on my part, discussed next.

3.7.1 Worthiness of Topic

I have addressed the worthiness of this topic by linking how my study addresses the problem that has attracted increasing attention across GME nationally: Some graduating residents are unprepared to enter practice without the guidance or supervision in place during residency (George et al., 2017; Jain et al., 2021; Mieczkowski et al., 2021; Plesac & Olson, 2019; Sanaee et al., 2019). The scope of the problem, its potential impact upon patient care quality and safety, and the implications it raises for the quality of residency education, all make this topic timely and worthy of study.

3.7.2 Researcher Interaction with Participants

Regarding my interaction with participants, I realized from my work experience that the hierarchical structure of residency education requires me to tread respectfully during interviews in acknowledgement of institutional culture. For example, the teaching hierarchy common to most residencies in an academic setting positions the faculty at the top, fellows next (when subspecialty fellowship programs are present, as they are in my

study setting), then residents, and finally medical students at the bottom. The hierarchical structure applies to social status as a physician, supervision authority, and level of autonomy entrusted for decision-making. This hierarchy includes authority, power, and privilege both explicit and implicit for each level in relation to those underneath. To offset any participant reluctance to share experiences that may portray anyone in a bad light, I tried to frame most of my questions about teaching (the activity) rather than the teacher (the person). The exception to this occurred when the participant initiated the person angle. In this way, I avoided placing the participant in an uncomfortable position. I noted, however, that participants seemed forthcoming and not at all hesitant to share the meaning they attached to experiences, even with different teaching roles.

Another ethical issue is that two of the residency program directors and many of the faculty are personally known to me from my experience working in this setting. I considered that this relationship may lend my credibility to participants as I am familiar with some of the teachers and practices they experience. Yet, I also considered the potential concerns for confidentiality of data and participants, and potential bias in data analysis and reporting findings. To mitigate the potential bias, I acknowledged my prior relationship to the setting, then I conscientiously looked for ways that my bias could manifest. I realized during data analysis that finding some results surprising may have been due to bias or an unconscious assumption that I carried with me. Asking myself why I found a result surprising helped to identify these biases and assumptions.

Although fellows, faculty members, and other residents who appeared in experiences described to me are not participants in my study, I felt an ethical responsibility to protect their privacy as members of the community of practice that I am studying. I asked participants to omit the names of people when describing details from learning experiences. This practice also provides further assurance to participants that I do not have identifying information of faculty to connect back to their descriptions of teaching practices.

My interaction with participants took place during on-camera interviews using the online platform Zoom. Remote interviews using online platforms are considered as effective as face-to-face and may even be considered the interview mode of choice for qualitative researchers (Oates et al., 2022; Żadkowska et al., 2022). I am comfortable with the Zoom platform and one of the program directors indicated to me during discussion of the project proposal that residents in the program have become accustomed to using the platform often for various purposes. In the written consent form, I included a statement alerting participants to consider their comfort with being video- and audio-taped before consenting, ensuring that their privacy is protected. When scheduling the interview, I reminded participants to select a private place where their participation would not be revealed to others and the conversation not overheard.

3.7.3 Issues of Trustworthiness

I am drawing heavily on Bloomberg & Volpe's extensive checklist of reflexive questions for credibility, dependability, confirmability, and transferability (2019, pp. 210-11). The authors pose questions for believability relating to the authenticity of the context and acknowledgement of the researcher's positionality throughout the research stages. They underscore consistency in the alignment of the research design with the methods and deliberately looking for design weaknesses and how they might affect sampling, data collection and analysis. To demonstrate the ability to corroborate the study, the researcher is asked if others might proceed in the same fashion to arrive at similar conclusions. I will address each measure of trustworthiness in the sections that follow.

3.7.3.1 Credibility

Credibility, or believability, of my study is addressed through attention to my biases, assumptions, and positionality; the collection of data from multiple sources; the authenticity of the setting selection and sampling; and deliberate attention to how I interpret and analyze the data (Bloomberg & Volpe, 2019). It is especially important for me, a non-medical educator and a non-physician researcher conducting an investigation in the GME space, to lend solid attention to credibility of my study. Reflexivity becomes not only a tool for reflection but a strengthening measure for credibility and trustworthiness.

The site and setting I have chosen is an authentic fit to the problem gaining attention in GME and fills a gap for non-surgical specialties underrepresented in the literature on resident autonomy development. The programs' structure, akin to most residency programs across GME, also represents authenticity of my selection. Because of the similarity of residency structure, even a few participants' experiences may relate well to similar programs across the U.S. My site selection and sampling plan render a genuine description of the context and experiences of the participants, enhancing credibility (Bloomberg & Volpe, 2019). The sample's characteristics are reflective of the diversity found across GME programs in the United States, a further marker of authentic fit.

I acknowledge my upbringing and work experiences that have shaped me into the researcher I am today. As a non-medical teacher who is not a physician, I straddle the insider-outsider role (Lu & Hodge, 2019; Merriam et al., 2001; Moore, 2012) in this setting. My positionality places me as an experienced teacher, lending bias toward meaning in teaching practices and yet offering expertise to contribute to meaning. To offset straying from participant perception as my primary objective, I utilized member checks to ensure intent of meaning.

My collection of data from both participant interviews and document review reinforces credibility of the study, as data from multiple sources strengthens conclusions

drawn through synthesis of the information. Further integration of the data and document review with the literature review brings multiple sources together for a coherent whole to answer my research questions. This process also ensures credibility.

3.7.3.2 Dependability

Dependability, or consistency, addresses the appropriateness of the study design and the rigor of methods used (Bloomberg & Volpe, 2019). I aligned the qualitative phenomenological study design to the research problem, the study's purpose, the research questions, and the approach, ensuring congruence between these elements. This process addresses the appropriateness of the study design. I addressed the rigor of methods by following procedures as outlined by the author of the method I chose, IPA (Smith et al., 2009; Smith & Nizza, 2022).

Rigor is determined by how closely I attend to and apply the methods consistently. Rigor may be compromised by weaknesses in any part of the study design (Bloomberg & Volpe, 2019). Some might argue that a potential weakness in my study is the small sample size, although I consider this issue specific to my study design and approach to be minimal. A small sample can be justified for qualitative studies for which a rationale of rich data from a purposive sample is distinct from quantitative studies in which numbers of participants inform strength or weakness of data (Morse, 2000; Thomson, 2010; Vasileiou et al., 2018). Attending to the "adequacy, novelty, and richness of (the) evidence" outweighs consideration of sample size, particularly for qualitative studies (Staller, 2021, p. 903). Additionally, sample sizes using the IPA method tend to be small due to the in-depth analysis of each individual account (Smith & Nizza, 2022).

3.7.3.3 Confirmability

Confirmability refers to the ability to corroborate various elements of the study (Bloomberg & Volpe, 2019). Here, I believe a useful technique is to 'pause and challenge', one that I developed for myself in high school when learning to write theses. I have carried this practice over to my practice today as a researcher in trying to anticipate a counterargument or missing logic throughout steps in my research. Confirmability largely depends on my ability to 'pause and challenge' with intentionality at what I consider vulnerable points in the study.

Points during the study that I consider vulnerable are not the same as weaknesses that I will summarize in the Limitations section. They are simply checkpoints that I believe may offer an opportunity for the reader to disagree, interpret or conclude differently. While this is always a possibility throughout the study, I consider vulnerable points for my 'pause and challenge' strategy to be: how my positionality may affect participants or data analysis; categories developed during coding; and synthesis of findings. Memo-writing is a further strategy that incorporates my 'pause and challenge' technique, intended to address confirmability.

3.7.3.4 Transferability

The transferability of my study considers its applicability so that others can use my findings and conclusions (Bloomberg & Volpe, 2019). My study's setting is residency training within four programs in a large public research university. My literature review revealed that most of the authorship on resident autonomy development has continued to stem primarily from a single procedure-driven specialty, Surgery (Chen et al., 2015b; Kempenich & Dent, 2021; Oliver et al., 2023; Seegmiller et al., 2020; Smith et al., 2019; Torbeck et al., 2015; Williams et al., 2022; Rivard et al., 2022; Sharma et al., 2022), indicating a need to broaden studies across non-surgical specialties. This gap presents an opportunity to address the problem from the non-surgical specialties

represented in my study, which together constitute over one-third of the enrollment of all residents in accredited programs in the U.S. (ACGME, 2022), offering transferability as one of the measures of this study's trustworthiness.

My attention to ethics is evident from careful preparation of ethics considerations for the IRB, which received approval without requested edits; acknowledgement of my positionality; assurance of participant confidentiality both verbally and in writing; and obtaining written consent from participants prior to beginning the study. During interviews, I reiterated that faculty, fellow, and resident identities should not be revealed during accounts of experiences during learning experiences. This further protected the members of the community that I am studying, an ethical practice. I attended to participant confidentiality throughout data collection and storage, and selection of a private interviewing space for myself and participants. Last, memo-writing engaged me in reflexivity, another tool to ensure attention to ethical considerations (see Figure 3.2).

3.8 Limitations and Delimitations

3.8.1 Limitations

A limitation to this study was the scope of interview questions. By following individual participants' directions during the interview, I naturally departed from the interview guide and as a result, identical questions were not posed to every participant. Supposing identical questions had been posed, results may have varied. I recognize that I may have missed asking relevant questions, so the uniqueness of each interview interaction, while a strength to a phenomenological study, may be recognized as a limitation, too.

Another limitation is the single institutional setting for the study. One site may limit the experiences of participants in a way that is not reflected at a different site, so this must be considered. An example of the potential impact upon study results is the extent

of teaching development offered and number of experienced clinician educators at a particular site.

Last, the number of non-procedural specialties represented in my sample is a limitation, as there are many others besides IM, Med Peds, Med Psych, and Peds. Further, few participants per specialty in my sample may also represent a limitation. Because a homogeneous sample is desirable for an IPA study (Smith & Nizza, 2022), I may have impacted results by limiting the homogeneity in this respect.

3.8.2 Delimitations

To ensure that my study was feasible for the dissertation phase, I imposed a delimitation of the timeline. I received IRB approval in July 2023, commenced recruitment in August, and interviewed participants from late September to November. Imposing a personal deadline of finishing the study by the end of the academic term in Spring 2024, I recognize that the timeline limited the scope of the study. To offset the effect of delimitation, I have considered implications for future study as potential future research projects on the same topic, which will allow me or others to pursue a fuller scope of study (see Chapter 5).

Related to the delimiting timeline, I experienced difficulty with recruiting participants. While I employed snowball sampling and expanded the invitation to participate to more programs, I ultimately made the decision to proceed with my sample of eight residents. Before making the decision, I researched the acceptability of the sample size, finding that indeed, the number was appropriate for a phenomenological study (Peoples, 2021; Smith et al., 2009; Smith & Nizza, 2022).

3.9 Chapter Summary

This chapter has presented my research methodology, qualitative phenomenology, and the IPA approach. I have explained how this design and methodology align well with my study's purpose to illuminate the resident experience surrounding the development of autonomy in clinical decision-making through teaching methods residents encounter and practice in their dual role of learner/teacher. Also aligning with the research questions and the research problem the study addresses, the IPA approach seeks to consult experiential experts to shed light on a phenomenon that calls for deeper understanding (Smith & Nizza, 2022). In this study, the experiential experts are eight medical residents in a setting of non-surgical GME programs in a large public research university in the mid-South. Each of their experiences, while individually expressed and interpreted, contribute to meaning that composes a reality for these participants.

I have outlined the data collection and analysis methods, detailing the coding process and how I approached data analysis. To ensure ethicality, rigor, and trustworthiness of the study, I have summarized points of reflexivity and addressed credibility, dependability, confirmability and transferability, making this study worthy of contribution to the field of medical education. In the next chapter, I present the study's findings and the experiential experts with whom I engaged in collaborative sense-making.

Table 3.1 Participant Demographics

Pseudonym	Gender	Training Level	Medical Specialty	Length of Residency Training (in Years)
Alex	Male	PGY-S/P	Med Peds	4
Chris	Female	PGY-S/P	Med Peds	4
Imani	Female	PGY-S/P	Peds	3
Jody	Female	PGY-2	Med Psych	5
Marco	Male	PGY-2	Med Peds	4
Shawn	Male	PGY-2	Med Peds	4
Taylor	Male	PGY-S/P	IM	3
Zahir	Female	PGY-1	Med Peds	4

PGY = Post-Graduate Year

IM = Internal Medicine

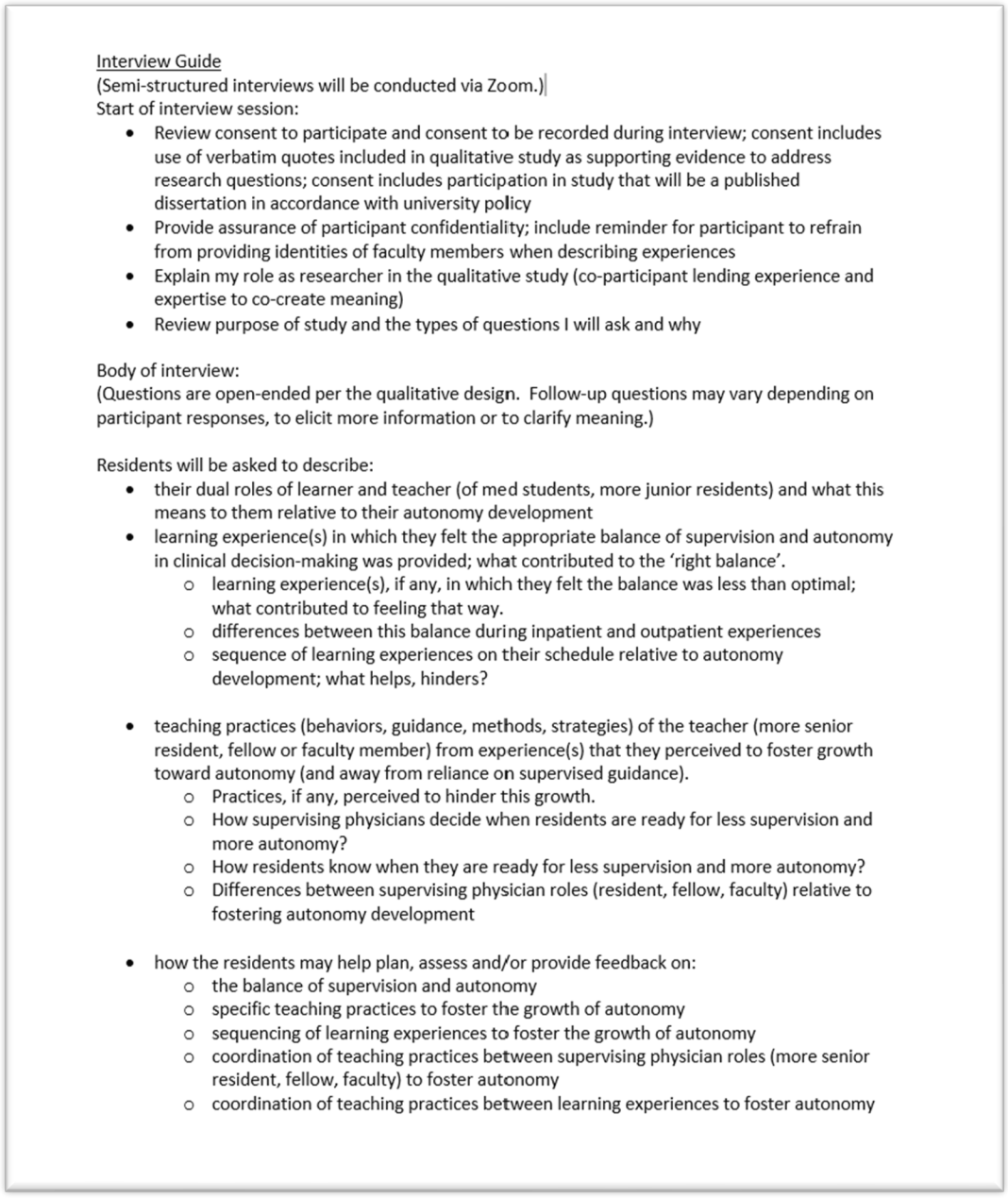
Med Peds = Internal Medicine-Pediatrics (combined specialty program)

Peds = Pediatrics

Med Psych = Internal Medicine-Psychiatry (combined specialty program)

Note. Participants designated as PGY-S/P include both residents and chief residents in the final year of training, considered seniors (S), or chief residents serving in the year following the final year of training, post-training (P). This designation is to further protect the identity of chief residents, of whom there are few for each program.

