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Teaching Dispositions in Tutoring: Evidence in a College Math Lab

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Abstract
Though teacher education programs must document candidates' teaching dispositions, there is a gap in the literature around what faculty may learn by observing students in contexts outside of the k12 classroom. This case study explores what faculty may learn about teaching dispositions by observing tutors. For our study, three mathematics education faculty observed tutoring sessions in the on-campus math lab, and were interviewed about the teaching dispositions that they were able to identify in that context. Through an interpretive framework of reciprocal determinism, our data reveal that tutoring's one-on-one or small group setup, unscripted nature, and authenticity of interactions with students let faculty see different skills – which reveal different dispositions – than they would observe in teaching demonstrations or other early field experiences. The discussion considers how on-campus partnerships between teacher education programs and tutoring programs may offer not only opportunities for preservice teachers to develop skills, but for faculty to "see them in action" and gain insight to their dispositions.

Key Words: Tutoring, teaching dispositions, faculty observations, assessment

Introduction

Nearly a century ago, Dewey (1938) differentiated between teacher attitudes and habits when he identified three core values required for teacher effectiveness: open-mindedness, wholeheartedness, and responsibility. Though these terms have new names and have been operationalized to current teaching and learning contexts, they capture the spirit of the discipline's more contemporary interest in teacher dispositions (Talbert-Johnson, 2006). While there is not a common definition (see Altan, Lane, & Dottin, 2019; Fonesca-Chacana, 2019), there seems to be general agreement that teacher dispositions are attitudes and values that reflect educators' professional demeanor and underlie their fit for the teaching profession. Teacher preparation programs are required to assess teacher dispositions, but this assessment is notoriously time- and labor-intensive (Warren, 2018). Many full-time university faculty have few opportunities to observe preservice teachers in authentic teaching and learning settings (Zeichner, 2010), and this has been problematized (Darling-Hammond, 2014) as faculty need to see their students "in action."

We wondered whether other teaching and learning exchanges could offer faculty

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insight to preservice teachers' dispositions? In particular, an emerging literature identifies tutoring as a valuable experience for preservice teachers. Surveys, interviews, and reflections from preservice teachers who participated in tutoring programs noted that tutoring helped them develop empathy and communication skills as it provided opportunities for applying teaching skills they had learned in class and to interact with diverse student groups (Fresko, 1999; McLoughlin & Maslak, 2003), as well as skills for teaching specific content (Haverback & Parault, 2008). However, research on this topic primarily considers the perspective and benefit for the preservice teachers. Because colleges of education that prepare teachers also have responsibilities for assessing their candidates' skills and dispositions, we wondered whether partnerships between college tutoring programs and schools of education could serve a programmatic assessment function to teacher education programs (TEPs) as well. Responsively, this article explores the research question, *What teaching dispositions can be observed and assessed in tutoring exchanges?*

Using a case study approach around a pilot program implementation, we asked three education faculty members to observe peer tutoring sessions in a math lab, and to record their notes and impressions. These faculty were later interviewed to explore what features of tutoring, as an early field experience, gave them insights to teaching skills and dispositions.

Assessing Teacher Dispositions

First described by Katz and Raths (1985; see Diez, 2007) who made the distinction between having a skill and choosing to apply it, teacher dispositions were reinforced by the 1992 *Interstate Teacher Assessment and Support Consortium Standards,* which were quickly adopted by most states. The concept of dispositions was fairly ingrained in the US by the late 1990s and was formalized when the National Council for Accreditation of Teacher Education required TEPs to assess them in Standards 2000, and again by the Council for the Accreditation of Educator Preparation in 2013.

Fundamentally different from the focus on content knowledge that underlies the accountability movement (including designations like No Child Left Behind's [2002] "highly qualified teacher" and distinctions like National Board Certification), teacher dispositions include fairness and a belief in all students' capacity to learn; respect for differences; commitment to families, colleagues, and communities; and ethical behavior (Singh & Stoloff, 2008). These values guide decision-making (Welch, Pitts, Tenini, Kuenlen, & Wood, 2010), including aligning pedagogy and content to students' cultural schema and learning styles (Talbert-Johnson, 2006). Beyond accreditation requirements, it is morally incumbent on TEPs to ensure their students possess and develop these attitudes.

