

Using the Body as a Teaching Tool

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Abstract

Most teacher education programs emphasize on writing lesson plans, journals of field experiences, and reflections on lessons taught. However, embodied and unplanned practices require as much attention as language use. Videotaping plays a crucial role in the often-overlooked embodied dimensions of teaching (e.g., gesture, posture, gaze, tone of voice, facial expressions, and position) and provides a mechanism for preservice teachers to reflect on their teaching practice. Theories of embodiment guide this study, including Mauss' theory of "techniques of the body," and Bourdieu's theory of "body habitus," which give theoretical support to analyze preservice teachers' bodily techniques. Preservice teachers can consciously reflect on how to use their bodies as powerful pedagogical tools through reviewing the videos of themselves teaching; at the same time, cultivate the ability to deal with the unplanned teaching moment.

Keywords: embodied practice; bodily techniques; preservice teachers; teacher preparation program; videos.

Using the Body as A Teaching Tool

"The techniques of the body are very valuable and can really help make me grow to be a great teacher."

—One preservice teacher's reflection on student teaching

Most teacher education programs emphasize on writing lesson plans, journals of field experiences, and reflections on lessons taught. These documents provide evidence of planned and post-hoc written explanations and rationalizations of teaching decisions, which can be quite useful for improving the teacher's professional skills. However, embodied and unplanned practices require as much attention as language use. The study of the embodied and emergent experience of teachers is essential in the education field; in particular, the learning of implicit and embodied knowledge plays a crucial but under-conceptualized and under-studied role in teacher preparation programs.

Hayashi and Tobin (2015) suggested that teachers can use of their bodies as a teaching tool, also, "teaching as embodied in the sense of practices that lack premeditation and reflection and that are analogous to the reliance on "muscle memory" of athletes and musicians" (p. 9). Many people might intuitively understand the general notion that bodily motions could be necessary for teaching, but "muscle memory" is often associated more with athletic activities than with something like teaching. Despite its name, "muscle memory"—a function that improves and solidifies mechanical, bodily actions—is not stored in people's muscles, but in people's brains. Athletes and dancers use video-stimulated reflection to refine their muscle memory and improve performance consciously.

Is teaching a field in which expertise can be similarly improved by watching videos and reflecting on one's practice? What kind of "muscle memory" makes for effective teachers? How can preservice teachers acquire this kind of "muscle memory"? The video has potentially opened up a promising opportunity to explore these questions, giving greater emphasis on teaching aspects that are more difficult to describe with words, such as a teacher's use of gaze, gesture, posture, and positioning in the classroom. Video can be turned into a useful tool to help preservice teachers become more reflective about their own teaching practice.

The use of videos provides the preservice teacher with one more method to reflect on their practice and to illuminate practices that may otherwise be lost in the hustle and bustle of the classroom. I explore how video as an assessment method is impacting—both positively and negatively—notions of teaching and teacher preparation by placing more attention and scrutiny on the visible aspects of teaching. I argue that videotaping may have the virtue of calling more attention to long-overlooked embodied dimensions of teaching.

Theoretical Framework

Theories of embodiment guide this study, including Mauss' theory of "techniques of the body," and Bourdieu's theory of "body habitus."

Techniques of Body

Mauss (1934/1973) introduced the concept of "Techniques of body." He argued,

These 'habits' (bodily techniques) do not just vary with individuals and their imitations, they vary especially between societies, educations, proprieties and fashions, prestiges. In them we should see the techniques and work of collective and individual practical reason rather than, in the ordinary way, merely the soul and its repetitive faculties. (p. 73)

In an essay on Mauss, Crossley (2007) pointed out that "Sociology is not guilty of mind/body dualism, in the philosophical sense, but tends rather to take the embodiment of actions and practices for granted and thus to overlook it" (p. 80). He said that Mauss made a significant contribution to sociology by emphasizing that the body is a site of experience and that body techniques pull the physical, mental and social aspects of a human being together into an irreducible whole.