Figure 3.1 Interview Guide



Interview Guide
(Semi-structured interviews will be conducted via Zoom.)
Start of interview session:

- Review consent to participate and consent to be recorded during interview; consent includes use of verbatim quotes included in qualitative study as supporting evidence to address research questions; consent includes participation in study that will be a published dissertation in accordance with university policy
- Provide assurance of participant confidentiality; include reminder for participant to refrain from providing identities of faculty members when describing experiences
- Explain my role as researcher in the qualitative study (co-participant lending experience and expertise to co-create meaning)
- Review purpose of study and the types of questions I will ask and why

Body of interview:
(Questions are open-ended per the qualitative design. Follow-up questions may vary depending on participant responses, to elicit more information or to clarify meaning.)

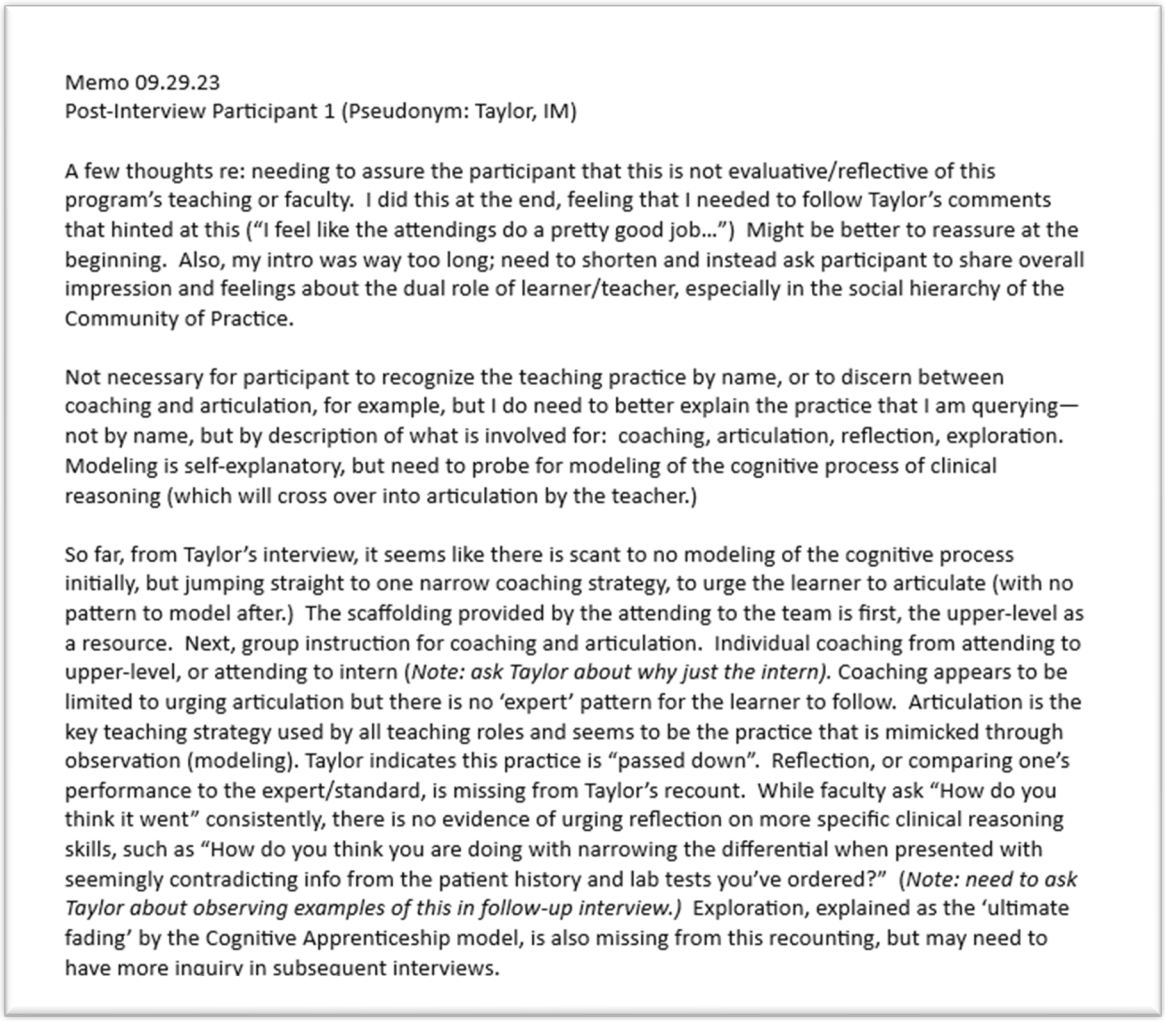
Residents will be asked to describe:

- their dual roles of learner and teacher (of med students, more junior residents) and what this means to them relative to their autonomy development
- learning experience(s) in which they felt the appropriate balance of supervision and autonomy in clinical decision-making was provided; what contributed to the 'right balance'.
    - learning experience(s), if any, in which they felt the balance was less than optimal; what contributed to feeling that way.
    - differences between this balance during inpatient and outpatient experiences
    - sequence of learning experiences on their schedule relative to autonomy development; what helps, hinders?

- teaching practices (behaviors, guidance, methods, strategies) of the teacher (more senior resident, fellow or faculty member) from experience(s) that they perceived to foster growth toward autonomy (and away from reliance on supervised guidance).
    - Practices, if any, perceived to hinder this growth.
    - How supervising physicians decide when residents are ready for less supervision and more autonomy?
    - How residents know when they are ready for less supervision and more autonomy?
    - Differences between supervising physician roles (resident, fellow, faculty) relative to fostering autonomy development

- how the residents may help plan, assess and/or provide feedback on:
    - the balance of supervision and autonomy
    - specific teaching practices to foster the growth of autonomy
    - sequencing of learning experiences to foster the growth of autonomy
    - coordination of teaching practices between supervising physician roles (more senior resident, fellow, faculty) to foster autonomy
    - coordination of teaching practices between learning experiences to foster autonomy

Figure 3.2 Researcher Memo



Memo 09.29.23
Post-Interview Participant 1 (Pseudonym: Taylor, IM)

A few thoughts re: needing to assure the participant that this is not evaluative/reflective of this program's teaching or faculty. I did this at the end, feeling that I needed to follow Taylor's comments that hinted at this ("I feel like the attendings do a pretty good job…") Might be better to reassure at the beginning. Also, my intro was way too long; need to shorten and instead ask participant to share overall impression and feelings about the dual role of learner/teacher, especially in the social hierarchy of the Community of Practice.

Not necessary for participant to recognize the teaching practice by name, or to discern between coaching and articulation, for example, but I do need to better explain the practice that I am querying—not by name, but by description of what is involved for: coaching, articulation, reflection, exploration. Modeling is self-explanatory, but need to probe for modeling of the cognitive process of clinical reasoning (which will cross over into articulation by the teacher.)

So far, from Taylor's interview, it seems like there is scant to no modeling of the cognitive process initially, but jumping straight to one narrow coaching strategy, to urge the learner to articulate (with no pattern to model after.) The scaffolding provided by the attending to the team is first, the upper-level as a resource. Next, group instruction for coaching and articulation. Individual coaching from attending to upper-level, or attending to intern (*Note: ask Taylor about why just the intern).* Coaching appears to be limited to urging articulation but there is no 'expert' pattern for the learner to follow. Articulation is the key teaching strategy used by all teaching roles and seems to be the practice that is mimicked through observation (modeling). Taylor indicates this practice is "passed down". Reflection, or comparing one's performance to the expert/standard, is missing from Taylor's recount. While faculty ask "How do you think it went" consistently, there is no evidence of urging reflection on more specific clinical reasoning skills, such as "How do you think you are doing with narrowing the differential when presented with seemingly contradicting info from the patient history and lab tests you've ordered?" (*Note: need to ask Taylor about observing examples of this in follow-up interview.)* Exploration, explained as the 'ultimate fading' by the Cognitive Apprenticeship model, is also missing from this recounting, but may need to have more inquiry in subsequent interviews.

CHAPTER 4. FINDINGS

4.1 Introduction

As I detail in the previous chapters, the purpose of this qualitative phenomenological study is to illuminate the resident experience surrounding teaching methods encountered and practiced in their dual role of learner/teacher. The study focuses on teaching relative to the development of autonomy in clinical reasoning and decision making. I conducted in-depth interviews with a small sample of participants to better understand their lived experience and the meaning they attach to the development of autonomy through teaching practices, while investigating clues in their experiences to shed light on the research problem. This sample included eight medical residents who represented a span of early training to immediate post-training as chief residents. These participants' residency programs included Internal Medicine (IM), Pediatrics (Peds), and the combined programs of Internal Medicine-Pediatrics (Med Peds) and Internal Medicine-Psychiatry (Med Psych), representing non-surgical specialties. The selection of non-surgical specialties for this sample addresses a gap suggested by the literature in which studies from the Surgery specialty prevail regarding the development of resident autonomy (Chen et al., 2015b; Kempenich & Dent, 2021; Oliver et al., 2023; Seegmiller et al., 2020; Smith et al., 2019; Torbeck et al., 2015; Williams et al., 2022; Rivard et al., 2022; Sharma et al., 2022). Because the Surgery specialty is procedure-driven, teaching operative skills with the goal of developing autonomy may represent a significantly different experience than for non-surgical residents, as my research sample represents. My study broadens knowledge across specialties to help address this gap.

For this qualitative study, I incorporated the interpretative phenomenological analysis (IPA) method (Smith et al., 2009; Smith & Nissa, 2022) derived from hermeneutic phenomenology (Heidegger, 1971; 1982) for the study design. IPA positions the researcher as an interpreter of experiences along with the participants. With

the method's ideographic approach, I analyzed each participant's sense-making of their experiences individually for themes before performing cross-case analysis. This process ensured that each participant's meaning and perceived reality within the context of their own experience contributed to the sense-making of the entire phenomenon under study, in this case, the experience surrounding teaching practices and autonomy development (Smith & Nissa, 2022).

This chapter presents the findings from the interviews in response to my research questions. I have organized the chapter into three main sections. In the first section, "Presentation of Findings", I present the results through one or two concise statements that summarize meaning units and themes as the that emerged from the interviews. I include subheadings to capture the spirit of each finding, often borrowing phrases from the participants' own words to convey meaning (Bloomberg & Volpe, 2019; Peoples, 2021; Tracy, 2020). Quotations from participants, attributed by pseudonym, follow. I refrained from analysis and interpretation in the "Presentation of Findings" section, instead withholding my thoughts for the subsequent "Discussion" section, consistent with phenomenological design (Peoples, 2021; Smith et al., 2009; Smith & Nissa, 2022). This placement also facilitated a discussion of the integration of my ideas across findings, rather than discussing each finding in isolation. Following the discussion, I round out the chapter by providing a "Summary of Key Findings".

The research questions that formed my inquiry appear next. Following this review, I present the findings sequentially as they address each of these questions, noting beside each which research question (RQ) it addresses. Then, I briefly introduce the participants by pseudonym before sharing findings with supporting quotations from their interviews.

4.2 Review of Research Questions

To meet the study's purpose of illuminating the resident experience surrounding the development of autonomy through teaching methods, these questions guided my data collection and analysis:

RQ1. What is the dual role of learner/teacher like for residents as they attend to their own and others' development of autonomy in clinical reasoning and decision making?

RQ2. Which teaching methods do they commonly experience as the learner and practice as the teacher relative to this development? Which methods are associated with experiences most and least valued for growth in autonomy?

RQ3. How are these teaching practices acquired?

RQ4. How do residents experience and interpret the provision of autonomy?

As the previous chapter details, I designed an interview guide (Figure 3.1) with these questions in mind while remaining open to following the participants' direction as we explored meaning together for their experiences. My identification of instructional methods embedded in participant narratives sometimes involved providing examples of a method for consideration, probing for identifying characteristics of the methods, and asking clarifying questions about practices they described, as I considered participants' unfamiliarity with educational jargon. I found the methods easily identifiable from my educational background in curriculum and instruction.

4.3 Presentation of Findings

Six key findings emerged from the data analysis as major experiential themes. Beside each, I note which research question (RQ) I address through the finding:

F1. To most participants, the resident's dual role of learner and teacher means straddling a difficult balance between the two. (RQ1)

F2. All participants valued their teaching role for supporting their own learning, yet most experienced a lack of formal training and/or feedback for their teaching practices. (RQ1)

F3. Most participants indicated that traditional apprenticeship teaching methods are experienced early in the first year of residency, with all indicating a limited transition to cognitive apprenticeship as residents progress. Most participants' teaching methods mirrored those they experienced as learners. (RQ2)

F4. All participants associated exceptional growth in autonomy with experiences that paired cognitive apprenticeship methods with psychological safety. For experiences least valued for autonomy growth, most participants indicated a lack of engagement in clinical decision making. (RQ2)

F5. All participants indicated that teaching practices are primarily passed down from one practitioner to another and acquired by residents through observation and imitation. (RQ3)

F6. All participants experienced a variable provision of autonomy, attributing the willingness of some teachers to grant autonomy to factors other than patient needs and entrustment in resident ability. (RQ4)

These findings, reflecting common experiential themes of the participants, address the research problem, that some graduating residents are unprepared to enter practice without the guidance or supervision in place during residency (George et al., 2017; Jain et al., 2021; Mieczkowski et al., 2021; Plesac & Olson, 2019; Sanaee et al., 2019). The findings address the four research questions by investigating the potential link between teaching practices in resident experiences and the research problem.