Yet, for as important as they are, the very nature of dispositions makes their assessment especially difficult (Altan et al., 2019; Blair, 2017). Helm (2006) noted that it

"is not easy to assess something that is internal by nature or to determine its existence if one cannot see [it]" (p. 237), thus the belief or value aspect of disposition is typically assessed via self-report, or methods that probe internal thought processes, such as interviews (Helm, 2006), conversations (Martin & Mulvihill, 2017), self-assessment using perceptual scales (Borko, Liston, & Whitcomb, 2007; Helm, 2006; Schulte, Edick, Edwards, & Mackiel, 2005; Yao, Pagnani, Thomas, Abellan-Pagnani, Brown, & Buchanan, 2017) or values measures (Welch et al., 2010), portfolios (Carroll, 2012), and reflective journaling (Martin & Mulvihill, 2017; Villegas, 2007). However, TEPs must move beyond identifying the internal belief to assessing its external application, that is, how teachers draw on their belief systems to make decisions in an education setting. This is most frequently done via rubric-stored observations (Wayda & Lund, 2005), recorded from an etic perspective, and conducted by mentor teachers or faculty. Assessing dispositions through observation assumes that they have two fundamental components: cognitive processes including attitudes, beliefs, and values (which are internal) and *observable actions or behaviors* (Altan et al., 2019; Yao et al., 2017). In other words, dispositions are "internally held and externally exhibited" (Schulte et al., 2005, p. 2), thus it is difficult to assess them authentically and effectively (Choi, Benson, & Shudak, 2016).

However, there are logistical challenges around observing preservice teachers in authentic classroom settings with real students. In particular, scheduling and travel to multiple k12 schools takes a good deal of time, and observing multiple preservice teachers is time- and labor-intensive. Thus, many of the people who record these observations are doctoral students, clinical faculty, adjuncts, or the cooperating teachers in schools; in many TEPs, tenure-track faculty are not directly involved in observing clinical experiences (Zeichner, 2010). Though perhaps a logistical necessity, these approaches have been problematized (see Darling-Hammond, 2014) because the result is that many full-time faculty have limited opportunities to see their students in real interactions with real students.

This is further complicated by the fact that dispositions are not performative, visible "on command" when faculty visit classrooms for formal observations of teaching. What they see cannot be assumed to reflect typical affective and social behaviors, but behaviors exhibited on observational or "testing situations" (Welch et al., 2010, p. 181). Rather, Warren (2018) argues that frequent observations are needed to see dispositions; they cannot be assessed in a "one-shot" manner. Instead, observers are looking for patterns of actions that infer candidates' disposition to teach equitably (Villegas, 2007), across multiple measures (Darling-Hammond, 2006). Yet the structure of clinical placements prohibits the prolonged engagement that fosters effective observation and assessment.

Moreover, "teacher dispositions are not void of context" (Fonesca-Chacana, 2019; p. 269). Different contexts not only have different norms or expectations, but

also elicit different behaviors in the teachers themselves. For example, teachers may exhibit more competence in negotiating tension when they are working with students with whom they share similar linguistic or cultural backgrounds (Guin, 2004), or they may respond differently when they are feeling stressed (Gustems-Carnicer, Calderón, & Calderón-Garrido, 2019). In other words, how a teacher responds in a particular classroom environment or with a particular student or classroom of students may not transfer to another setting (Welch et al., 2010). Thus, skills and behaviors may present differently in different environments (Yao et al., 2017). If dispositions are "tendencies for individuals to act in a particular manner under particular circumstances, based on their beliefs" (Villegas, 2007; p. 373), effective assessment that engages multiple perspectives and contexts can more wholly illuminate the underlying disposition.

Theoretical Framework: Reciprocal Determinism in Social Cognitive Theory

The literature identifies tutoring as a unique context for teaching and learning, and our research objective was to explore the relationship between context and observable behaviors. Thus, we needed a theoretical framework that attended to the social context for behavior. Reciprocal determinism in social cognitive theory (Bandura, 1971) illuminates the mutually constituting interactions of people, their environments, and their behavior. Applied to the assessment of teacher dispositions where evaluators use *observable behaviors* as *indicators of internally held beliefs*, reciprocal determinism suggests that changing the context within which those observations occur would affect the candidates' thought processes and their observable behaviors. Because teachers are neither controlled by their environment nor able to act completely independent of it, changing *contexts* is likely to elicit different teacher behaviors, and therein to reveal different dispositions. Research documents that teachers' instructional behavior is directly impacted by school or classroom contexts including principal leadership approaches (Liebowitz & Porter, 2019), class size (Blatchford, Bassett, & Brown, 2011), and students' race (Scott, Gage, Hirn, & Han, 2019), and that work environments can affect teacher motivation (Slemp, Field, & Cho, 2020). Thus, a teacher may perform very differently in different classrooms or schools and attempts to observe or document behaviors in any single environment may not show the full range of teachers' dispositions. This has been noted in the literature on assessing teacher dispositions in the vein of *context for observations* (see Welch et al., 2010).

Scholars have further theorized that changing contexts also has developmental value for preservice teachers; when they experience cognitive dissonance as they apply strategies to new contexts, they can expand their teaching repertoires (Smith, 2005). That is, in familiar contexts, teachers can anticipate antecedents, creating a stronger perception of control and ability to plan responses (Ajzen, 1991), but changing the setting can encourage responses that are more deeply connected to beliefs than to routines (Ajzen, 2002).