Following Mauss, we can hypothesize that the typical body techniques of effective teachers are imitated, taught, and learned by preservice teachers. Mauss explained that "In all these elements of the art of using the human body, the facts of education were dominant. The notion of education could be superimposed on that of imitation" (p. 73). Preservice teachers learn to be professionals in part through embodied learning. Hayashi and Tobin (2015) wrote,

Mauss emphasizes that people use their bodies in ways that are characteristic of their culture, gender, social class, and profession without these bodily practices being systematically taught, proscribed, or available to conscious intent. (p. 8)

In other words, bodily techniques are characteristic not only of people's culture, gender, and social class but also of their profession; dancers or athletes, for example, have specific bodily techniques associated with their work.

Body Habitus

Bourdieu drew on Mauss to develop "habitus" into the concept of "body habitus." In the chapter "Bodily Knowledge" of his book, *Pascalian Meditations* (2000), Bourdieu explained that habitus is "neither mechanism nor finalism," and that "social agents are endowed with habitus, inscribed in their bodies by past experience" (p. 138). Bourdieu argued that the mind is not superior to the body, and theories are not superior to practical knowledge; sometimes, bodily practice comes before belief. Bourdieu's work on the body suggests that not a conscious and explicit plan precedes every action. Therefore, bodily techniques should be given as much attention as language use. For example, the preservice teacher may pay some attention to using her body to teach or imitating her mentor teacher's embodied practice.

This line of the study implies that we need to rethink the centrality of the disembodied mind in teaching and give more attention to the development of embodied practice in teacher education. Body habitus can be learned and also taught to others through embodied teaching. People usually do not consciously learn this kind of technique, but through staying in the same field, working together, and observing and imitating the practices of experts, they start to form an increasingly similar bodily habitus. The mentor teacher models his/her practice for the preservice teacher not only linguistically but also through nonverbal expressions, such as gestures, postures, facial expressions, and positioning in the classroom. Moreover, as the preservice teacher becomes more professional, she forms some specific "muscle memory" for teaching, such as how to hold a book for storytelling, stand in front of the class, and use her gaze as a tool for classroom management.

Review of Literature

The Influence of Teachers' Gestures on Instruction

In recent years, there have been several studies addressing the impact of teacher's gestures on instruction. For example, Dr. Martha Alibali of the University of Wisconsin has been a leading researcher in applying video

analysis techniques to examine the role of gestures in teaching and communication in the mathematics classroom. A study by Alibali and Nathan (2007) explored teachers' gestures to scaffold students' understanding. Their analyses focused on the teachers' use of gestures, including how it varied throughout the lesson and how it related to the utterances of both the teacher and students. Their research showed that "56% of the teachers' utterances included some form of gestural grounding" (p. 355)—in other words, gestures are pervasive in teachers' instructional communication. Also, according to their analyses, "gesture serves a scaffolding function" (p. 360); for example, teachers use more gestures when they introduce new material, explain more abstract content, or respond to students' questions and comments.

In Alibali and Nathan's (2012) follow-up study, they studied teachers' and learners' gestures, concluding that mathematical knowledge is embodied. Not only do teachers use many gestures during their instruction and explanation, but students also produce gestures along with their speech when they talk about mathematical concepts and procedures. That is to say, the body is deeply integrated into the process of thinking and speaking. Gestures can reflect speakers' embodied thinking as well as communicate embodied knowledge to learners.

In a new study by Alibali et al. (2013), the researchers explored the effectiveness of the gestures (pointing, depictive gestures, tracking gestures, writing gestures, and the use of beats) in mathematics instruction through tracing students' test scores. In this study, the teacher attended a training session on how to use gestures to convey ideas in mathematics instruction. They videotaped this teacher teaching sample lessons about slope and y-intercepts before and after the tutorial. They then presented the lesson videos to 42 seventh-grade students and assessed their learning. Students who received the gesture-enhanced lesson displayed greater understanding of y-intercepts than did students who received the pre-tutorial lessons. Their research provided evidence that students can learn more effectively when their teacher has been trained to incorporate gestures into instruction. In other words, the use of gestures shows powerful potential as a pedagogical tool for supporting students' learning.

Alibali et al. (2013) suggested that bodily teaching techniques can be taught and learned. Researchers used statistical methods to evaluate the teacher's gesture production in the two lessons through three dimensions of the teacher's behavior: "(1) his gesture rate, (2) whether he expressed linked ideas multi-modally or in a single modality, and (3) whether he expressed gestural links simultaneously or sequentially" (p. 218). These data demonstrate that the teacher altered how he used gestures to express links between ideas after the gesture-enhancement tutorial. Even though this research is based on a single teacher, age group, and topic in one mathematics class, this study still could answer whether bodily techniques can improve students' learning performance and whether embodied knowledge can be taught and transferred.