Participant quotations support each finding. This method of reporting findings aligns with the phenomenological design of the study, which aims for thick description to interpret meaning from participants and in turn, to better understand their day-to-day experiences (Bloomberg & Volpe, 2019; Munhall, 2007; Neubauer et al., 2019). The

researcher looks for patterns that describe a commonality in the participants' experiences while preserving individual interpretations and nuances of those experiences. These patterns enable the identification of common experiential themes for the sample. Findings are then reported by illustrating how individuals attach meaning slightly differently to the same experiential theme (Bloomberg & Volpe, 2019; Smith & Nizza, 2022). Quotations are attributed here by the participants' pseudonyms. I include participant demographics in Table 3.1.

I pause here to briefly introduce the participants by pseudonym used to attribute quotations. Zahir, a Med Peds participant, is completing her first year of residency, known as the intern year. At the time of her initial interview, she had four months of clinical experiences to reflect upon, representing the earliest residency learning level in the sample. Shawn and Marco, also Med Peds residents, are now completing their second year of a four-year residency. Jody, also completing her second year of training, is in the Med Psych program, a residency of five years duration. Zahir, Shawn, Marco, and Jody represent the early to mid-training half of the sample. Alex (Med Peds), Chris (Med Peds), Imani (Peds), and Taylor (IM) are either seniors or chief residents, and in some cases, both. They represent the late to post-training half of the sample, with more experiences on which to reflect. Alex is the sole participant in a CET, which means that he has more exposure to teaching methods and mentorship than the others. The experiential themes that follow emerged from the participants' narratives.

4.3.1 Experiential Themes

4.3.1.1 Straddling a Difficult Balance

To most participants, the resident's dual role of learner and teacher means straddling a difficult balance between the two (Finding 1). I asked participants to tell me

what the dual role meant to them, and what their day-to-day experience was like as both learner and teacher. Participants (6 of 8) made sense of their dual roles of learner and teacher by describing the effort to balance the two roles in various terms of challenge, difficulty, uncertainty, and risk, as illustrated in the following quotations. Specific phrases such as "kind of hard to balance" (Jody), the "dual role is sometimes tricky" (Taylor), and "in the middle of the learner and becoming the teacher" (Chris) emphasize the duality, yet in nuanced ways.

> …we work in a field where we are learning on one end and then have to be experts on the other when we take care of patients or teach…it is kind of hard to balance…knowing that we have deficits or areas of growth with also being confident in the information we do know. And so I think that kind of constantly teeters for me in terms of, okay, I need to learn something to make me more autonomous for the next time to make a decision, and at the same time, I have to not be overconfident because I don't want to put people's safety at risk or teach something the wrong way… (Jody)

> …the dual role is sometimes tricky…there's a difficult balance between being the learner and the educator while also trying to get done with the clinical tasks that might not be great for learning or clinical education but need to be done. (Taylor)

> …we're still very much in the middle of, like the learner, and becoming the teacher…we still are trying to figure out what is and isn't critical for us to be involved in, in terms of decision-making amongst our interns. (Chris)

Note that while Chris attaches meaning to the "middle" of being the learner and teacher, Shawn frames his experience as "leaning into" one of the roles versus the other, fitting conceptually with the struggle for balance, "…it is a challenging task at times…how much you're able to lean into mostly the teacher role as opposed to just the learner role depends on the leadership above you."

Of note, despite experiencing challenge, no participants expressed dislike for the teaching role or expressed it as a burden of which they wished to be rid. This aspect appears in the presentation of Finding 2, which revealed that the participants especially value the teaching role.

4.3.1.2 Learning Through Teaching Yet Lacking Training

As follow-up to participant responses regarding the difficulty in balancing their dual roles, I often asked if this challenging aspect fostered or inhibited their growth in autonomy. Participants indicated unequivocally that the teaching role supported their learning, despite the difficulty they experienced in balancing the two roles. However, most experienced a lack of formal training and/or feedback for their teaching practices (Finding 2). Accordingly, I collapsed two experiential themes that emerged, learning through teaching and lacking teacher training (see Table 4.1). I settled on one theme to summarize the finding, "Learning Through Teaching Yet Lacking Training" consistent with the phenomenological approach (Peoples, 2021).

Participants expressed this role's support as strengthening content knowledge for their position of responsibility to more junior learners. They attached meaning for teaching relative to learning: "You're forcing yourself to have to approve decisions or teach others something over and over. Like, it makes you learn the things that you need to know," (Shawn); and it is "very helpful for me developing autonomy" as Marco describes here:

> …I feel that teaching, especially as it pertains to medical students or younger residents, is very helpful for me developing autonomy. Because, as I'm saying things, it forces me to really think through, 'is what I'm saying true and accurate? And how do I know if it's true and accurate?' Because this directly relates to how this other person may treat future patients. So, it kind of increases the level of responsibility I feel to ensure I am practicing not just acceptably, but remarkably. (Marco)

Conversely, for learning relative to teaching, Jody expressed it as "knowing something a lot better if I teach it". The participants seem to express learning and teaching in terms of reciprocal value.

Each of these participants is referring to a supervisory teaching role over a more junior resident or medical student on a physician team. This typically occurs on hospital inpatient services but may also occur in outpatient settings. When Marco expresses "as I'm saying things", he is referring to coaching or otherwise answering learners' questions. This may entail medical knowledge (knowledge as "true and accurate") or checking behind learners on their decisions for patient care, as Shawn expressed ("forcing yourself to have to approve decisions"). Both he and Jody imply that articulation and/or repetition of content through teaching others helps in retention. Jody speaks of this as "solidifying" her knowledge.

Yet, when participants were asked if they received formal training or instruction in teaching methods during residency to prepare for the resident-as-teacher role, all but one participant (who was enrolled in the "academic track", a supplementary program for residents desiring a career as a clinician educator, or CET), responded that they did not. Several indicated that they did have informal training such as "some lectures here and there" (Marco), or resident retreats where the focus was the transition from the PGY-1 to upper level leading a team. (Upper levels, or residents past their first year, are placed into a position of responsibility over a team of more junior learners, typically on hospital inpatient services. A faculty physician provides indirect supervision or oversight to the decisions made by the upper level leading the team.) Two of the eight indicated that they had received some preparation to teach more junior learners in medical school, but not since. I probed for more understanding of how participants were trained in specific methods or strategies for their teaching role to be effective in developing clinical reasoning in more junior learners. Jody and Shawn both thought of this in terms of being "taught" to teach, with Shawn replying, "I don't think I've ever been taught that." Jody added that the absence of learner practice affects the resident-as-teachers' skill level, "…we are not taught how to teach, generally speaking. And so, I don't anticipate that most people will be able to do it amazingly without practice." When I re-phrased to ask

if perhaps coaching or feedback may have been provided, Shawn reiterated its absence, "Like, coach me specifically on my teaching? I haven't."

In the same vein, Marco suggested that this training is offered only to those interested in a career as a clinician-educator by way of enrollment in the CET, while he himself had not experienced training: "…whereas the upper-level residents…I think it might have to do with, they are less interested in a teaching career, or they're interested. And I just have not received any...". Marco implies that an upper level, based on their desire to serve formally as a clinician educator in their career (versus private practice, for example) may receive teaching training through the CET or perhaps mentorship by a willing faculty member, while residents not expressing this interest do not receive training.

The participant quotations I've cited wrap up the evidence for Finding 2. Next, I will present Finding 3.

4.3.1.3 "See X, Then You Do Y" and "Talking Through"

I asked participants to describe their experiences with teaching practices, relative to the development of clinical reasoning and decision making. As I mentioned in the introduction to this chapter, I identified teaching methods embedded in participant narratives, assuming that residents may be unfamiliar with educational jargon. Most participants (5 of 8) described methods they experienced as early learners aligning closely with traditional apprenticeship in which the expert shows the learner what to do (models), provides guidance or feedback as the learner practices (coaches), and provides the support necessary for the learner to carry out the skill until mastery (scaffolds). From the PGY-1 perspective closest in time to this experience, Zahir confirmed the early use of traditional apprenticeship methods when teaching medical students, referring to these behavioral methods as the "minimum structure of teaching":

> …there's the minimum, like, structure of teaching…what I did with every med student was...'I want to show you how it's done, and once I show you, and once you, you know, watch me see a patient, I want you to take the lead on the next one'…'let me learn how it's done. Let me practice and fumble a little bit with you there and then I can do it on my own'… (Zahir)

In her example, Zahir outlines modeling of a behavior ("let me show you how it's done" and "watch me see a patient") and provides scaffolding by having the learner "take the lead on the next patient" while she is physically present. While she switches from second person to first person in her narrative, she is still referring to fading by the teacher (as part of scaffolding, or withdrawing the support provided when it is no longer needed) when she says, "and then I can do it on my own". Notice that "practice and fumble a bit with you there" refers to the learner's practice of whatever had been demonstrated by the teacher, with the teacher only intervening with help (scaffolding), as needed implied by the tolerance of the learner's "fumbling". Remember, Zahir is describing to me the "minimum structure of teaching" which does not include articulation, a distinguishing feature of CA. Rather, she is underscoring 'seeing and doing', the hallmark of traditional apprenticeship of learner from the novice level to mastery of a task.

Similar to Zahir, Taylor's comment further illustrates learners being told what to do "early on" with if/then scenarios for diagnoses and corresponding actions:

> …early on, the teaching that the residents receive is very focused on if see X, then you do Y…early on, the bigger focus is put more on, you just need to know that if I see this, I should do that…kind of making sure that everybody is on the same page before you start getting into the nuance and the thought process...early on, the bigger focus is put more on, you just need to know that if I see this, I should do that. (Taylor)

Note that the teaching involves no modeling of the steps in the thinking process, rather models a behavior or action to take instead, aligning with traditional apprenticeship rather than cognitive. Taylor clarified the practice's intent of "making sure that everybody is on the same page before you start getting into the nuance", meaning that the learner must recall and apply knowledge learned in medical school as a heuristic, or a behavior/diagnosis/treatment at the ready, without having to stop and construct the

cognitive reasoning steps to get there. Taylor further explained the "nuance" as the reasoning steps needed past the basic plan. He provided an additional example of a heuristic as "See pneumonia, treat pneumonia," meaning that teaching aligns with the notion that everyone should recall and be ready to implement the basic treatment plan for pneumonia before considering other "nuances" or possibilities for individual presentations of the illness.

In contrast to the traditional apprenticeship methods ("seeing and doing") that most experienced in the earliest months of training, participants described a shift to cognitive methods, or "teaching people how to think through the problem, rather than just the decision tree" (Taylor). Evidence of coaching, scaffolding, and articulation of the learner's clinical reasoning appeared in the participants' narratives. Because clinical reasoning, a cognitive process, cannot be directly observed by either the learner or the teacher, clinical reasoning steps may be spoken aloud, or articulated. This allows the learner to demonstrate clinical reasoning verbally so that teachers can assess for gaps, errors, and/or determine if more coaching or scaffolding is warranted. Articulation, then, demarks a firm separation between traditional and cognitive apprenticeship, as traditional apprenticeship by definition does not involve developing a cognitive process, but rather a behavioral one. However, modeling, coaching, and scaffolding are methods common to both traditional and cognitive apprenticeship with the distinction being their application to either a behavior or a thinking process. For example, a teacher may model, scaffold and coach while teaching behavioral skills such as performing physical examinations and medical procedures (traditional apprenticeship) or they might model, scaffold, and coach while teaching cognitive skills such as thinking through different considerations to reach a diagnosis.

From resident descriptions of their experiences, I identified methods embedded as either traditional or cognitive apprenticeship. The majority of the participants (6 of 8) referred to coaching as "pushing" as Chris does in the following example, indicating a

CA method for prompting the thought process: “you're kind of pushing them to think for themselves.” Taylor expresses coaching through his use of questioning and prompting the learner to expand thinking:

> …so, the intern tells you their plan. ‘So Jim has bilateral infiltrates on chest x-ray. I'm really worried he has pneumonia.’ And I think at that point there's a lot of upper levels who would say, ‘okay, what things do you notice from the history that would maybe support that? And what from your labs would support that and what wouldn't, making you think that this is pneumonia, what's making you think it's not, have you considered anything else?’ And kind of pushing them to expand their thoughts…(Taylor)

Half of the participants (4 of 8) couched the scaffolding technique as “stepping” by the teacher, either ‘in’, ‘out’, or ‘to’, as Imani illustrates here in her use of “steppingstone” as the help provided, where the teacher outlines points in the thinking process to get to the clinical decision:

> …if you ever get stumped or you’re not answering, like, the questions that they’re asking appropriately or somehow, we’re not getting to that endpoint, that they’ll definitely talk you through it and kind of walk you through it…there’s guidance there to make those the stepping point like the steppingstone to get to that final decision. (Imani)

Steppingstones provide a visual image of support for the person using them to navigate to a destination, just as outlining the points in the thinking process is designed to do for the destination of a clinical decision.

Articulation, as explained, delineates the CA method from traditional apprenticeship. A few participants coined the phrase “talking through” for articulation as Imani illustrates, while others, like Shawn, described the method literally as explaining or telling their thoughts. In their narratives, several participants paired this method with coaching that took place between peers (upper levels):

> My upper levels made me really talk through everything that I did, even if it was like a simple decision, like starting Tylenol on a patient. We just talked through it and why we would be giving it, and why we weren't giving ibuprofen, or you know, that sort of thing…that I maybe wouldn't have thought about had we not talked through all of those. (Imani)

> …we asked a lot more of the learner to explain their reasoning, which is then usually supplemented by support or denial of certain points, and then like the correction, you know. (Shawn)

Notice that both Imani and Shawn associated the concept of justification of the learner's reasoning, ("why we would be giving it" and "support or denial of certain points") which aids the teacher in identifying gaps or missteps, which would not be noticed from an unobservable thinking process unless it is spoken out loud.

Modeling was used by teachers as both a behavioral and a cognitive method. A teacher may model a clinical decision or plan of care or model the clinical reasoning process to get to the decision/plan. Curious as to the apparent absence of the cognitive method of modeling explicit clinical reasoning steps, I followed up by asking whether the participants experienced either a faculty member or supervising resident using this method. Some participants (3 of 8) indicated that the near expert in the CoP (the resident as teacher) and the faculty (the expert in the CoP) would usually model the soundest version of a clinical decision, rather than an expert version of the reasoning process, like this participant describes:

> …the more senior learner teacher is offering what they would do, and then they're compared, mulled over, digested. And then you move forward with the case, but you have the opportunity to be right, wrong, or indifferent, or to see how you compare….in the course of rounds…you offer what your plan would be. That plan is compared to the attending plan, and then the question just becomes whose plan is, in place, reasonable? (Alex)

The example shows senior resident-as-teacher "offering what they would do" for the plan of care. The attending in this case is the faculty member who has ultimate authority over the decision for the care plan. While Alex illustrates learners reflecting between their own versions and the expert's plan, we do not see reflection (or modeling, coaching, scaffolding) for the clinical reasoning *steps* to get to that plan.

To sum up Finding 3 as I've demonstrated through participants' expressions of meaning for teaching practices, most participants indicated that traditional apprenticeship teaching methods are experienced early in the first year of residency, with all indicating a

limited transition to cognitive apprenticeship as residents progress, with most participants' teaching methods mirroring those they experienced as learners.