Tutoring as Context for Evoking Behaviors and Revealing Dispositions

Our analysis considers the college tutoring environment as a new context for novel social interactions and evoking cognitive demands. The tutoring lab is different from classrooms where faculty would normally observe students, but is also a place where tutors routinely apply pedagogical skills, and their execution relies on their internally held dispositions. Peer tutoring centers are commonly found on college and university campuses, though statistics on their distribution are limited (Gerlaugh, Thompson, Boylan, & Davis, 2007; Rasmussen, Apkarian, Bressoud, Ellis, Johnson, & Larsen, 2016).

The literature on tutoring notes that graduate and undergraduate tutors who work in these labs develop many transferrable communication and pedagogical skills (DeFeo & Caparas, 2014; DeFeo, Mammo, & Tran, 2022; Polly & Colonnese, 2022; Roscoe & Chi, 2007) as they balance the role of peer and teacher (Bokser, 2005). As it specifically relates to teacher development, a small corpus of literature notes that structured tutoring partnerships between TEPs and k12 help preservice teachers to develop self-efficacy and skills in teaching content knowledge, particularly around assessing the needs of individual learners and differentiating instruction (McLoughlin & Maslak, 2003; Ragonis & Hazaan, 2008; 2009). However, studies that document partnerships between TEPs and k12 tutoring programs primarily focus on skill development for the preservice teachers. As we explore college tutoring centers, we consider how education faculty regard this context as an opportunity for assessing preservice teacher dispositions in an accessible (on-campus) context.

Setting

The case for our research was a pilot partnership between the TEP and the mathematics department's tutoring center at Hofstra University (Hofstra), a competitive admissions, urban, private university serving just over 10,000 students in its graduate and undergraduate programs. Students in the TEP at Hofstra participate in two school-based placements: 100 clock hours of observation and participation in schools, and 16 weeks of student teaching. They are observed twice in each placement by professors in the school of education, a college field supervisor (a part-time instructor), or an adjunct clinical education professor. However, these processes do not engage all of the department's faculty members.

There are two math tutoring centers on the Hofstra campus. In both labs, tutoring can be structured as one-on-one sessions, or delivered in small groups. Tutees can receive tutoring at all math levels, from College Algebra to Calculus. The labs are set up with large tables that can each accommodate up to 10 students, a large desk, and height-adjustable desks typically reserved for students with physical disabilities. The rooms contain large white boards where tutors and tutees can work problems together, and computers that tutees often use to complete online homework. During most hours

of operation, the tutor-student ratio is approximately 1:7. Twelve tutors worked in the labs during the fall 2019 semester when data were collected; the tutors represented an array of majors, including engineering, mathematics, psychology, and education.

Methods, Participants, and Data

Our data were generated in the fall of 2019 and early spring of 2020 as part of a broader implementation project to explore tutoring as a site of possibility (Weis & Fine, 2004) for preservice teacher development. Our research question was about how, in the reciprocal determinism framework, the *context* of tutoring may elicit behaviors in tutors that revealed or gave insight to their person or dispositions. Thus, we designed our data collection and analysis to attend to these relationships. We chose a single case study design (Merriam, 1998), including insider and outsider researcher perspectives (Coghlan & Brydon-Miller, 2014). Dayna DeFeo (Dayna, lead author) is an education researcher unaffiliated with an outside institution; she leveraged her naiveté (Albers & Harste, 2007) with the institutional processes and culture as she interviewed faculty participants, who are colleagues of Behailu Mammo (Behailu, second author). Behailu is a tenured associate professor of mathematics who has managed the math tutoring center at Hofstra since 2016. Behailu has worked with the education faculty since he began working at Hofstra in 2005 and his familiarity with the curriculum, tutoring center, and TEP provided an insider perspective on both the program and the data collection.

Research Participants

The target population for our research was education faculty members. We used purposive sampling to recruit from education faculty at Hofstra and selected participants on the criteria of experience working with early career or preservice math teachers, and responsibility for observing and assessing teacher dispositions. Our three faculty participants were:

Denise, a full professor of math education at Hofstra who had been working in teacher education for 30 years. In the TEP, she taught elementary and secondary math methods. She assessed teacher dispositions in her methods classes, but was not directly involved in student teaching or field placements. Prior to her work in higher education, Denise had 10 years of public school teaching experience.

Will was an adjunct faculty member who has been working at Hofstra for 34 years concurrent with a 40-year high school teaching career, where he had extensive experience observing and assessing teachers and student teachers in secondary settings. His teaching assignments at Hofstra were primarily in the math department at the undergraduate level, where he interacted with many preservice teachers.