Embodied Teaching

"Body language can include any non-reflexive or reflexive movement of a part, or all of the body, used by a person to communicate an emotional message to the outside world" (Fast, 1970, p.2). When talking about communication, the first thing that comes to mind for many people is the verbal language by which people organize their thoughts and deliberately convey their ideas to others. However, body language is a nonverbal way of communication and is often a non-deliberate and unconscious expression of people's thoughts and intentions. According to Kurien (2010),

Body language is one of the forms of non-verbal communication. It includes gestures, postures, eye contact, facial expression, handshake, etc. It is vocal in communicating emotions, attitude, behavior, feelings through its various forms. Body language works involuntarily or unconsciously (p. 29-30).

Many professions rely on the use of the body more profoundly or more overtly than others, such as dancing, athletics, and teaching. The use of the body in teaching is different than in dancing and athletics because teachers use their bodies not only with a focus on physical behaviors but also to combine language and bodily movement—the interaction between people and material.

White (1989) argued in *Student Teaching as a Rite of Passage*,

Some of the cultural knowledge of teaching is nonverbal. Much of the knowledge acquired at the very beginning of student teaching is physical and imitative – eye gaze, posture, pitch of voice, intonation, and has to do with how to talk as a teacher. (p. 193)

Many people seem to understand the concepts and their application somewhat intuitively when discussing these bodily teaching strategies. Still, the particulars of how to teach these strategies explicitly have long been ignored by most researchers.

Embodied teaching practice includes not only the literal meaning of using the body as a pedagogical tool (through gestures, facial expression, voice, posture, gaze, etc.), but also how teachers' bodies extend to the materiality of the classroom—for example using or holding props/materials, their location/position in the classroom, or even the writing gestures used on the blackboard. After reviewing the significant theories of embodiment, Tobin and Hayashi (2015) introduced their method of using video in comparative studies of preschools to examine embodied and implicit cultural pedagogies. A teacher is often not entirely conscious of his/her embodied practice—use of the body in specific ways to achieve certain effects—and as a habitual or "second-nature" type of behavior, it can be hard to describe with words. Tobin and Hayashi's study focused on "how Japanese preschool teachers use bodily techniques of *mimamoru* (teaching by watching and waiting) that combine gaze, space/location, posture, and touch" (p. 1). Video is a crucial component in their research. It is a useful tool allowing for the targeting and analysis of techniques of the body (rather than stopping at the level of linguistic analysis).

I suggested in another paper (2018), *The Use of Video as a Tool for Reflection with Preservice Teachers*, turning off the sound of the video during reviewing helps the preservice teachers to pay more attention to the embodied aspects of their teaching. When playing the video with sound, the reviewer (preservice teachers, instructors, or supervisors) focused on what they can hear in the video. For instance, which questions preservice teachers asked, what is the teaching structure, or how they responded to students' answer. However, when turning off the sound, the preservice teachers saw some aspects of embodied teaching. For example, how they interact with students through eye contact, how they use their hands to redirect students' attention to the lesson, and how they use gestures to manage students' misbehavior. The paper concluded,

Embodied aspects of teaching (e.g., gesture, posture, gaze, tone of voice, facial expressions, use of materials, and positioning) are an important tool for teaching.....Nevertheless, a major finding of this study is that paying attention to and systematically reflection on embodied practices can make a meaningful difference in the development of teachers' professional skills. (p. 342)

Research Design

This study employed a qualitative ethnographic technique. The 23 participants enrolled in an initial early childhood teacher certification program. These teacher candidates are required to videotaping themselves teaching and submit a reflection paper both on their teaching experience and on the video of the lesson at midterm and final as a part of their coursework of one teaching method course. After collecting the videos and reflection papers, the study used the video-cued multivocal ethnographic method, which Tobin et al. (1989) applied in their research, "the videos function primarily neither as data nor as description but instead as rich nonverbal cues designed to stimulate critical reflection" (pp. 77-78). I used scenes from the videos as visual prompts (or "cues") to guide the focus-group interviews with preservice teachers, their instructor, and field supervisors.