The cognitive methods of reflection (on differences between the novice and expert versions of the reasoning process) and exploration (of ways to apply to new practice scenarios or contexts) were embedded in participants' recounting of experiences they considered exceptional for their growth in autonomy, presented next in conjunction with Finding 4.

4.3.1.4 "It Felt So Safe" versus "There to Write the Notes"

My analyses revealed that all participants associated exceptional growth in autonomy with experiences that paired cognitive apprenticeship methods with psychological safety, while most associated the least growth in autonomy with little to no teaching or participant engagement in clinical decision making (Finding 4). I asked the participants to consider the teaching they experienced during these exceptional experiences for autonomy growth. Teaching practices clustered into cognitive apprenticeship methods with participant feelings of psychological safety attached to the experience, often at a time when they expressed feeling insecure or uncertain. Participants highlighted cognitive apprenticeship methods in the following ways: modeling of the clinical reasoning process when the learner struggled, coaching with reassurance, and scaffolding quickly at a moment of learner vulnerability. Note that the participants in these examples expressed feeling more secure, positive, and confident during these interactions.

Imani attached meaning of "it felt so safe" to scaffolding, or the support provided to her, while she learned to pronounce death and lead a difficult conversation with a family. This was Imani's first time experiencing the pronouncement of death, a position of vulnerability for her, which she remembers as "such a fragile moment". I have chosen

to include a longer narrative here for context surrounding the teaching methods. Imani recalled this experience as one she most valued for her growth in autonomy:

> …it was the first time I had to pronounce death and I had my upper level with me, and we actually had two patients die…She asked me, and she said, 'Have you ever pronounced death?' And I was like, 'no, I haven't'. And she said, 'Well, do you wanna do it?' And I said 'honestly, I don't know how, and would it be okay if I just watched?' ...before we went and even saw the patient, she said, 'you know this is how it happens, like, this is what you do. This is what you say.'
>
> And then, later on, a couple of hours later, we had a second patient die, and she said, 'Do you want to come? Pronounce this death?' And it was a different situation, because with the first patient the family wasn't in the room, but with the second patient there was family in the room, and so I was a little bit nervous going in, and I knew the steps that she had, and she told me like, 'if you need any help, just let me know'…and I did need help in that moment, and I got a little nervous, and I just, I could tell that she felt it because she immediately stepped in, and maybe I gave her a look, or maybe I hesitated, but she just knew to step in, in that situation…It felt so safe, because whenever you're in such a fragile moment like that, and you're stepping into another person's life for that brief instant you want to be this rock, and whenever you're not this fully formed doctor, sometimes you don't get to be the rock for somebody. So, having her there, I felt like was not only more secure for me, but also gave the patients and just that situation the justice it deserved. (Imani)

Note that the teacher (a more senior resident) initially responds with scaffolding firmly in place (physical presence and readiness to substitute for the resident) and modeling (through teacher articulation). At the next opportunity, the teacher scaffolds again, yet prepares to fade or adjust scaffolding, based on first gauging Imani's readiness to engage ("Do you want to come? Pronounce this death?") and then assessing in real time Imani's performance by observing during the interaction. While Imani was not sure to which learner cue the teacher alerted for more scaffolding, she summed up the teacher's support as "she just knew to step in, in that situation". Imani's account demonstrates a combination of CA methods appropriately matched to increasing task difficulty for the learner while fostering psychological safety. Imani ends with a statement of meaning attached to the balance of supervision and the provision of autonomy she received. She

indicated that this balance provided security for her as the learner while the autonomy afforded was appropriate to the needs of the patient's family.

Shawn tied two methods, scaffolding and coaching, to the teacher "going with" (providing support with the teacher's physical presence) and "calmly" prompting, when a patient was getting worse ("decompensating"). In his description of the scenario, Shawn says:

> …she was the most phenomenal educator I've ever worked with…she would go with you and individually be with you, like, when a patient is decompensating and just very calmly, like, 'Okay, what do you want to do' or 'Tell me what you're thinking. You know, this is something else I'm thinking about.' And I think it was very supportive, but not judgmental. And I felt like she was a coach most of the time. (Shawn)

I noted that Shawn positioned opposing forces such as the stressful decline of the patient with the calmness of the teacher; the underscoring of "individually be with you" with the multi-learner team structure of the inpatient service; "what you're thinking" contrasted with "something else I'm thinking about"; and "very supportive" contrasted with "judgmental". Discursively, Shawn's choice of wording harks back to the concept of balance, with psychological safety as a steadying theme.

Taylor added an interesting dimension for coaching, that continuity clinic (a longitudinal outpatient experience with a panel of patients lasting throughout residency) is not only a "great place for residents to flex their autonomy", but the "teaching in the clinic is much more coaching." When I asked why, Taylor explained that the structure "lends itself better to coaching" because time constraints force diagnostic and care plan commitment by the individual resident, and the supervising faculty member adapts coaching to that purpose. Taylor contrasted the level of the learner commitment with its limitation on the inpatient service teaming structure, saying that when in clinic, "you don't have the, oh well, we're going to round with the team in a little bit excuse." Taylor means that sometimes it is easy for a resident to shrink from individual commitment to the diagnosis and plan when in a larger group of learners, like on the inpatient team. The

team discusses during patient 'rounds'. In clinic, however, it is just the resident committing to a plan; there is no waiting to "round with the team" as an "excuse" for delaying a decision on the plan of care.

The thread of teacher supportiveness extends to the resident's engagement in inquiry as some participants (4 of 8) described the teacher leading the learner to compare the expert model of reasoning or alternate, expert versions (learner reflection), and either providing or stimulating exploration activities contextualized within the learning experience that allow application to future practice. Both of these activities involve resident inquiry into differences between the expert model of reasoning and the learner's version, and ways to apply what has been learned to new situations. This appearance of reflection and/or exploration embedded in several resident descriptions of exceptional experiences for autonomy growth, contrasts with their absence in experiences they shared for teaching methods commonly encountered. The following participant comments illustrate the presence of reflection activities between learner and teacher. Note Alex's self-directed approach of the "mentor" to propose a side-by-side comparison of the learner's version of clinical reasoning in the patient management plan to the expert's version, enabling learner reflection upon the differences:

> …those are easily the best experiences because there have been instances where I've either done well or not done well and wouldn't know the difference by the person who owns that management decision in the morning. But the places where I feel like I've grown the most have been the ones where I can go back and ask a mentor or say, 'here's how I approach this. This is my thought process and the end result, what would you have done differently?' (Alex)

And in this example, Chris explains the relationship between the reflection activity and her growth in autonomy, indicating a gain in confidence, "It really helps me to know where are the gaps that I should have fixed there. And it gives me more of that confidence to truly like become an independent thinker." While Alex and Chris are illustrating the learner's self-direction, reflection is still classified as a teaching method of

CA, because the teacher is stimulating the activity and through the interaction, is facilitating learning.

In this next example, we see that the night rotation lends itself to a part of scaffolding known as fading, or withdrawing support when it is not needed for a learner to accomplish clinical reasoning on their own. Imani explains how fading led residents to engage in self-directed exploration and suggests that this practice of inquiry aided in retention of what was learned:

> We had to look up things on our own. We had to call the pharmacists on our own and figure out all that, and so we did research in the middle of the night to figure out if it makes what we're doing the best and safest thing. And sometimes that wasn't right. But you remember. You remember the good outcomes and the bad outcomes…(Imani)

Her choice of words such as "on our own" and "figure out all that" attaches meaning of authentic independence to the activity. When she emphasizes remembering, she is lending meaning for the positive outcome associated with the learner's practice of autonomy.

Zahir described a faculty teacher scaffolding to provide support when recognizing the learner was "lost" during her articulation of reasoning, coaching by providing "reassurance", and modeling the expert's process for clinical reasoning. Zahir remembers the teacher's strategies during this experience as "just incredible":

> So, something that I've seen my current attending do that is just incredible, is he reassures me like 'you're on to something', like, 'I can see you thinking about that there's something missing, or that there's this important physical exam finding that you have to take into consideration. But you're kind of lost at how to put it together.' And he just proposes ways of 'think about it this way. You can separate the causes into three things. You can think about it in this XYZ way.' So I think that whenever an attending in my experience has, like, given me a structure to start thinking about things, that's something I can use within, like, take and use going forward and reapply it. (Zahir)

Note how Zahir moved from reflection upon the teacher's suggested structure for reasoning through the physical examination findings of a specific patient, to self-directed

exploration, or thinking of ways to apply the given structure to new scenarios, a desired problem-solving outcome of the exploration method (Collins et al., 1991).

I also asked participants if there were experiences that they did not value for their autonomy development and if so, which were valued the least. For learning experiences that participants least valued for their growth in autonomy, most participants (5 of 8) noted a lack of teaching altogether, with the learner relegated to an observer role, or one that simply assisted with clinical documentation or carried out the teacher's plan. Participants expressed functioning beneath their scope of practice as simply "writing the notes" or assisting the faculty supervisor by documenting the clinical encounter into the patient record, as summed up here by Marco and Chris:

> The attending that I'm with is very hands-on, not open to questions, not open to really hearing my thought process, just wants to get the encounter down and move on… It feels sometimes I'm there to write the notes. (Marco)

> It just felt like you were the note writer…we were filler…got treated like you were very much inferior. It hurt because it just felt like we weren't really a value to the care team. (Chris)

We see emotional meaning attached to the experience by both residents; "it hurt" (Chris), and "it feels" (Marco), lending significance to the experience in the eyes of the participants.

Alex also illustrates the lack of engagement in decision making, yet in a different way. Here, when he speaks of "no experimentation, no lived experience", he is referring to choosing a plan of care as the best option even while uncertain and being allowed to proceed by the supervisor, so that he can "live" the experience and learn from it.

> I think about instances where the plan that I offer or what I choose is never going to be respected. So they are always rotations in which you work with particular attendings that they are so risk intolerant, they're inflexible, and at that point it's like reading a textbook in terms of how quickly I'm going to gain knowledge. There was no experimentation, no lived experience. I am facilitating their decision. (Alex)

He attaches meaning for the lack of growth in autonomy to attendings (note the plural indicating the practice is not isolated) whose risk intolerance impedes resident follow-through to decision making.

4.3.1.5 "Seeing How Everybody Else Does It"

All participants indicated that teaching practices are primarily passed down from one practitioner to another and acquired by residents through observation and imitation (Finding 5). I asked participants how they acquired their teaching methods, and how they knew which teaching methods to apply to learning activities. All participants responded that the teaching methods were not explicitly taught but acquired by observing others, although they recognized the exception to this practice for the select group of residents enrolled in the clinician educator track (CET). Although some participants mentioned infrequent sessions with teaching topics such as retreats or Grand Rounds, they emphasized that most practices were adopted through observing others and incorporating into one's own teaching. This practice was referred to as "seeing and experiencing what's not being said aloud and never explicitly said is the default" (Alex); "seeing how other providers had done things, and then integrating it into your own style" (Chris); "seeing how everybody else does it" (Imani); and Taylor sums up the practice here: as follows:

> …kind of just passed down. My upper levels did it to me, pushed me in that way, and their attendings pushed them in that way, and then they pushed us…I don't think there's a coordination. (Taylor)

Note that participants referred to various teaching and learning roles in the preceding examples, "providers", "upper levels", "attendings" and "everybody". For this reason, I stated the finding in terms of practices being passed down by "practitioner", while focusing on the resident experience of acquiring and adopting practices through observation and imitation.

When asked how faculty adopted their teaching practices, participants either indicated that they did not know or that faculty participated in training. While I first considered not including this data as I labeled it conjecture rather than personal experience by the participant, I reconsidered when lending close attention to what Alex recounts as what is "not talked about", qualifying this knowledge as part of his lived experience:

> That's much more opaque to us as learners. So how faculty are developing and having mentors and coaches is something we're exposed to because of interest in the academic track. But even then, it's not daily. It's not talked about…attendings are not really talking about the way that they're picking up new information, thinking about the way that they're teaching. (Alex)

Alex's statement "that's much more opaque to us as learners" is significant because in the CoP, one would expect that novice clinician educators pattern after the practices of the expert clinician educators. If "opaque" as Alex suggests, a barrier exists for emulation of the experts by novices.

In this fifth finding, then, evidence from the data shows a commonplace practice in the participants' lived experience of observing and imitating teaching behavior for adoption into their own practice. In the final finding, I present evidence of another commonly experienced practice among teachers, the variability in provision of autonomy. Finding 6 addresses the last research question, tying results to the larger research problem of sufficient autonomy development for unsupervised practice.

4.3.1.6 "Very Attending Dependent" and "It's Just Fine"

I asked participants a variety of questions centering on their experience of the autonomy and supervision balance during learning experiences. The provision of autonomy refers to the practice by teachers of allowing an appropriate amount of independence to the resident in clinical decision making. All participants experienced a variable provision of autonomy, attributing the willingness of some teachers to grant

autonomy to factors other than patient needs and entrustment in resident ability (Finding 6). Both Zahir and Chris indicated that this willingness varied from teacher to teacher:

> …Just so individual. I feel it can vary drastically from attending to attending, like, right? This attending that I have right now is very, like, hands-on. And whereas the attending I had before him was so laissez-faire…(Zahir)

> …The Peds side, I would say, is very attending dependent…there are some attendings on the Peds side where it doesn't matter; they ultimately make all the decision, even regardless, even if it's like a decision where there was more than one correct answer, and you wanted to do it this way. They still want to do it the other way. Whereas you'll get these other attendings where it's much more, you know, 'I've seen what you can do…Go, go, be free and do your thing'. (Chris)

Notice that Chris interprets the entrustment in resident ability as "I've seen what you can do" with the feeling of independence "be free and do your thing".

In fact, most participants (6 of 8) attributed the willingness of some teachers to grant autonomy to factors other than patient needs or entrustment in resident ability. Some of these factors included knowing the resident well ("I feel like they know me"), concerns for efficiency ("more work for me to check in with them…versus them just doing it"), and motivation of the learner ("if it's disinterest, it's not worth the effort") as Taylor, Marco, and Alex illustrate, respectively:

> I've worked with fellows in my third year…I'm pretty good friends with all of them…I feel like they know me. I think that the level you're willing to push someone to make decisions independently is based on how much trust you have in them. So, I've been lucky enough that a lot of the fellows, I think, trust me. So, I might get a little bit more pushing to make decisions to make maybe more second level decisions than, say, someone that they've never met before. (Taylor)

> I think some attendings are not comfortable with giving autonomy. They want to just kind of get things done quickly and as best as they can at the expense of learning, perhaps. But I think that the majority of the attendings I've encountered are pretty good at kind of letting residents flex some autonomy in a safe way. (Marco)

> …if you're appreciably not interested or motivated, then it's cognitively demanding to put any of these strategies in play. So, I mean, if there's going to be no return on investment, then why do it? …if it's disinterest, it is not worth the effort. And I think that's where people fall into handing down the plans. (Alex)

Shawn added that teaching expertise is a factor, "…I think the fading thing is really important. But not every, like, supervisory person knows when to do that." Zahir identified the learner's motivation as a factor, implying that a learner who "genuinely wants to learn and has that passion for learning versus somebody who is there out of obligation" receives more attention to the learner's development. Importantly, while the majority of the participants recognized factors other than patient needs or entrustment in resident ability to be associated with the provision of autonomy by some faculty, they did not indicate this practice for all faculty. Shawn illustrates this by referring to a "leash" being granted:

> It's demonstrated in your clinical reasoning. I think if you're not having to fill in the gaps, or have the gaps filled in as much, then I think there's more of a leash…since you demonstrate that…you can be given a little bit more autonomy to do some things that you might not get to do if you weren't showing that."