Raj worked as an adjunct at Hofstra for 28 years concurrent with a k12 job hiring, training, and supervising teachers as the director of mathematics for a local school dis-

trict, a job from which he recently had retired. As a school administrator, he frequently took in student teachers and partnered with several TEPs in the state to bring cohorts of preservice teachers into secondary settings for early field experiences and student teaching.

Data Sources

Our study incorporated three data sources: faculty (participant) observations, researcher observations, and active interviews.

Faculty (participant) observations

During the informed consent process, faculty were informed that we wanted them to observe tutors working in the tutoring lab, and to reflect on the skills and behaviors they noted in that context. Explicitly, we were interested in how education faculty perceived the value of tutoring as a context for assessing teaching dispositions, rather than the skills of the individual tutors. Over the course of the fall 2019 semester, each faculty participant spent approximately six hours observing tutoring sessions in the math labs at Hofstra. Collectively, they observed at least 29 different tutoring sessions delivered to at least 69 students;[3] the average tutoring session lasted 38 minutes. The tutoring covered a wide range of math courses, and faculty recorded sessions on topics including trigonometric identities, inequalities with rational expressions, long division with polynomials, and matrices for solving systems of equations. For each session, the faculty participants used an adapted version of the Skills of Teaching Observation Tool (STOT; North Dakota Association of Colleges for Teacher Education, 2017) to record if and how the tutoring exchanges they saw revealed pedagogical skills in four categories: interactions with learners, content knowledge and application, instructional practice, and professionalism.[4] Using a paper form and taking handwritten notes to be less conspicuous (see DeFeo, Bonin, & Ossiander-Gobeille, 2017), they observed and recorded notes around how the various criteria were exhibited in various tutoring interactions, and their own impressions of these exchanges.

Researcher observations

Behailu also observed tutoring sessions in the same semester, and recorded observations using the STOT. This was employed as a strategy to increase the rigor of the design (see Padgett, 1998) by providing an etic perspective (Hahn, Jorgenson, & Leeds-Hurwitz, 2011) to complement and contextualize the observations and perspec-

[3] These data were missing on three of the observation forms. Note that the reported number of tutors and students is duplicated, as faculty did not record identifying information.

[4] The STOT is a tool to record observations of teaching skills, and is typically applied in classroom or teaching demonstration contexts, but it is not explicitly focused on teacher dispositions. Fculty were prompted to use their observations to reflect on dispositions in the interviews that followed.

tives of education faculty. These researcher observations also provided both auxiliary and confirmatory data (see Gray, 2021) to complement the observations and notes from the faculty participants and to inform Dayna in conducting participant interviews.

Active interviews

Dayna conducted active interviews (Holstein, & Gubrium, 1995) with the three and confirmatory data (see Gray, 2021) to complement the observations and notes from the faculty participants and to inform Dayna in conducting participant interviews faculty participants, which lasted 87, 85, and 50 minutes. The interviews covered faculty responsibilities for assessing preservice teacher candidate dispositions, and their impressions of the tutoring context. Faculty were prompted to review their observation notes to "jog their memory" of specific sessions. At the end of the interview session, they were asked to reflect on their impressions of tutoring as an opportunity for faculty to observe teaching dispositions in preservice preservice teachers.

Data Analysis

For analysis, Dayna first identified all significant statements (Riemen, 1986) in faculty observation notes and interviews, that is, data that described the specific nature of tutoring as an activity, and what happened around that context. The faculty observation notes and interview transcripts yielded 83 and 145 significant statements, respectively. Using the constant comparative method (Glaser & Strauss, 2017), these units were inductively grouped into three *context* categories that described the characteristics of tutoring that gave faculty insight to teaching skills and dispositions. Then, within each of the three *context* categories, Dayna assigned meaning units (Kvale & Brinkmann, 2009) to the types of behaviors that faculty participants observed in that context. These codes were also sorted in the constant comparative method until mutually *exclusive behavior* codes were defined within each context.

Dayna managed the multi-step coding process, and did all of the initial coding. To ensure reliability, she maintained a detailed codebook and negotiated the definitions of meaning units and collapsing of categories with Behailu through regular meetings. Dayna used memoing (Lewis-Beck, Bryman, & Futing Liao, 2004) to guide and document both her independent coding and the collaboratively negotiated processes. The preliminary findings were shared with faculty participants in a member-checking process (Carl & Ravitch, 2018) and, though the faculty participants confirmed the appropriate assignment of codes, the reflections they shared about the analysis were used to further explore the literature and concepts presented in the discussion of this manuscript.