Findings and Discussion

Every teacher uses their body when teaching. Techniques of the body are an essential dimension of interpersonal communication with students. This dimension is most often deployed implicitly and even unconsciously, rather than with conscious intent or volition. When interacting with students, teachers use bodily techniques, even if they are unaware that they are doing so, and despite having little or no training in using their bodies pedagogically. Some might argue that these bodily techniques are so closely linked to personality—and so habitual and spontaneous—as to be nearly immutable. However, observing differences between experienced and novice teachers suggests that embodied teaching practices are skills that teachers develop with experience. For example, an experienced teacher can use her gaze to stop two children from quarreling or a change in posture to quiet down her class.

Therefore, I contend that paying attention to embodied practice can make a meaningful difference in the development of teaching expertise. For length limitation of paper, in this paper I only present evidence of how preservice teachers use their bodies in their teaching, as well as how these bodily techniques changed their classroom practice and their understanding of themselves as teachers. I (1) define and categorize preservice teachers' bodily techniques, (2) present examples of how the preservice teachers employed each of these bodily techniques in their preschool placements. The other findings will be discussed in the next paper based on this research.

A Taxonomy of Participants' Bodily Techniques

Though they are a ubiquitous aspect of teaching, the bodily techniques employed by teachers are less often discussed in textbooks, analyzed in studies of teaching, or talked about in discussions between field supervisors and intern teachers or among teachers. Therefore, as of yet, there is no standard terminology for these embodied techniques.

Hands Gestures

The most common body movements used by the preservice teachers in this study were gestures of the hands, arms, and fingers. For example, teachers use their hands to model or explain specific terms, concepts, and words during instruction. For young children, teacher modeling procedures or concepts during instruction and reading aloud is crucial for understanding abstract concepts and making the lesson more animated and attractive. Gestures are useful for introducing students to things they are about to learn and for cueing their memory of things they have already learned.

Another basic use of gestures in teaching is to aid in giving directions or instructions to students. Students are easily distracted when teachers are giving explanations or instructions for activity; in other words, while the students are not actually "doing" something. Moreover, as the children in any given classroom will be at different stages of cognitive development (a phenomenon which is particularly pronounced in preschool classrooms), some students have significantly more severe difficulty than others in understanding the activity's procedures. Accordingly, early childhood teachers often need to use gestures while giving directions or explaining procedures.

Touch

Touch can be a highly useful bodily technique for teachers during instruction, mainly when working with younger children. For example, you can touch a student to stop his/her wrong behavior while staying in the flow of teaching, or you can use a touch strategy along with a verbal warning to halt the interruptions of individual students. Many preservice teachers wrote in their reflection papers that they used touch to allow them to manage children's behavior without interrupting their lesson. Touch, as a signal from the teacher, means: "The teacher's attention is on you; stop that behavior." The preservice teacher shown in Figure 1 reflected on her lesson as follows:

By simply touching some children on the leg, it allowed them to understand I was still keeping an eye on them, even if I was listening to another student. By doing this I felt like I kept the students on task without distracting the others from the lesson.



Figure 1. Using touch to redirect students' attention to the lesson.

This preservice teacher was just one of several who reflected on the usefulness of touch in this way. It is clear that touch proved to be a powerful pedagogical tool during teaching and classroom management through reviewing the videos and reading written reflections.

Another use for touch is to make students calm down, for example, by rubbing a student's back or gently patting a student on the shoulder. One preservice teacher noted the usefulness of this strategy,

I noticed that I touched students frequently on the arm or shoulder to communicate something to them. I do this most often with the boy beside me, as he generally needs a fair amount of reassurance

during an activity. At moments when he is feeling frustrated or confused, I touch him on the shoulder as a means of calming him and refocusing his attention. The use of touch, though unplanned, was an extraordinarily helpful management tool during my lesson.

This preservice teacher saw touch as a way of helping this boy to calm down and prevent him from distracting other students. Importantly, this preservice teacher observed, in retrospect, that her use of touch in this lesson was "unplanned." This again speaks to the usefulness of video reflection, through which this preservice teacher recognized her impromptu use of what turned out to be an effective application of touch.