Notice that Shawn directly relates "given a little bit more autonomy" by the teacher to the learner's demonstration of clinical reasoning skill ("not having to fill in the gaps").

An unexpected and related finding was the attitude of acceptance expressed by participants (7 of 8) toward the provision of too little autonomy when provided by faculty versus resident peers. This finding revealed itself when I closely investigated resident descriptions of experiences where they felt that too much supervision overshadowed the provision of autonomy. When asked how they felt about this practice and what action they usually took in response to feeling that way, participants expressed an attitude of acceptance and tolerance, rationalizing the faculty member's actions with acquiescence for the individual "style", "comfort level", and respect for years of clinical experience. Two participants, Chris and Taylor, used exactly the same phrase for this acceptance, "It's just fine":

> We kind of just accept that…It's just this person's style…when you get a certain attending that just wants every service consulted, that's a perfect example. There's a couple of attendings' reputations for wanting to consult and everything when you're sitting here, like, I don't need the consult. I know what to do, but they don't

> trust that we know what to do. And so, it gets more frustrating…at the same time we don't want to be prideful. So, it's just fine, like 'cause we know and certainly understand and respect that we're still in our training. And this person who's leading the team has far more experience in years under their belt than we do. (Chris)

> So we have some attendings that just do that and it's just accepted that they're going to do that, and there's been discussions that have been had with them, and it's just that is their style and it is what it is…you just kind of accept it for what it is…it's just the way that they feel the most comfortable practicing, which is, it's just fine. Everybody's level of comfort is different… And I've told attendings, however, involved or uninvolved you want to be is fine with me. Whatever you want is okay, I understand everybody's comfort level is different. (Taylor)

Note Chris's expression of frustration contrasted with "we don't want to be prideful", as well as Taylor's mention of the "discussions that have been had with them," implying that his acquiescence is a reaction to efforts already made by the program to no avail.

Zahir moves back and forth between hinting at disappointment ("being a fly on the wall"; and "barely even got the chance to try") and rationalizing the faculty member's provision of too little autonomy ("it was very helpful to hear my attending talk to the family in that specific way"; and "it was important for me to absorb it"):

> …and so, I started to talk to the family and the attending, I felt like, jumped in too quickly and ended up just like leading the entire conversation. And I struggled just for that little bit, but I never got my autonomy back. It was like, I tried…but I ended up being a fly on the wall…and it was very helpful to hear my attending talk to the family in that specific way…and I think it was important for me to absorb it, but I also do feel like I barely even got the chance to try. (Zahir)

While Zahir wavers between meanings attached to disappointment in the behavior and rationalization of it, Alex provides a plausible reason for it. Alex commented that practice instilled over years of experience may be more difficult to change, "…it's harder to fix patterns in a more senior person than a more junior person. I think there's more ego attached to it and it's harder to change for that reason." Yet, Imani countered this thinking with, "Some are set in their ways, but I will say that there are some that really do try hard to change."

Themes of resident accommodation and complaisance dotted participant responses regarding too little autonomy provided by faculty. Yet, some of these participants added that they had less tolerance for this practice among their supervising resident peers, as Zahir and Alex illustrate:

> Like, some attendings just have their own styles. I feel like upper levels are still figuring out their style, and so it might be, like, easier for me to ask for more or less autonomy. (Zahir)

> Generally, people, I don't know, accept it from the attending and have more difficulty accepting it from the resident because the knowledge differential, experience differential isn't as big…I see the same thing in junior attendings. They don't have the experience space to know that this is going to work out just fine or this is something I should truly be worried about. (Alex)

This meaning was expressed by "upper levels are still figuring out their style" (Zahir), and "they don't have the experience space to know" (Alex).

Another unexpected discovery related to this finding, was the evident difference in autonomy afforded to participants during their Internal Medicine and Pediatrics rotations, experienced by Med Peds participants (3 of 4). Shawn and Marco attribute this practice to a cultural norm within the Pediatrics specialty of risk aversion to protect the pediatric patient population that they do not endorse. "It seems like it's mostly cultural…like, it's specialty-specific rather than institution- specific…I feel like it is too protective of the children," commented Shawn. Marco added:

> So, more autonomy with the medicine side, certainly. I think it has to do with just…if anything goes wrong, this is a child, and they have oftentimes many more years to experience this burden from a medical error…I don't even really agree with that approach…I don't think residents cause harm. And I think the adult side kind of proves that, if anything, kids are more resilient. (Marco)

Marco's disagreement with risk aversion based on a patient population characteristic is supported by his observation that his experience on IM rotations ("the adult side") refutes the value of the practice. When he comments that the IM experience "proves" that "kids are more resilient" he means in comparison to the morbidity and mortality of adult patients.

4.4 Review of Findings

This concludes my presentation of the study's six major findings, derived from common experiential themes of the participants (see Table 4.1). To recap, the findings are:

F1. To most participants, the resident's dual role of learner and teacher means straddling a difficult balance between the two.

F2. All participants valued their teaching role for supporting their own learning, yet most experienced a lack of formal training and/or feedback for their teaching practices.

F3. Most participants indicated that traditional apprenticeship teaching methods are experienced early in the first year of residency, with all indicating a limited transition to cognitive apprenticeship as residents progress. Most participants' teaching methods mirrored those experienced as learners.

F4. All participants associated exceptional growth in autonomy with experiences that paired cognitive apprenticeship methods with psychological safety. For experiences least valued for autonomy growth, most participants recalled a lack of engagement in clinical decision making.

F5. All participants indicated that teaching practices are primarily passed down from one practitioner to another and acquired by residents through observation and imitation.

F6. All participants experienced a variable provision of autonomy, attributing the willingness of some teachers to grant autonomy to other factors besides patient needs and entrustment in resident ability.

I have endeavored to present the findings in this section as objectively as possible, while acknowledging that my positionality inevitably affects the selection of the data for quotations. I have tried to withhold from analysis other than calling attention to

phraseology by the participants to make clear how the quotations represent the findings. I have also withheld interpretation, saving it for discussion in the next section. Each participant, as I have shown, attaches meaning or interprets the same experience of the phenomenon in their unique way. As I looked for connections across individual participants (cross-case analysis), and between themes and sub-themes, I identified major concept threads which I will discuss next. I proceed now to an analysis, interpretation, and synthesis of the findings.

4.5 Discussion

Consistent with the IPA design of the study, I examined the common experiential themes and subthemes of participants to form categories for analysis and interpretation (Smith et al., 2009; Smith & Nizza, 2022). To consider possible outcomes contributing to the research problem from the findings, I also organized findings by research question to assist in category formation (Bloomberg & Volpe, 2019). As suggested by the IPA approach, a few key references are provided to discuss the findings (Smith & Nizza, 2022). The discussion that follows analyzes, interprets, and synthesizes the findings with the literature.

4.5.1 Inadequate Scaffolding for the Resident-as-Teacher

Finding 1 revealed that most participants experience their dual role of learner and teacher as straddling a difficult balance between their own learning and being the expert for more junior learners they supervise. This finding of tension between the two roles has also been noted in the literature (Balmer et al., 2012; Habboush et al., 2019; Sherman et al., 2020), yet may not currently receive the research attention it deserves. Participants assigned a precarious feel to the balance as indicated by their use of words such as “teeters” (Jody) and “tricky” (Taylor). Chris alludes to the perilous nature of the balance

when discussing the responsibility of deciding how much autonomy to provide an intern under her supervision; note her use of the verb "falls" here: "it's much more about, it falls back to us, still learning to teach."

Their narratives centering on the difficulty and uncertainty involved in a constant effort to balance their two roles of learner and teacher point to a significant cognitive load. Alex illustrates:

> …it's what I see play out because it starts to compete with people's attention, their cognitive load for, 'I'm responsible for directing the course of care, but also patient safety, but also the level of risk tolerance, and it becomes just cognitively demanding…(Alex)

The cognitive load associated with supervision and teaching, added to the competing demands of clinical work and learning, is significant during residency, a premise supported not only in this study, but also recently in the literature (Pietrement et al., 2023). This recent research shows that the excessive cognitive load may be alleviated through the provision of clinician educator training, preparing residents for implementing specific teaching strategies to develop clinical reasoning in more junior peers. With the uptick of Clinician Educator Tracks (CETs) appearing in programs in recent years, studies associated with them have shown that residents increase in confidence, comfort with teaching, as well as in perceptions of their ability to facilitate clinical reasoning skills (Daaboul et al., 2021; Friedman et al., 2019; Kochhar et al., 2023; Ratan et al., 2021). These studies provide evidence that straddling a difficult balance between the learner and teacher roles is a similarly relatable experience in the GME population, connecting this study's finding to the literature.

By default of the supervisory structure on inpatient teams, the reach of resident teaching to many learners necessarily impacts those learners' development (Ratan et al., 2021; Saucier, et al., 2021). Each upper-level resident may have more junior residents (who may also be supervising interns, or PGY-1 residents, and/or medical students.) The chain of supervision necessarily involves being both the near-expert physician as well as

a near-expert teacher. The quality of instruction, appropriateness of instructional methods to learning activity, and the level of expertise of their instructors, are all relevant to the development of learners. These factors impacting learning largely rest with the supervising resident. In the next quotation, note that Taylor, as we saw previously with Chris, chooses the verb "falls" for framing the responsibility for the "team as a whole". The imagery of "falls" suggests an unforeseen circumstance, resulting from unsteadiness, while the phrase "let the upper level run the team" suggests a weighty responsibility:

> …the team structure is kind of unique in that the autonomy for the team as a whole largely falls to the senior residents. So, there's autonomy for small decisions, but generally the idea is that the upper level, the [PGY] two or the three runs the team, most attendings want that. And I generally think that the attendings, regardless of how much you've worked with them, usually let the upper level run the team. (Taylor)

The weightiness of the role's responsibility is not congruent with the scaffolding, or support provided, for the near-expert teacher.

Finding 1 shows that participants experience difficulty and uncertainty while immersed in the duality of learning and teaching. I believe that a significant cognitive load results from these concurrent responsibilities, contributing to an unsteady feel to the role for the participants. Connecting to this first finding, the second finding presented the resident teaching role as largely unsupported with training and development, except for those indicating a career interest in teaching. The lack of support may contribute to the unsteadiness of the dual role of learner/teacher. Participants valued their teaching role for supporting their own learning, yet most experienced a lack of formal training and/or feedback on teaching practices. Several participants also suggested that more training and feedback on teaching would be welcome, as Taylor does here:

> I think that the scaffolding in terms of relation to teaching practices specifically is probably an area that we're lacking in. I think that we would probably, maybe, benefit a little bit from some more formal teaching feedback, so to speak. (Taylor)

Taylor notes that scaffolding, or an expert's provision of support (in this case, teaching support) that is needed until the novice is able to perform with expertise, is lacking for the resident-as-teacher. While not termed as "scaffolding", which I have intentionally used to underscore my assertion that the CA method can be used to apprentice novice teachers, the literature suggests that residents generally favor more support for their teaching development as my participants have indicated (Al Achkar et al., 2017; Wolcott et al., 2021). Inadequate scaffolding for the resident-as-teacher role also ties into the next narrative theme, as I will discuss next.

4.5.2 Barriers to Professional Identity Formation of the Clinician Educator

Existing research confirms the notion that acknowledging the challenges of teaching during residency leads to professional identity development as a teacher (Sherman et al., 2020). In Finding 2, participants were found to value their teaching role for learning, as recent research across multiple institutions and specialties supports (Regan et al., 2022). Key to valuing the teacher role is one's professional identity within the social community of practice (CoP). The professional identity of a teacher, or master of one's discipline, is one and the same as expert physician in the CoP (Lave & Wenger, 1991). This means that all learners in residency are learning from a teacher who is serving in the capacity of expert (or near-expert in the case of supervising residents). This expert/near-expert status applies to both physician and teacher expertise, as both require training and development. All participants acknowledged being a teacher, indicating a strong sense of professional identity. All but one agreed that the faculty definitely thought of the residents as teachers, indicating that they perceived a shared identity in the CoP. Alex, however, attributed whether the faculty view residents as teachers to two factors, whether the faculty themselves prioritize teaching, or whether the

learning context crosses specialties (as with IM and Peds) or subspecialties. His response when asked "Do the faculty think of you all as teachers?" follows:

> The Big E Educators definitely do. So the people who are deliberately involved in med-ed absolutely do. The people who I think are less interested in seeing us as teachers tend to be, I see this more often on pediatrics, but the subspecialists in general, because I think that they're offering that their knowledge base and experience base is so specific that I'm not there to grow as a teacher. I'm there to grow as a learner. Whereas…something that's more general medicine or general pediatrics because that's a role that I'm set to assume and that is the endpoint, I'm supposed to be trained to the point of being autonomous in this. (Alex)

Alex parses the faculty two groups; those that are "deliberately involved" in medical education, ("The Big E Educators") and subspecialists. When he says, "deliberately involved", he means that faculty have, by choice, dedicated a large portion of their time and effort to a significant role in either undergraduate medical education (UME) or GME. Subspecialists, as he explains, offer more specialized knowledge and expertise associated with a subspecialty (like Pediatric Oncology). He implies that other clinical faculty do not consider the residents teachers. Interestingly, Alex is the only participant of this sample enrolled in a CET. His recognition, apart from the other participants, that the professional identity of 'teacher' may be assigned by others, is reinforced by the process of application and acceptance into the CET.

The professional identity of a teacher ties into the development of autonomy, too. Residents may see their 'future self' as a physician expert when they are the teacher (Cruess et al., 2014, 2019; Hansen et al., 2019), indicating the development of professional identity and autonomy through the teaching role, as Chris relates in her 'aha moment':

> And so, for me, that very much was the moment of sensing that I can handle this without any expert guidance because I've had to become the expert, become the teacher. And so, for me, I think it's learning through teaching. (Chris)

Chris's meaning for learner/expert/teacher integrates the two trajectories of development, learner of medicine and teacher of medicine, into one target in the CoP, that of expert.

Yet, participants indicated that differentiated access to teaching training and feedback existed for three categories of teachers: faculty, residents expressing an interest in career teaching, and all other residents. This implicit hierarchy for the professional identity of 'teacher' does not align with the tenets of the CoP where all apprentices are striving to become experts, with 'expert' signifying both physician and teacher during residency (Lave & Wenger, 1991; Sherman et al., 2020). Privileges afforded in rank order of the hierarchy may result in acquiring different skills, and as noted, a different level of confidence with those skills. Taylor illustrates the difference in the faculty's repertoire of teaching strategies to draw from, "…I think the attendings use a more vast range of teaching tools. I think the residents use less of the modeling and much more of the coaching."