Findings

Our research interest was understanding how on-campus college tutoring programs offer education faculty opportunities to observe and assess teaching dispositions. We have organized our findings around the three faculty-identified unique attributes of tutoring that gave them insight to dispositions: 1) its one-on-one or small group design, 2) its unscripted nature, and 3) the authenticity of challenge and stress. Faculty found all of these attributes to be fundamentally different from k12 classroom settings where they typically assessed preservice teachers' skills. Within each attribute, we describe the specific and observable behaviors elicited (see Figure 1). In the final section of our findings, we describe how faculty intuited dispositions from the skills they observed and in dialogue with tutors following those interactions.

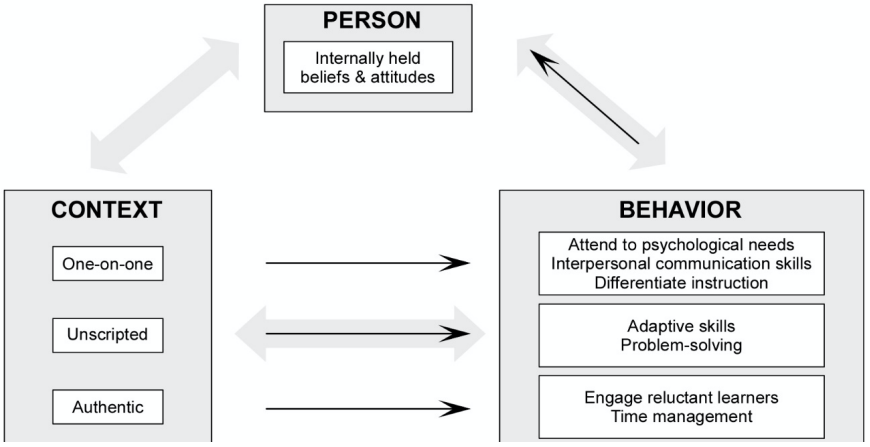

Figure 1. Reciprocal determinism in tutoring.

The reciprocal determinism framework suggests that context, behavior, and person are mutually constituting (grey arrows). Our analysis explored how tutoring, as a context different from other field experiences, may produce *observable behaviors* that reveal *internally held beliefs* that are often difficult to assess (black arrows). Faculty reported unique aspects of the tutoring context – its one-on-one, unscripted, and authentic nature – elicited different behaviors, which ultimately gave them insight to tutors' dispositions.

One-on-One or Small Groups

In tutoring sessions, faculty particularly valued the opportunity to observe tutors in a one-on-one or small group context, and they contrasted this perspective with the ways they typically interact with students. Will said, "When I'm in my classroom and I'll have students teach part of a lesson as part of the course, I observe their interaction with the material and with the other students, emphasis on students, with a plural." He

described tutoring as more "intimate" than the classroom, saying that in a one-on-one tutoring situation, the tutor and tutee "would sit there with a piece of paper and a pencil and that would be more effective than going to the board, which automatically gives a separation between the tutor and the tutee." Raj said,

> If they're in your [methods] class, … you get the feeling whether or not this student has intellectual capability. Do they have the standards? Can they create a curriculum plan or unit? That's one aspect. … But when you're watching someone work with … one, two, or three students in a small group, their personality comes through, their ability to explain something, to pierce into the students' miscomprehensions and misunderstandings.

One benefit of this context is that it provided opportunity for faculty to see how tutors attended to students' psychological needs. The faculty noted that students coming into the math lab were frequently anxious, and the tutor's role was not only to teach content, but to address this stress. Will said, "One of the jobs a tutor should be able to do is to reduce the anxiety, because you're on more of a one-to-one intimate level than you are in a classroom setting." Raj also noted that tutors served in a de facto role as peer advisors, helping tutees navigate unfamiliar college procedures and expectations and facilitating their belonging.[5] This role, quite different from content tutoring, required tutors to apply listening skills and exhibit empathy.

Another skill observable in the context of one-on-one tutoring exchanges was tutors' interpersonal communication skills. Raj said,

> Students pick up on your body language more than anything else. And that creates their impression of you. … What messages are they sending both consciously and subconsciously? … You … pick up on a lot of that while [observing] tutoring.

Will said he gained insight to interpersonal communication skills because tutors and tutees were more like peers, "so their method of interaction would be very different. It would be more loose. They will get down to the work, but it could be more loose." These more casual exchanges created a different context – and commensurate set of communication skills – that made dispositions observable and documentable for faculty.

The one-on-one nature of the tutoring sessions also gave faculty insight to how tutors differentiated instruction for individual learners. Will explained,

> This happens a lot – different students would come to the tutor with essentially the same homework problem, but at different times during the day

[5] See also DeFeo et al. (2017), who noted that math tutors work in a peer advisor role, and Bokser (2005) who noted that part of the tutor's job is to help students feel a sense of belonging as they navigate the unfamiliar terrain of academia – especially for nontraditional students.

> or different times during the week. … I observed this with one tutor who will get the same question. … So he would [start by giving] the same explanation to different people, but if he saw the light go out in their eyes, … he would try a different approach.