Body Gestures/Posture

Gestures can be produced not only with the hands, but also with other body parts, such as the head, legs, or entire body. I refer to these "non-hand" gestures as "body gestures." Body gestures can have functions similar to hand gestures, such as modeling skills or concepts and giving directions to students. Besides, emotions can be expressed through body gestures and posture. Body gestures and posture are useful forms of expression for interacting with children. When teachers talk with individual young children, teachers are encouraged to crouch, kneel, or sit at students' eye level. A related posture is to lean toward students when talking with them, to indicate attention to an individual child. The implicit meaning of this posture is, "My attention is on you," or, "I am interested in what you have to say." The intent is to make the child feel engaged and valued.

A teacher's posture and gestures express and convey emotions, intentionally or unintentionally. For example, teachers' most commonly used body gesture to show encouragement and praise is nodding. As one preservice teacher wrote in her reflection, "I nod affirmatively multiple times when speaking to students. This practice indicates to the children that I am listening actively." Nodding is a positive response to students' answers, and it shows the teacher's affirmation and encouragement.

Facial Expression

The face is the most expressive part of the body, and it usually attracts the most attention. Facial expressions play a crucial role for teachers, primarily when they communicate with children. To attract children's attention and engage them with the lesson, a teacher can animate her face with expression to complement the lesson material or specific situations. When reading a book to children, a teacher can perform facial expressions that reflect the emotional state of characters or the emotions the story produces in the audience. Most preservice teachers are aware of this and use this strategy during teaching.

Teachers convey their emotions or attitudes—for example, indicating encouragement or praise—through facial expression. Additionally, the teacher's facial expression is sometimes a hint towards what the teacher wants the students to do. As one preservice teacher said, "I raised my eyebrows and also tried to make a "thinking" face when I wanted the students to think about the questions I asked them." However, facial expressions can also betray emotions a teacher would prefer to keep hidden from her students, colleagues, or supervisors. Some preservice teachers worried that their faces conveyed too much, and they could not mask their emotions. One preservice teacher explained:

[I]n other classes we have talked about how a smile can cause problems. If I had given a child that had a right answer a smile, and then turned around and didn't [smile] when a child had a wrong answer, then my children would automatically know when someone was right or wrong, or who had a "good or bad" answer.

Because teachers convey meanings to their students through facial expression, teachers may need to control their facial expressions at times to avoid conveying the wrong message to students. Teachers' use of facial expressions—as the most ubiquitous form of embodied teaching practice—is easily noticed by students and can have a significant impact on them.

Voice

People usually combine their facial expressions with their tone of voice to express their emotions to others. The bodily technique of combining voice and facial expression is highly intuitive and helps teachers to convey their feelings to their students with clarity. Moreover, teachers can change the volume and pitch of their voice to express different meanings to students. For example, one preservice teacher reflected: "I do feel like I did a good job of increasing the peppiness of my voice if a child got a question correct or was engaged in the lesson." A teacher's voice can announce emotive reactions to what is happening in the classroom and express what s/he expects of students. Analysis of the data reveals that most of the teachers intuitively used this strategy in their teaching.

Also, teachers can choose different strategies involving voice to manage the class. In one preservice teacher's midterm video, the teacher was discussing the numbers 1 through 10 with a group of students. One student began talking louder and louder, causing classmates to stop paying attention to the lesson. The preservice teacher said, "Shh..." and put one finger on her lips. Then she leaned toward the table and said softly: "Let's lower our voices, okay?" She then used a whispering voice to read out the rest of the numbers. All the kids imitated her voice and lowered their voices. She talked about that in her reflection,

At one point in the video, the students began talking louder and louder to where they were almost yelling so I changed my voice to a whisper and, surprisingly, this made the students' voices follow my volume. I remember talking about this tactic in class and now I know how beneficial it can be during a lesson.

The data from preservice teachers' videos, reflections, and interviews suggest that by changing the pitch and tone of their voice or adjusting their volume, bodily techniques involving the voice play an indispensable role in teaching.