Marco suggests that the teachers' skill may vary; here he is referring to modeling the clinical reasoning steps for the learner: "The attendings are pretty good at that. Some of the upper levels, not so much." I followed up by asking why the upper levels would not know how to model clinical reasoning steps, and how the faculty would know to do that. Marco responded that faculty receive training in faculty development sessions, while residents receive "lectures here and there" or participate in the "clinical educator pathway or tracks that residents can pursue." The majority of residents, in this study and nationally, receive no formal training in methods for their responsibility of teaching clinical reasoning (Gray & Enright, 2018; Elvén et al., 2023). There is no scaffolding for their teaching. They are on their own from the beginning of residency.

4.5.3 Variable Application of Apprenticeship Methods for Teaching Clinical Reasoning

Finding 3 revealed that most participants indicated a resident experience of traditional apprenticeship teaching methods (modeling by showing/telling what to do, coaching and scaffolding until the novice is able to perform a task) early in the intern

(PGY-1) year. Taylor explained this strategy's goal of providing clarity, or "making sure that everyone is on the same page before you start getting into the nuance and the thought process". He suggested the suitability of traditional apprenticeship for providing clarity, "I think that early on, it's appropriate. I think that before, you need to understand what to do before you can understand why." Taylor also acknowledged that this practice varied by individual supervisor, "I think that all of the upper levels do it to some extent with the interns, but some do it more than others."

Yet, recent research shows that traditional apprenticeship methods contribute to confusion and fail to build confidence in clinical reasoning among novices (Johnson-Laghi & Mattar, 2022). The failure to explicitly model and teach the nuance of clinical reasoning represents a missed opportunity to establish a connection between prior learning and the process for clinical decision making (Gray & Enright, 2018; Torre et al., 2020). Then, when the novice observes decision making in actual practice, it may be difficult to follow the expert's line of reasoning. Jody illustrates this phenomenon from her perspective as a PGY-2 during inpatient teaming:

> …a lot of that nuance and detail happens with kind of a bigger group setting, but sometimes it gets lost in the, we kind of get lost in the details. If you're not there yet and you're like, I don't even understand why this nuance matters. (Jody)

Jody refers to the "nuance and detail" of the clinical plan as confusing, perhaps pointing to the missed opportunity of having the reasoning process explicitly articulated as with CA methods.

In Finding 4, most participants described a limited transition to cognitive apprenticeship methods (most often coaching, scaffolding, learner articulation of clinical reasoning, and teacher modeling of the clinical decision or plan) as residents progress. I consider the transition limited because these aspects of true cognitive apprenticeship methods did not emerge from participant descriptions of methods they commonly encountered or implemented: scaffolding with appropriate fading (withdrawing support

when no longer necessary); teacher modeling of the cognitive process of clinical reasoning through teacher articulation; learner reflection; and exploration. Instead, those particular aspects of methods from the full array of CA appeared in participant descriptions of learning experiences with exceptional growth of autonomy, indicating they were less commonplace. Participants related more commonly that encounters began with a teacher asking the learner to articulate their reasoning, proceeding to coaching through questioning. The primary CA step of modeling clinical reasoning, while not always linear, remained absent. Note Jody's referral to the teacher's modeling of the clinical decision (not the process of clinical reasoning to get to that decision) in this statement: "…when people aren't as good at teaching is they will sometimes just tell what they would do."

Relatedly, Taylor indicated the absence of learner reflection, "Don't think there's a lot of reflection going on that the seniors are asking of the interns," while Shawn illustrates that scaffolding with appropriate fading often depends on the supervisor's expertise, "...the fading thing, I think, is really important. But not every like supervisory person knows when to do that." The lack of teacher expertise in CA methods is also noted in the literature, as well as findings that reflection and exploration typically took place during longer rotations (Stalmeijer et al., 2009), fitting with Taylor's interpretation that continuity clinic was beneficial for autonomy development.

Particular aspects of cognitive apprenticeship methods embedded in description of experiences valued by participants for autonomy growth further illustrate the variability that residents encounter for instruction in clinical reasoning, as we see in Finding 4. Appropriate alignment and integration of these methods by teachers contributes to a psychologically safe learning environment, allowing growth of autonomy (Torralba et al., 2020; Wolcott et al., 2021). Psychologically safe environments allow learners to ask questions, make mistakes, and express uncertainty without fear of embarrassment or ridicule. Participant quotations presented earlier illustrate this concept. Imani

commented “It felt so safe” while she was learning a new skill. Likewise, Shawn shared a teacher “going with” and “calmly” prompting, while Alex illustrated the psychological safety to “go back and ask a mentor” for reflection upon reasoning steps, qualifying the learning context as “the places where I feel like I’ve grown the most.” Jody emphasized that peer teachers contributed to psychologically safe learning, “…older residents really modeled it well for me, of ‘this is a safe space we can learn together. The attending’s not here, you don’t have to impress me’ type thing.” All of these examples illustrate a teacher (even if a peer) offering reassurance and comfort, allowing tension to dissolve. The “safe space” opens for learning to take place, as these participants have described.

An interesting finding related to this one pertaining to the contrast between traditional and CA arose during interviews. Participants responded readily without pause to my question as to which rotations they felt were the most valued for autonomy growth and which were not. Because some of these rotational experiences happened at different times for different residents (according to PGY level or when they happened to be scheduled), I became curious about the curricular sequencing of some rotations that they mentioned. This question occurred to me from my own experience as a teacher developing curriculum. Several participants mentioned the overnight rotation (Night Float) as particularly beneficial for autonomy development, consistent with recent findings in the literature (Cygler et al., 2021). I asked if they would change anything about when it occurred in their schedule, relative to fostering their autonomy. Taylor reinforced the limitations of scheduling during residency, pointing out that “someone has to do Night Float in July.” The literature relates the practice of task sequencing (increasing the difficulty of the task) to meet the demands of the workplace, to traditional apprenticeship, while task sequencing to meet learning needs fits cognitive apprenticeship (Lyons et al., 2017). Traditional apprenticeship, then, is also represented in typical scheduling practices directing the curriculum, which in turn, suggests an impact upon autonomy development.

4.5.4 Trickle-Down versus Evidence-Based Teaching Methods

Several themes point to an inadequate development or training in teaching methods suited for clinical reasoning and decision making to support the learner's trajectory toward autonomy. Most participants experienced a lack of formal training and/or feedback for their teaching practices, as stated in the first finding. Other findings tie in as well. In the third finding, I identify that most participants' teaching methods mirrored those experienced as learners. These methods included traditional apprenticeship for early PGY-1 learners and limited cognitive apprenticeship methods (usually no reflection or exploration) as interns advanced. As discussed, traditional apprenticeship is misaligned for teaching the cognitive process of clinical reasoning. Other mismatches, such as modeling an expert decision without modeling the reasoning steps, may represent missed teaching opportunities to apply cognitive apprenticeship appropriately. Participants encountered variability in the approach and methods for teaching clinical reasoning, implying inadequate teaching development in cognitive methods.

Finding 5 revealed the traditional and limited cognitive apprenticeship methods passed down from one practitioner to another, with residents observing, imitating, and adopting the methods into their own practice. Participants expressed this through meaning units such as "seeing and experiencing" (Alex), "seeing…and then integrating" (Chris), and "seeing how everybody else does it" (Imani). Several participants indicated that further tailoring of the method to one's own preference takes place; "I think it's just everybody has their…I prefer the 'what is your thought?' (Taylor); and "I just honestly use a lot of my own, what I like to do" (Jody). While this process might work well for preferences that align with evidence-based methods, the literature is clear that evidence-

based teaching practices in the clinical space are lacking and needed (Stalmeijer et al., 2009; Yang et al., 2023).

The existing literature suggests that this process of learning teaching practices is ineffective and inadequate. Although the participants describe imitating observed behaviors, the learning process they engaged in does not even reflect the effective method of traditional apprenticeship, that is, observing a behavior, then coaching, scaffolding, and gradually fading assistance from a master until the novice has reached mastery. Teaching is more than a behavior; it is a cognitive process, and cognitive methods are aligned for teaching a cognitive process (Dennen, 2013; Dewhirst, 2023). Learning a teaching method by observing and adopting an imitated behavior into practice as a novice is not supported by a developmental learning framework. Most concerning, this process may instill misaligned teaching practices over time as a part of residency culture, making change difficult (Elvén et al., 2023). Consistent with my findings, the literature also suggests that teaching methods vary for application to clinical reasoning because of the lack of teacher training (Stalmeijer et al., 2009). Reliance upon sporadic workshops, retreats, or limited enrollment in CETs, also reflected in the literature, reflects this lack of formal education in teaching methods (Yang et al., 2023).

I am including the presence of a CET, if offered only to residents indicating interest as in this study's setting, as inadequate for teacher training for the majority of residents. CETs are currently offered in only a fraction of residency programs nationwide, and research indicates that the curricula vary (Daaboul et al., 2021; Friedman et al., 2019). Furthermore, the literature suggests that attention to curricular design and teacher development in instructional methods for clinical reasoning is supported by evidence-based frameworks (Lyons et al., 2017; Schaye et al., 2019). Therefore, consensus for clinician educator competencies in instructional methods for clinical reasoning should be established in the same manner as the competencies for physicians, with a developmental framework to support novice teachers.

4.5.5 Autonomy Provision Other than by Entrustment Deserved

I found that all participants experienced a variable provision of autonomy, attributing the willingness of some teachers to grant autonomy to factors other than entrustment in patient needs and resident ability (Finding 6). This finding is supported in the literature, with the factors influencing the granting of autonomy varying by study (Bochatay & Bajwa, 2020; Santen et al., 2019; ten Cate & Jarrett, 2023). In this study, participants cited variability by individual supervisor attributed to familiarity with the resident through a personal relationship, efficiency concerns, teaching expertise, risk aversion, and the learner's motivation. A surprising sub-theme among Med Peds participants was the variable autonomy provision between the specialties of IM and Peds, as I did not expect differences between patient populations to impact autonomy provision. This finding is supported in the literature showing a higher risk intolerance in the Peds specialty, impacting the experiences of both Peds and Med Peds residents (Mieczkowski et al., 2014; 2021), however, in contrast to findings in those studies, none of the Med Peds participants in my study expressed frustration with too little supervision while on IM rotations.

The literature debates the issue of increased supervision (with less resident autonomy) in connection to patient safety. Studies supporting increased supervision show positive patient safety outcomes (fewer medical errors) and development in resident competencies (Farnan et al., 2012), while others provide more recent evidence that increased supervision demonstrates an overcautious concern for patient safety (Finn et al., 2018; George et al., 2017; Oliver et al., 2023; Seegmiller et al., 2020; Smith et al., 2019; Williams et al., 2022). My study's findings, particularly the experiences of the MedPeds participants, support the recent findings from the literature.

Also surprising, I noted evident acceptance and tolerance of too little autonomy for those occasions when provided by faculty members, while less tolerance was expressed for this same practice by resident peers. This may represent a gap in the literature, as a search for studies on this topic yielded no results. Interview data from this study strongly supports the finding, as the majority of the participants mentioned their attitude toward each role's provision of autonomy, although I was not probing for it specifically. There may be several possibilities why participants expressed this attitude, discussed next.

First, residents do not wish to be perceived as critical of those in a position of power above them. This notion is upheld in the literature (Ramani et al., 2017). Despite no indication that these participants held back from giving honest answers to interview questions (one of my assumptions for the study), and my reassurance of confidentiality, they may have been reticent to provide a critical assessment of faculty practices. The same reluctance to critically appraise the provision of autonomy did not apply to resident peers, as no power hierarchy exists in those relationships.

Another possibility is resigned acceptance to a person's affordance of too little autonomy that residents do not feel empowered to change. Comments like "it is what it is" (Taylor) and "we kind of just accept that" (Chris) crystallize this idea. Resignation becomes a coping mechanism that enables residents to focus on their already challenging day-to-day responsibilities. There is no need to devote mental energy to issues with which they perceive little potential to influence. My interpretation here remains consistent with Finding 1 in which residents already cope with the cognitive load of straddling a difficult balance in their dual role as learner and teacher.

The ACGME stipulates in the *Common Program Requirements (Residency)* that supervising faculty must consider both the needs of the patient and resident ability when delegating patient care and assigning "progressive authority and responsibility" to residents, including supervising residents under their authority (ACGME, 2023). Yet,

other variables continue to serve as barriers to the appropriate balance of autonomy and supervision, interfering with resident gains in experiencing this autonomy and preparation for unsupervised practice. Chris states clearly her concern that the appropriate level of autonomy is not generally afforded, from her perspective as a PGY-S/P looking back over the totality of training, "We're not really being given an appropriate level of independence. And I'm concerned that the attending has not found the balance between patient safety and learner independence."

Recent research suggests that teachers, whether faculty or residents, learn to extend autonomy to trainees under their supervision from their own experiences (Conner et al., 2023). Because their experiences varied in the balance of supervision and autonomy provided, this practice perpetuates the variable provision of autonomy today. Acquiescence with norms regarding the provision of autonomy in the pediatrics specialty, and with individual faculty members because it is their "style" or "comfort level" contribute to a culture of supervisory teaching that may impede the development of autonomy within the constraints of the residency time period. A lack of empowerment among residents to insist on change is likely due to power dynamics inherent in the hierarchy of residency (Karp et al., 2019). Marco explicitly ties the lack of teaching skill to the failure of some attending physicians to provide autonomy:

> I think it is very important that they kind of lead the teaching because they do know the most, and there is great value in their role as the ultimate supervisor. So I appreciate the hierarchy with that. But there's a difference in an attending that is like that, versus an attending who already isn't as skilled in teaching that shuts things down. That's when hierarchy is malignant. (Marco)

Marco refers to power dynamics in place by framing them as "when hierarchy is malignant". Notice that he prefaces that assessment with appreciation for the hierarchy, too, recognizing value in the oversight provided.

In my analysis, interpretation, and synthesis of the preceding findings, I organized my insights into these categories centering on experiential themes: inadequate

scaffolding for the resident-as-teacher; barriers to professional identity formation of the clinician educator; variable application and inadequate development of evidence-based methods for teaching clinical reasoning; and the variable provision of autonomy perpetuated by customary practice. I believe these categories best capture what the findings may mean in light of the research questions. I will present a summary of the key findings next.

4.6 Summary of Key Findings

I began my inquiry for this study with four research questions:

RQ1. What is the dual role of learner/teacher like for residents as they attend to their own and others' development of autonomy in clinical reasoning and decision making?

RQ2. Which teaching methods do they commonly experience as the learner and practice as the teacher relative to this development? Which methods are associated with experiences most and least valued for growth in autonomy?

RQ3. How are these teaching practices acquired?

RQ4. How do residents experience and interpret the provision of autonomy by supervising teachers?