Denise noted that when students asked questions, "that tutor would just welcome opportunities to go into the material in a little more depth than to just answer the particular question at hand." When she observed tutors who "went the extra mile" to reach students individually, she noted that this exchange allowed her to see tutors' affect and enthusiasm for teaching. Overwhelmingly, faculty noted that small group or one-on-one nature of tutoring sessions offered insight to skills that was different from what they may ascertain observing a classroom interaction. Observing these skills in a different context was valuable – not only for them to assess the skills, but to identify dispositions within their execution.

Unscripted

Another contextual attribute of tutoring that faculty found valuable was its unscripted nature, which gave insight into how tutors handled unplanned and sometimes unpredictable education scenarios. Will contrasted classroom teaching, where teachers start with a prepared lesson plan and a general idea of what they're going to do, against tutoring, which is more "impromptu." He noted that this offers a different perspective on a teacher's skills:

> When they're tutoring … there's no preset format that the tutor would be using. It's just basically off the cuff and whatever the person coming to the tutor needs, the tutor has to essentially make up on the spot. … It's really more like an ad lib situation than a prepared, planned situation as we in the classroom would be doing.

This gave the faculty insight into the tutors' <u>adaptive skills</u>. Raj noted that, because of the tutoring center's drop-in nature, in meeting each student, tutors needed to assess the student's needs and then adapt their tutoring approach quickly and accordingly. He offered an example,

> If the student walks in and they need help with the basic algebra, fine. The tutor has a sense of what to do. Then all of a sudden in the course of doing this … we find that the student can't divide. … Now the tutor has to do something at that point. You know, realize that this unexpected situation is in front of you and that he or she has to teach the student something at that point, and from out of the blue. And how is that person going to do it? Is it going to fluster the tutor? Can the tutor handle it? Does the tutor have a sense of how to come up with appropriate examples to illustrate the point?

Because tutors frequently were faced with unanticipated questions, faculty indicated this was also a good place to observe their problem-solving skills. Will said,

> I've seen a few times during the process where this tutor didn't know what was going on really with the material. It was out of his realm of understanding [because] there are certain courses that we teach in the department that the tutors would have no knowledge of … because [the courses are] so specialized.

In situations like this, tutors demonstrated their capacity to use resources and materials, and to collaborate with other tutors as they modeled problem-solving for tutees. Denise said,

> A lot of times the students would ask a question and [the tutor would] go, "Wait a minute," and they'd pick up one of the reference books that was lying around on the tables to look up that particular solution to the question the student was asking. So, … for people who weren't necessarily [a] math major, … they were not immediately familiar sometimes with the questions that some of the students asked.

In this act, the tutors needed to respond to students and exhibit professionalism in their helping role. In modeling problem-solving, some of their internal thought processing became observable and explicit, revealing humility as the tutors tacitly communicated to students that it is okay to not always have the right answer. These tutor behaviors were elicited by the unscripted context in which the tutoring occurred, and gave faculty observers insight to their internal dispositions.

Authentic

Faculty noted that because the tutoring they observed was in real time with real students, it was an authentic teaching and learning scenario. Denise said of her typical opportunities to observe pre-service teachers,

> I'm not typically observing tutoring situations. … My students teach quite a few lessons. … I'm observing my students doing demo lessons in front of their peers, and I told them, "This isn't real." Real students don't know all the answers already. So, [in tutoring, the tutors are] getting accustomed to teaching mathematics to other people and then getting their reactions as to how [they] did it.

In the tutoring center, tutors needed to engage reluctant learners; Denise noted that it was a challenge for tutors to teach students who were often focused on getting the right test answers, rather than the learning process:

> [The students] come in there and … they don't want to learn anything about the history of mathematics. They don't want to learn all sorts of different methods to do a problem. They wanna know one thing: How do I do this problem? I know this kind of problem is gonna be on my test. How do I do this?

Engaging reluctant students is a common challenge for educators in "the real world." In these authentic situations, tutors observed in our study exercised different communication and classroom management skills than faculty typically were privy to observing in a demo lesson.

Another authentic challenge was time management. Time is limited in the tutoring center – as it is in the classroom – especially during busy times like midterms and finals, and tutors needed to respond to students in real time and prioritize. Will said,

> You have the pressure of all the people around you trying to get your attention and sitting in line. ... So, it's a difficult thing to in practice do. … Tutor has five, six, seven kids waiting for them, and they only have a 45-minute session to go through and each of those four, five, or six kids are going to have different problems from different courses and the tutor's going to have to keep on switching tracks to go from one tutee to another.

Faculty described how these pressures in the learning environment elicited and necessitated responsive behaviors which drew on tutors' skills and made their dispositions explicit as they responded quickly and under pressure.

Ascertaining Dispositions from Observed Behaviors

When asked to reflect on how dispositions were revealed through observed behaviors, our faculty participants said they found the most value in the opportunity to connect with tutors after their recorded observations. Watching specific tutoring exchanges prompted them to step out of the observer role and to engage the tutor in reflective dialogue that further illuminated tutors' thought processes.[6] Will said,

> I'd walk around and see what each of the different tutors are doing. Again, not involved, just standing back and just watching. And then I would talk to them afterwards a little bit, you know, after the session's over, maybe two or three minutes just to give some feedback to them, which they really, really truly need feedback. I think it's important for them.

These built-in opportunities for dialogue not only served a developmental func-

[5] Though we asked faculty only to observe, they took on this role because they perceived an opportunity and value in doing so. The role of these reflection sessions in informing faculty of tutor dispositions is further explored in the discussion section.

tion for tutors, but also gave faculty insight to tutors' reflection. While engaging in self-reflection is a professional skill in the STOT, Raj noted that reflection was not something that could be observed directly in a tutoring interaction, but in a discussion afterwards, grounded in the immediate context. He said,

> Does the student reflect? Well, you're not going to see that while they're actually tutoring. That's something that happens afterwards, or even before if they know what they're going in to tutor. The other questions about their level of preparation, again reflection; do they seem comfortable or uncomfortable? Those are questions that they can either ask themselves or [be asked by] someone [afterwards]. And I have those conversations.

In other words, faculty noted that tutoring gave insight to many actions and behaviors that evidenced internal dispositions, but then naturally leveraged the context of the lab to engage the tutors in reflection right after an interaction, supporting both tutor learning and their own ability to understand the tutors' internal thought processes.

Discussion

Our focus for this analysis was to understand how faculty in teacher education programs perceive the college tutoring center as a context to observe teaching dispositions. We considered the reciprocal determinism between tutors, the context in which they were working, and the behaviors they exhibited. The unique characteristics of the tutoring scenario – and its similarities and dissimilarities to teaching – offered faculty a different context for observing skills and inferring dispositions. Aligned to the literature that preservice teachers exhibit (Fonesca-Chacana, 2019, Yao et al., 2017) and develop (Talbert-Johnson, 2006) dispositions in different contexts, experiences, and interactions (Oja & Reiman 2007), our data support the idea that novel situations would also offer faculty a changed vantage for observation. We concentrate our discussion on the opportunities and applications of this model within TEPs, as well as the shortcomings and challenges inherent in such a model.

Opportunities and Applications

Though we suspect that this model also has merit as a developmental opportunity for preservice teachers, in our analysis we focused on opportunities that tutoring may offer faculty to see preservice teachers "in a different light" – or context – and how that may provide insight to teaching dispositions. As "teacher education programs continue to search for structural, curricular, and pedagogical approaches to prepare teachers to teach in increasingly diverse contexts" (McDonald, Tyson, Brayko, Bowman, Delport, J. & Shimomura, 2011; p. 1668), our data suggest that tutoring provides faculty with a unique opportunity to see pedagogical skills, time management, adaptability, communication, and ability to relate to students using differentiated approaches. These skills

or behaviors, in turn, offer insight into the dispositions that drive them.

Our study identified aspects of tutoring that have been previously identified as advantageous to preservice teacher development – real world experience in engaging students who struggle, working without "the pressure of attempting to assess and engage an entire classroom while being observed and graded," and the autonomy of a one-on-one exchange (Haverback & Parault, 2008, p. 251). Our findings expand on this literature with data suggesting that these features of tutoring are also valuable opportunities to evaluate dispositions. Prior work has documented that specific feedback and communication around dispositions and skills is critical to teacher development (Rike & Sharp, 2008), and preservice teachers generally value the feedback they receive from faculty and mentor teachers (Ragonis & Hazaan, 2009) as it helps them to connect their dispositions and apply them in educational contexts (Carroll, 2012). Our data suggest that the immediate and contextually grounded nature of this feedback is particular to the tutoring context.

While Allsopp, DeMarie, Alvarez-McHatton, and Doone (2006) and Scheeler, McKinnon, and Stout (2012) noted the value of preservice teachers reflecting with faculty and getting just-in-time feedback, it is unclear to us how often other teaching and learning contexts allow for faculty and preservice teachers to "step out" of a pedagogical interaction for dialogue and feedback and "step back into" teaching (or tutoring) immediately thereafter. Our data suggest that because tutors were frequently moving – physically and mentally – between tutees, faculty and tutors could engage in dialogue that would be disruptive in a classroom. Though there were definite busy and stressful times in the tutoring center when such dialogue may not be as easily inserted, the tutoring center is also marked by quiet and waiting times, giving the tutor space and time to think about impressions. Faculty in our study felt that this feedback was valuable, and how this may support different reflective practices is an area of future research opportunity.