In summary, key findings reveal that participants experience difficulty and uncertainty in their dual role of learner/teacher, attaching meaning to the experience as an unsteady balance between the two roles. Despite this challenge, participants particularly value their teaching role for their own learning and autonomy development. Teaching methods regularly encountered and practiced by participants in their dual role of learner/teacher transitioned from traditional apprenticeship methods of behavioral modeling, coaching, and scaffolding early in the intern year, to cognitive apprenticeship, limited to learner articulation of clinical reasoning, followed by coaching, scaffolding and

most often, modeling of the clinical decision or plan of care. These teaching practices were primarily acquired through observation and imitation of other teachers, instilling underdeveloped methods into resident practice. Exceptional teaching for growth in autonomy was differentiated by cognitive methods that included modeling of the clinical reasoning process and a climate of psychological safety, often including learner reflection and exploration. All participants experienced a variable provision of autonomy, attributing the willingness of some teachers to grant autonomy to other factors besides patient needs and entrustment in resident ability. These factors included familiarity through a personal relationship, efficiency concerns, a lack of teaching expertise, risk aversion, and expressed motivation of the learner.

These findings address the research questions, satisfying the inquiry and meeting the study's purpose, to illuminate the resident experience surrounding the development of autonomy in clinical reasoning and decision-making through teaching methods they encounter and practice in their dual role of learner/teacher. The next chapter presents my conclusions, recommendations, and implications for further study.

Table 4.1 Experiential Themes by Participant

Experiential Theme	Taylor	Jody	Imani	Zahir	Chris	Alex	Marco	Shawn
RQ1: What is the dual role of learner/teacher like for residents as they attend to their own and others' development of autonomy in clinical reasoning and decision making?								
Straddling a difficult balance	X	X			X	X	X	X
Learning through teaching; value teaching role	X	X	X	X	X	X	X	X
Lacking training, feedback on teaching	Retreats	X	Retreats	X	Grand Rounds	X	X	X
Seen as a teacher by the faculty	X	X	X	X	X	NO	X	Depends on interest of resident
RQ2A: Which teaching methods do they commonly experience as the learner and practice as the teacher relative to this development?								
Early on, teaching is "see X, then you do Y" (traditional apprenticeship)	X	NO		X	X	NO		X
Later, teaching is CA and includes learner articulation "talking through"	X	X	X	X	X	X	X	X
Teachers model clinical reasoning through teacher articulation		Rarely			X	X		X

Table 4.1 (continued)

Teachers model decisions/plans	X	X				X		
Coaching = Pushing	X	X	X		X		X	X
Scaffolding = "Stepping" in/up/to	X		X	X	X			
Residents engage in self-directed reflection and/or exploration	X	X	X	X	X	X	X	X
RQ2B: Which methods are associated with experiences most and least valued for autonomy growth								
Most autonomy: Clinic	X				X			
Most autonomy: Nights	X-for interns		X			X		
Exceptional growth: "It felt so safe" plus CA modeling, coaching, and scaffolding	X	X	X	X	X	X	X	X
Exceptional growth: cognitive reflection (R) and/or exploration (E)			X-E	X-R		X-R	X-E	
Exceptional growth: Few levels of learners/teachers and/or individualized instruction	X	X	X		X	X		X

Table 4.1 (continued)

Least growth: little to no teaching, "there to write the notes"	X			X	X	X	X	
RQ3: How are these teaching practices acquired?								
Teaching adopted by observing and imitating	X	X	X	X	X	X	X	X
RQ4: How do residents experience and interpret the provision of autonomy by supervising teachers?								
Too little autonomy = not sharing patient care or decision making		X			X	X	X	X
Autonomy afforded depends on patient needs or trust in resident ability	X	X			X	X	X	X
Autonomy afforded based on risk intolerance	X	X	X		X	X		X
Autonomy afforded based on pediatric patient population			X		X		X	X
Autonomy afforded depends on learner's motivation or interest			X	X	X	X	X	X
Too little autonomy by faculty is accepted and rationalized	X		X	X	X	X	X	X

CHAPTER 5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

In the previous chapter, I presented my findings based on common experiential themes of the participants who recounted and interpreted their experiences in unique ways. Believing that resident voices best illuminate their experiences with teaching practices (both as the teacher and the learner) relative to the development of autonomy, I have attempted to remain close to the interview data in the presentation of the findings. Subsequently, I presented my ideas and supported my insights with evidence from the data and findings from the literature in the discussion section.

Before reaching final conclusions for this chapter, I constructed concluding statements mapped directionally back to the findings to ground the statement logically. In this step, I tried to remain close to the findings while incorporating additional insight that I had addressed through discussion of the findings (Bloomberg & Volpe, 2019). Next, I formed actionable recommendations to address each concluding statement. To communicate the conclusions fluidly, I weave the concluding statements into a narrative, followed by the "Summary of Conclusions" and "Summary of Recommendations". Finally, I close this chapter with "Final Thoughts".

5.2 Discussion

In the discussion that follows, I support my conclusions for this study and make practical recommendations that flow from them for practice change and future study.

5.2.1 Inadequate Support for Residents-as-Teachers Imparts a Cognitive Burden

As I have shown, residents bear excessive cognitive load and experience difficulty and uncertainty as learners and teachers when there is inadequate support for the resident-as-teacher role. This conclusion is supported by the first finding, that participants made sense of their dual role of learner/teacher by describing their experience in various terms of difficulty, uncertainty, and a struggle for balance. This constant effort devoted to meeting the challenge of concurrent learning and teaching represents a cognitive load made heavier by unequal support for the teaching role than is provided for the learning role. The ACGME emphasizes a developmental framework for physician competencies, yet recognition of teaching competencies in a developmental framework is in its infancy (ACGME et al., 2022; Liang et al., 2022; Ratan et al., 2021).

I acknowledge that inadequate scaffolding for the resident-as-teacher role reflects the experience of this study's participants. While inadequate support for resident teaching is also noted in the literature (Ratan et al., 2021; Sherman et al., 2020), I recognize that the caveat "when there is inadequate scaffolding" is appropriate for this conclusion as stated, to reflect its inverse nature. For example, when there is adequate scaffolding and support for residents-as-teachers, there may also be less cognitive load and less difficulty and uncertainty, which is precisely what this conclusion implies. This implication is also supported by research suggesting that mentorship and support to residents-as-teachers results in positive gains in knowledge, confidence, scholarship, self-efficacy, and well-being (Liang et al., 2022; Lin et al., 2020; Robbins et al., 2024; Wolcott et al., 2021; Yang et al., 2023). I found the current research regarding the consequences of inadequate support to residents-as-teachers to be lacking, suggesting that my study's finding and concluding argument lend attention to this area.

A logical recommendation is to first recognize the difficulty residents-as-teachers face and plan to provide support (Sherman et al., 2020). Then, I recommend supporting the role with similar efforts to providing support that is already in place for the learning role during residency. Didactic training, mentorship, and practice followed by feedback apply similarly to developing the teacher as they do in developing the learner (Cranton, 1994). This support may steady the resident's learner/teacher balancing effort, reducing the cognitive load and the uncertainty associated with the resident-as-teacher role (Pietrement et al., 2023). The CA methods are ideally suited to the apprenticing of the novice teacher (Dewhirst, 2023; Konishi et al, 2020; Rehan & Yasmeen, 2021; Stalmeijer et al., 2009), therefore I recommend their application to training residents in teaching methods, or in other words, utilizing the CA 'methods to teach the methods'. Scaffolding, or providing the support needed until the resident-as-teacher gains teaching competence and proficiency, offers steady footing for residents straddling an uneven and difficult balance in their dual role of learner/teacher.

5.2.2 Lack of Teaching Development Interferes with Residents' PIF

My second conclusion is that the lack of formal training and development in teaching inadequately supports residents-as-teachers and may interfere with the professional identity formation of the autonomous clinician educator integral to the role. The lack of formal training and feedback means that residents are unprepared to take on the teaching role that they value for their own development. I support this part of the conclusion with evidence from Finding 1, as just discussed, and from resident experiences that traditional apprenticeship methods are often misapplied to teach cognitive processes (see Finding 3). Strengthening the teaching role through its

development enhances learning, by the participants' own logic as evident in their narratives supporting Finding 2: "I know something a lot better if I teach it," (Jody); and teaching is "very helpful for me developing autonomy," (Marco). This development includes the formation of professional identity with the experts in the CoP, the clinician educators who practice medicine and teach others how to practice medicine. Viewed hierarchically in the situated learning model (Lave & Wenger, 1991), the faculty serve as the expert clinician educators because all faculty members practice medicine autonomously and they also all teach learners how to practice (Sherman et al., 2020). Yet, participants indicated that they learned teaching practices differently and apart from the faculty (see Finding 5), primarily by observing practice, with only those enrolled in a CET learning teaching strategies formally from a clinician educator mentor. This practice removes most residents from the opportunity to develop a shared professional identity as teacher along with the faculty.

Lack of teacher training coupled with a mismatch between expectations of the resident-as-teacher role and neglect of the teacher identity formation during residency may lead to doubt and uncertainty, supported in this study and in one recent study that also noted a lack of research specifically in this area (Alwazzan et al, 2023). Implications for these feelings of doubt point back to the excessive cognitive load I discussed in the previous section. Other studies suggest that providing support for the resident-as-teacher supports professional identity formation in the community of educators (Sherman et al., 2020; Yang et al., 2023).

I recommend formal teaching training and development for all teaching roles. This effort appropriately aligns teaching as a shared responsibility and value among members of the CoP. Fostering identity formation of the clinician educator reaps benefits not only for the resident-as-teacher, but for the learners they supervise, as they, too, are

forming professional identity as physicians and teachers (Friedman et al., 2019). An important aspect of this clinician educator identity is autonomous clinical decision-making in the face of uncertainty. Formal training in evidence-based teaching methods for all teachers equips them with strategies to facilitate the development of autonomous clinical decision making (Gray & Enright, 2018; Johnson-Laghi & Mattar, 2022; Torre et al., 2020). Since autonomous decision making is a physician competency, skill development to effectively teach clinical decision making serves the medical community no matter what career is chosen, whether in academic, private practice, or other venues.

5.2.3 Trickle-Down Practices Typify Unreliable Teaching Development

I conclude that reliance upon observation and imitation for residents' acquisition of teaching practices is inadequate and unreliable for their teaching development. This trickle-down process, evident across participant experiences, may instill inappropriate methods and practices misaligned for teaching clinical reasoning and facilitating the development of autonomy. For example, observation and subsequent adoption into practice may include traditional apprenticeship misapplied to teaching a cognitive task, or even determining autonomy provision inappropriately. Residents are expected to learn from those in a position of authority inherent in the power structure of residency. I question whether learning teaching practices via the current process provides consistent modeling of effective practices to develop autonomy in clinical decision making. Research reflects this notion as well, that communities similar to CoPs often perpetuate power structures and identities over time that may not represent ideals to emulate (Roberts, 2006). Further, the literature indicates that there is a gap in study of how clinical educators learn to teach and what teaching looks like in actual practice,

attempting to address this issue from the faculty perspective (Hartford et al., 2017). My study contributes this insight from the residents as the experiential experts.

Because teaching involves cognitive processes, solely observing a teaching behavior and imitating it does not make the cognitive processes involved explicit. Nor does this practice shape a competent and proficient clinician educator who applies various strategies depending on the learner's needs and task at hand. With the primary task of residents-as-teachers to foster the development of clinical reasoning in more junior residents and medical students, competent teaching becomes essential.

Some of the practices described by participants indicate missed opportunities to further the development of clinical reasoning, especially early in the intern year when traditional apprenticeship dominated the PGY-1 learning and teaching interactions. I suggest that CA methods from the earliest introduction to residency may align better with the goal of teaching reasoning, a cognitive process (Liang et al., 2022; Wolcott et al., 2021).

I recommend the utilization of CA methods to 'teach how to teach.' Evidence-based and consistent with a developmental learning framework, CA methods offer an approach to develop the novice into a proficient teacher, in the same way that development occurs from the novice to the proficient physician. My recommendation involves the identification of experts who can effectively model and articulate the teaching methods for clinical reasoning, coach, provide scaffolding, and mentor residents as they engage in reflection and exploration for application of these teaching methods to practice. As residents receive support for their teaching, more junior residents and medical students benefit from teacher expertise even when teaching is in the developmental stage.

The experts who mentor teaching practices would ideally be clinician educators identified within the program. These faculty members serve as models for the professional identity of the clinician educator, as previously discussed. If, however, a lack of teaching expertise limits the capability to provide mentors, I recommend a concerted effort by the program and/or institution to enlist educational experts to provide training and guidance in methods. While I acknowledge my bias in making this recommendation, I also draw as a researcher on my many years of personal experience working with new faculty and onboarded residents as they navigate with difficulty their teaching role with little to no guidance, training, or instruction in evidence-based methods. My reflection here is consistent with the roots of hermeneutical phenomenology, from which interpretive phenomenology derives, in which the researcher simultaneously reflects on her own experience while interpreting participants' experiences (Heidegger, 1971; Neubauer et al., 2019).

5.2.4 Effectively Applied CA Methods and Psychological Safety Foster Autonomy

I conclude from Finding 4 that the effective use of cognitive apprenticeship methods while ensuring psychological safety fosters the growth of autonomy. This conclusion stands on evidence provided by the participants who recounted experiences they especially valued for growth in autonomy. Descriptions of CA teaching methods embedded in their narratives appropriately aligned to the resident's thinking process and contributed to providing psychological safety for the learner even during an atmosphere of uncertainty. The relationship of these three variables in the GME setting, CA methods, psychological safety, and autonomy development, is understudied at this time, with research limited to supporting the positive association between two variables: CA

and psychological safety in medical education (Merritt et al., 2018; Stalmeijer et al., 2009; 2013; Tariq et al., 2021; Torralba et al., 2020; Wolcott et al., 2021). My study, therefore, contributes to the body of knowledge by linking these three concepts.

I emphasize my recommendation for teaching development for all teachers in evidence-based methods for clinical reasoning, to include coordination and accountability for teacher implementation of evidence-based methods. I also recommend an emphasis on teaching development, rather than faculty development. This focal point on development of teaching rather than the teacher is noteworthy from a conceptual standpoint (Gore, 2021):

> In our efforts to improve teaching, there is a constant and troubling slippage between teachers and teaching. In my view, whether the focus is the person or the practice matters a great deal. That is, if the problem is seen to be teachers, the solution is to fix them – through, for example, the specification of standards, hours of professional learning that must be accumulated and signed off, and assessment of their performance. If, on the other hand, the problem is teaching, the solution is to fix practice… (p. 48)

This effort to improve teaching practice may enable all GME residents to have similar experiences to the isolated instances of exceptional growth expressed by this study's participants. Further exploration of resident experiences in other institutions, across settings and specialties, is warranted and recommended to support transferability of my conclusion across GME.