The relative accessibility of the on-campus tutoring center and the unique context for this feedback and reflection may address an area of need within TEPs. Though the quality of mentoring and supervision during field placements truly matter to preservice teacher development (Darling-Hammond, 2014) and the most value and benefit from early field experiences comes from faculty mentoring and guided reflection (Caprano, Capraro, Capraro, & Helfeldt, 2010; Zeichner, 2010), students in field experiences are often demonstrating competencies, rather than practicing with mentoring (Valencia, Martin, Place, & Grossman, 2009). As tenure-track faculty are not often involved in field placement at many institutions (Zeichner, 2010), our findings suggest that the on-campus tutoring center, though not a substitute for mentoring in the classroom or with k12 students, may be a place of opportunity for augmenting reflection and facilitating development.

Pragmatic Considerations and Limitations of Our Model

In the right partnership, tutoring centers and TEPs may find mutual benefit: tutoring centers can hire strong tutors with pedagogical preparation (Haverback & Parault, 2008), tutors can develop transferrable skills (DeFeo & Caparas, 2014; Polly & Colonnese, 2022; Roscoe & Chi, 2007) while earning wages, and tutees learn from their engaged peers (DeFeo et al., 2022). Our data suggest another possible benefit: they offer education faculty an opportunity to observe authentic exchanges right on campus without having to travel to remote school sites. However, we are aware that institutional politics can prohibit collegial, multi-unit partnerships based on trust and shared goals (see Beasley [1997], whose pilot program was regarded with suspicion and faculty resistance). To support preservice teacher development and inform TEP program assessment, early field experiences need to be integrated with TEP coursework (McDonald et al., 2011), which is both an ideological challenge of curriculum integration and a significant time commitment, with a workload burden not only on the organizing faculty but also on the participating tutors (Ragonis & Hazaan, 2009).

Beyond institutional politics that challenge scaling our program to other sites, the model also has some noted limitations around the types of learning experiences that on-campus tutoring does not provide. For preservice teachers, working with k12 students in classrooms is a critical learning experience. In addition to developing teaching skills (Stachowski & Mahan, 1998; McDonald et al., 2011; McLoughlin & Maslak, 2003), early practicum experiences often focus on exposing students to contexts that challenge them to confront their own privilege and biases (Darling-Hammond, 2014; McDonald et al., 2011; Villegas, 2007). Field placements that engage communities are especially important to "seeing" students in the context of community, and developing preservice teachers' understanding of diversity (McDonald, Bowman, & Brayko, 2013). Moreover, these experiences can help preservice teachers focus on children and families as well as instruction (McDonald et al., 2011). Though the transferability of skills developed through tutoring has been documented in the literature (see DeFeo et al., 2017; DeFeo et al., 2022; McLoughlin & Maslak, 2003; Ragonis & Hazaan, 2008; 2009; Roscoe & Chi, 2007), the limitation of having tutees and faculty stay on the elite college campus and removed from children and communities is significant. We are not suggesting that college tutoring experiences substitute for community-based experiences. Rather, we offer that, in the right institutional context, partnerships between TEPs and peer tutoring programs may be a complement to existing early field placement efforts.

Limitations of Our Research Methods

Our project benefitted from a collaborative research design and multiple data sources; however, the study nonetheless has some significant limitations. First, our analysis is limited to a single case. Just as the context of tutoring and the unique per-

spective it offers is a strength for the assessment of dispositions, it is a limitation to the generalizability of this study. Tutoring contexts and lab setups are different, as are the institutions and TEPs within them. At Hofstra, faculty benefit from relatively small class sizes, and faculty frequently get to know and assess preservice teachers over multiple courses and one-on-one interactions. In future studies, it would be valuable for faculty to observe familiar students, and to see how the tutoring context may give insight to the skills and dispositions of preservice teachers who they had already assessed using more conventional means.

Another limitation is in our sample. Within our single site, we engaged three math education faculty members. Though they each observed several hours of tutoring and their interviews provided rich insight, more faculty participation would provide a more diverse and robust perspective. As with the voluntary nature of research with human participants, selection bias within the pool of willing faculty who volunteered likely influenced their enthusiasm for our model. Additionally, though we specifically focused on the faculty perspectives, the impressions of tutors themselves would be a necessary consideration for institutions and programs wishing to implement a similar model.

Conclusion

Our modest pilot project suggests that tutoring on college campuses may be a mutually beneficial opportunity for both preservice teachers and education faculty. Tutoring provides an opportunity to observe some teaching skills in a new context, an opportunity for feedback and mentorship, and an opportunity for faculty to observe dispositions applied in authentic educational exchanges. We are struck by the number of dovetailing needs that such programs may serve, and we hope our research informs not only tutor/TEP partnerships, but the framing of research on tutoring to include faculty perspectives of programmatic opportunities.

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