5.2.5 Misapplied Teaching Methods Miss Opportunities to Develop Autonomy

I conclude that variable application of apprenticeship methods when teaching may result in missed opportunities for facilitating the development of clinical reasoning and fostering autonomy. Finding 3 revealed that traditional (behavioral) apprenticeship methods were commonly experienced early in the PGY-1 year, yet research suggests that

behavioral apprenticeship methods are ill-suited for teaching cognitive processes (Johnson-Laghi & Mattar, 2022). Participants in this study indicated that the cognitive method of modeling was usually applied to model a clinical decision or plan rather than modeling the process of clinical reasoning to assist the learner in getting to the decision/plan. Both of these scenarios, misapplied methods to teach a cognitive process and failing to model the process, represent missed opportunities for facilitating the development of clinical reasoning, essential for the growth of autonomy (Gray & Enright, 2018; Torre et al., 2020).

Finding 4, however, led to the discovery that the implementation of cognitive apprenticeship methods such as teacher modeling through articulation of reasoning, framed by an environment of psychological safety, fostered the development of resident autonomy. Because these experiences stood out to participants as exceptional examples of teaching and autonomy growth, I reasoned that their other 'everyday' experiences may have missed some opportunities. This logic was supported by interview data providing evidence of traditional apprenticeship methods, "if you see X, then you do Y" (Taylor); and modeling the final decision rather than the reasoning steps to get to the decision, "they will sometimes just tell what they would do." (Jody). Contrast these examples with Shawn's recollection of the "most phenomenal educator" who calmly coached him to articulate his reasoning, then modeled her own reasoning, "Tell me what you are thinking. You know, here's something I'm thinking about." Given the variable application of apprenticeship methods, often by novice teachers, it is easy to see where opportunities may lie to improve teaching strategies by aligning them to the cognitive process of clinical reasoning and decision making (Elvén et al., 2023; Schaye et al., 2019). If residents-as-teachers are lacking development in teaching skills needed in that role, as these study participants have indicated, learners under their tutelage, by default,

may not progress as well as they could have, had they been served by teaching expertise. On the other hand, teaching development may lead to approximation of the experiences of exceptional autonomy growth that participants shared.

The literature supports this conclusion, indicating that cognitive apprenticeship, an evidence-based method, improves clinical reasoning by reclaiming some of these missed opportunities (Nothnagle et al., 2010; Robbins et al., 2024). Studies also indicate a need for development in evidence-based teaching methods (Gray & Enright, 2018; Johnson-Laghi & Mattar, 2022; Lyons et al., 2017; Schaye et al., 2019; Wolcott et al., 2021; Yang et al., 2023).

In this study, two participants, Alex and Jody, had increased exposure to explicit teaching methods matched to the cognitive task of clinical reasoning. Alex receives formal training in teaching strategies through enrollment in a CET. Jody, while not enrolled in the CET, told me that her medical school emphasized preparation for teaching. Alex demonstrates earlier application of CA methods for clinical reasoning to interns, as a result of his increased exposure to effective methods:

> …the earlier that that's imparted, assuming you have basic foundational knowledge and can offer rationale for your decisions, I try to give that to interns. 'Say, I don't care what you do between these two options you presented because of this limited menu, the result's the same or there's one clearly superior. I'm going to let you figure out which that is. And if the inferior option is not going to cause harm, you can go for it, but we're going to talk about why this was the inferior option.'

Interestingly, Alex withholds coaching until after the intern has had the opportunity to follow through on a proposed plan, which Alex has determined meets the criteria for not causing harm to the patient. He provides a measure of independence so that the learner can develop autonomy. His application of effective teaching methods combined with his determination of how much autonomy to provide the intern based on patient safety as

well as the intern's ability, seized the opportunity to develop autonomy to the extent possible.

Putting Jody's previous comment regarding modeling in context here, she demonstrates an awareness that good teaching for clinical reasoning does not reveal the expert's clinical decision too soon, "When people aren't as good at teaching, they will sometimes just tell what they would do, which in some instances is informative and in other instances it doesn't allow us to solidify our own decision making." Both Alex and Jody demonstrate that there are missed opportunities due to variable application of apprenticeship (such as traditional apprenticeship early in the intern year or telling/showing what to do without explaining reasoning). Further, these two participants, who have exposure to teaching strategies specific to clinical reasoning, have also attached meaning to teaching in such a way to foster autonomy in decision making. Their interpretation differs markedly from the other six participants without the background of teaching preparation.

The existing literature supports this conclusion, indicating that cognitive apprenticeship, an evidence-based method, improves clinical reasoning by reclaiming some of these missed opportunities (Nothnagle et al., 2010; Robbins et al., 2024). Studies also indicate a need for development overall in evidence-based teaching methods (Gray & Enright, 2018; Johnson-Laghi & Mattar, 2022; Lyons et al., 2017; Schaye et al., 2019; Wolcott et al., 2021; Yang et al., 2023). The prevalence of misapplied teaching methods, however, is understudied at this time. This conclusion based on resident experiences complements the existing literature.

My recommendation following this conclusion builds on the first two I have proposed. I recommend formal teaching development for all teachers (faculty, fellows, and residents) in evidence-based methods for clinical reasoning. At present, teaching

development for many faculty is optional, and residents also opt-in by interest in the CET. I suggest that teaching is viewed currently as a career-interest label, rather than a far-reaching activity that impacts the development of autonomy for many learners, ensuring their readiness for independent decision making. This recommendation further includes coordination and accountability for teacher implementation of evidence-based methods, alleviating the variability of resident experiences. I have suggested apprenticeship of the novice teacher in a previous recommendation, an idea that has been suggested as early as the arrival of CBME to GME (Cranton, 1994). CA methods enable development toward proficiency in teaching strategies and help the teacher transfer skills into practice. The mentorship of the novice teacher supports accountability by ensuring that skill assessment, feedback, and coaching lead to continuous improvement. In this way, I address some of the missed opportunities for some learners' development toward autonomous clinical decision making.

5.2.6 Variability in Granting Resident Autonomy Jeopardizes Experience Needed

I conclude from the findings that the willingness of teachers to grant autonomy is sometimes based on factors other than patient needs and entrustment in resident ability. As discussed in Chapter 4, participants indicated that teacher willingness sometimes depended on knowing the resident well, concerns for efficiency, risk intolerance, a lack of teaching expertise, and expressed interest by the learner to be given more autonomy. All of these factors are, as Chris put it, "very attending dependent", which leaves the opportunity to gain experience with increased autonomy up to chance. This dependence on supervisor willingness may be so variable from teacher to teacher across different experiences, and even as we have seen, across specialties, that a consistent opportunity to

gain experience in autonomous clinical decision making cannot be guaranteed. Thus, I also conclude that this phenomenon of variability jeopardizes the autonomous experience necessary to prepare all residents for unsupervised practice.

Considering that participants tended to accept and rationalize when faculty provide too little autonomy versus when resident peers do so, I suggest that resident acquiescence may also unintentionally contribute to the perpetuation of this practice, as faculty may have less motivation to change practice if their learners do not seem troubled by insufficient autonomy afforded to them. As already mentioned in the last chapter, power dynamics are such that residents may be reluctant to speak out against this practice, which includes confiding in me as the researcher. For this reason, I recognize that more study may be needed to explore this phenomenon in more detail.

It is not clear from this study why faculty make autonomy determinations based on other considerations besides patient needs and entrustment in resident ability, although recent research suggests that faculty base their practice habits on those they experienced as trainees (Conner et al., 2023). This would imply that faculty, too, would benefit from a formal teaching development program that specifically addresses teaching strategies related to autonomy development. Benefits to the program would include not only improvement in teaching, but also ensuring that when residents base their future practice habits on the kind of supervision they experienced as trainees, those experiences reflect the appropriate provision of autonomy.

I recommend accountability for the appropriate provision of autonomy during supervision based on patient needs and entrustment in resident ability. I base this recommendation on the ACGME's accreditation requirement stating these same conditions for the provision of autonomy by faculty and resident supervisors in the *ACGME Common Program Requirements (Residency)* (ACGME, 2023). Currently, as

noted from my own experience in GME, evaluations of faculty teaching do not consistently address the appropriate provision of autonomy. Even when they may address this issue on evaluation of faculty by residents, as I have shown, residents may be reluctant to provide the feedback. Instead, I suggest an intentional focus on assessment of this practice by educational experts via direct observation of teaching in the field. From my own experience as a non-medical educator observing clinical teaching by faculty while rounding, I found the observational process of identifying effective teaching strategies for clinical reasoning, as well as gaps, even in a medical context, easy to navigate. For this reason, I suggest that this recommendation is practical and easily implemented.

I also base this recommendation on providing a more consistent opportunity for residents to gain the experience needed in increased independence to prepare them for unsupervised practice upon graduation. While more attention is needed in the literature for this topic, especially for non-surgical specialties, research has suggested that residents are deprived of opportunities to develop autonomy by the teacher even when patient safety is not compromised (George et al., 2017; Lee et al., 2023; Olmos-Vega et al., 2015; ten Cate & Jarrett, 2023). My recommendation suggests consistent opportunities to develop autonomy by recognizing patient safety as an overriding determinant while adding consideration of the resident's ability. Implementation of this recommendation would provide appropriate modeling by the CoP experts (the faculty) for emulation by residents. By developing the practice habit of considering the limits of physician ability in addition to patient safety, residents ready themselves for scenarios not encountered before in autonomous practice.

5.3 Summary of Conclusions

When there is inadequate support for the resident-as-teacher role, residents bear excessive cognitive load and experience difficulty and uncertainty as they straddle their dual role of learner/teacher inherent in the residency program structure. This lack of support includes an absence of formal training and development in evidence-based teaching practices. With no formal training, the professional identity formation of the clinician educator is neglected, indicating an incongruence between the responsibilities of the role and the shared purpose and values of all teachers within the CoP. Lacking training, residents rely instead on observing and imitating others for the acquisition of teaching practices. This trickle-down process is inadequate and unreliable for their teaching development and may instill practices misaligned for teaching clinical reasoning and facilitating the development of autonomy. Misaligned teaching practices represent missed opportunities for learners' development in autonomy. Misaligned methods may include traditional apprenticeship or cognitive methods that fail to address clinical reasoning steps crucial for the learner to develop autonomous clinical decision making. On the other hand, appropriate application of cognitive teaching methods while ensuring psychological safety to address uncertainty fosters the growth of autonomy.

Residents experience not only variability in teaching methods, but they also provide ample evidence of a variability in the provision of autonomy to them, as well as the basis for its determination, by their attending physicians. The willingness of some faculty to grant autonomy is sometimes based on factors other than patient needs and entrustment in resident ability, which jeopardizes the autonomous experience necessary to prepare all residents for unsupervised practice. These conclusions, as I have explained, offer insight into the research problem.

5.4 Summary of Recommendations

In summary, my recommendations flow from these conclusions. A common thread throughout my conclusions suggests the need for formal teaching training and development for all teaching roles, particularly in cognitive methods well-suited for teaching clinical reasoning. CA methods, applied appropriately and with mindfulness of a psychologically safe environment to promote learning, provide a sound, evidence-based strategy for developing the reasoning process of novices along a trajectory toward the mastery level. I summarize these recommendations as follows: (1) Formal teaching training and development for all teaching roles in evidence-based teaching methods to advance clinical reasoning and foster the development of autonomy in clinical decision making; (2) coordination and accountability for utilization of evidence-based methods including granting autonomy to learners based on the agreed-upon contingencies of patient needs and entrustment in resident ability; (3) utilization of the CA method to apprentice all novice teachers on their developmental path to teaching proficiency; and (4) more research across other non-procedural driven specialties and institutions with various study designs.

5.5 Implications for Future Practice and Research

The importance of this study to the GME community and the public it serves rests in its contribution to a better understanding of the resident experience as they attend to their own and others' development of autonomy in clinical decision making. As both learners and teachers, residents are positioned to illuminate the process of autonomy development and its interwoven relationship with apprenticed learning in the hierarchical structure of the residency program. This study fills a gap in the literature with resident voices lending authenticity and insight into teaching practices relative to the development

of autonomy. Successful development ultimately determines an outcome of readiness for unsupervised practice. However, autonomy development continues to be an elusive construct to measure. For this reason, implications of this study for future research include empirical studies targeting this construct. A variety of study designs across multiple institutions and specialty settings will add to this study's contribution of the resident experience and offer even more transferability across GME.

Further implications for research include an exploration of the time-based model of residency training in conflict with CBE's principles of mastery learning at an individual pace (ten Cate, 2017; ten Cate & Jarrett, 2023). If readiness for unsupervised practice is a concern across GME, then teaching strategies needed to individualize instruction for learners at varying stages of autonomy development should also be a concern. The lack of a clear consensus on effective clinical teaching practices (Hartford et al., 2017; Huang et al., 2019; Pierce et al., 2020; Ricotta et al., 2020), continues to be an area for further study, especially given its crucial connection to resident readiness for independent practice.

My study raises implications for practice change, including a consistent opportunity for residents to receive support and develop competencies for their teaching role, thereby enabling PIF reflective of the clinician educator, a key role in the CoP. Further implications for practice include levelling the experience of autonomy the residents receive necessary to prepare them for unsupervised practice.

5.6 Final Thoughts

I embarked on this study with the purpose in mind to illuminate the resident experience surrounding teaching practices and autonomy development. Keeping in mind the research problem, that many residents are unprepared for unsupervised practice upon

graduation from residency, with increasing concern across medical specialties (Crockett et al., 2019; George et al., 2017; Jain et al., 2021; Mieczkowski et al., 2021; Plesac & Olson, 2019; Sanaee et al., 2019), this study provides clues to the nature of *what* residents experience, rather than what we *hope* residents experience as they develop clinical decision making in preparation for autonomous practice.

I have presented strong evidence that the relationship between teaching practices and autonomy development manifests in ways perhaps not considered before. I have positioned residents as experiential experts, and interpreted their sense-making of learning and teaching interactions in the hopes that other GME programs will find the results useful. Looking for clues to a problem naturally involves spotlighting gaps where they may exist. However, as noted in the findings, participants also gave ready examples of excellent teaching and role models. As Marco noted, "some of my attending mentors are the people that I strive to be." I hope to inspire a change in practice that will positively impact the development of and create role models for present and future clinician educators in the CoP.

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VITA

I earned a Bachelor of Arts with teacher certification in secondary education and a Master of Arts in Secondary Education from the University of Kentucky (UK). I began my career teaching French and Spanish in the public school system to middle and high school students for twelve years. In 2010, I accepted a graduate medical education (GME) position with the University of Kentucky Department of Internal Medicine where I served seven years as the Senior Medical Education Specialist. I served for three years as the Associate Director of the UK Center for Interprofessional Health Education. For the past three years, I have worked in corporate healthcare GME. My present position is Corporate Manager of Faculty and Resident Development with Community Health Systems in Franklin, Tennessee.

My honors have included: District Nominee, Outstanding First-Year Teacher, Fayette County Public Schools; Master of Arts in Secondary Education, Summa cum laude, UK; and membership in the Omicron Delta Kappa honor society, UK chapter. My professional publications represent collaborative work with UK faculty, as follows:

Heath, J., Walmsley, L., Aker, R., Ferrin, S., Stone, D., & Norton, J. (2020). CPR to the rescue! An interprofessional pilot program: Cultivating practices for resilience (CPR) camp. *Clinical Nurse Specialist, 34*(2), 63-69. https://doi.org/10.1097/NUR.0000000000000506

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Rachelle Musgrave Aker