Gaze and Eye Contact

Gaze refers to eye movement (or lack of movement) and eye contact to convey meaning and/or emotion (attentiveness thoughtfulness, curiosity, surprise, disapproval). As such, gaze constitutes an essential form of nonverbal communication; as the saying goes, "the eyes are windows into one's soul." A steady gaze that makes and maintains eye contact can convey a particular meaning, as can a gaze that darts away to avoid eye contact.

Teachers need to build a relationship with students quickly, interact with students during teaching, and engage students in the lesson. For example, one participant was doing an opener for the lesson. She maintained good eye contact with each student, so the students quickly became interested in the lesson, engaged with her teaching, and responded to her questions. Despite its apparent simplicity, eye contact will sometimes have unexpected effects on students' learning. During a focus-group interview, one preservice teacher talked about how to make eye contact with students during a mini-conference at their desk:

My mentor teacher said, if you're hunched over, talking to the student like this, they're not going to learn a lot. But if you're facing towards them while you're sitting at their desk having a mini-conference with them, working on the same sheet they're working at, making eye contact with them, discussing in a tone that's friendly but informative, all of those things go into that child's learning in that moment.

Whether it is used to attract students' attention to the lesson, engage the students, or build good listening habits, eye contact is another crucial tool at teachers' disposal.

Teachers also use gaze to convey their emotions to the students. For example, the preservice teacher uses her gaze to express interest in a student's response, or make eye contact with the student and open the mouth to show her curiosity in the student's answer. In Figures 2a & b, the preservice teachers give students a stern look at what they considered misbehavior. The redheaded student (pictured at left) threw a picture card at the preservice teacher, so she stared at him, shook her head, and said, "No, Sir!" In the picture on the right, the girl pulled away all toy bears from the table, so the teacher tapped on the table, firmly looked at her, and called her name to direct her to put the materials back on the table.



Figures 2a & b. Using gaze to stop students' undesired behaviors.

A gaze can also be used to indicate the object of the teacher's attention and sometimes to convey instructions to students. The gaze is an excellent way to express encouragement, warning, or other signals to students. Gaze can also be combined with other bodily techniques. One preservice teacher remarked,

I think that I combined physical touch with my gaze a lot more effectively. I could tell on several instances that I was trying to make eye contact with a specific student by placing my hand on their shoulders or on their hands. This seems like it'd be more effective than simply saying, "Look at me!"

Teachers can use such non-verbal bodily skills without interrupting their teaching to show their attentiveness to and concern for their students through their gaze.

Positioning

Positioning is another crucial embodied aspect of teaching. Where do teachers position themselves and their students in the classroom? What is the ideal spatial relationship between a teacher and her students for a given instructional task? How much, and in what ways, should teachers move during a lesson? Veteran teachers know that the same lesson becomes a different lesson when taught from a different location in the classroom (e.g., near or far from the doorway, facing towards or away from the windows), or with students positioned differently (e.g., on the rug, in a circle or rows, or around a table).

Firstly, according to classroom layout and furnishings, the content of the lesson, the characteristics of the students, and even the time of day, teachers need to choose an appropriate setting and spatial arrangement for themselves and their students. Few preservice teachers talked about how they decided the arrangements/settings for their lessons. Most of them showed little explicit indication in their reflections that they were conscious of the influence that spatial relationships in the classroom could have on their teaching and their students' behavior. Experienced preschool teachers rarely remain in the same position throughout a lesson; instead, they reposition or relocate themselves (and/or their students) during teaching. Keeping students at an appropriate distance from each other and the teacher is vital for leading group activities. Reflecting on the lesson, one preservice teacher concluded that she should have arranged students in a larger circle for this activity. She wrote,

If I were to teach this lesson again in the future the first modification I would make is to have the students sit in a slightly larger circle so they were out of hands reach of each other. This would eliminate some of the distractions between students.

The dynamics of student group arrangements are often hard to predict without first seeing them in action; in retrospect, this preservice teacher rightly recognized the importance of space in arranging students in groups.

Many teacher educators encourage preservice teachers to move during teaching, to change their eye level to match that of their students, to walk around and work closely with individual students, or even to allow their students to move during activities. Although a few preservice teachers expressed concerns about movement, most preservice teachers agreed that movement is helpful for teaching.

Conclusion

The goal of this study was to bring the voices of preservice teachers, their instructors, and university supervisors to bear in exploring the impacts of videos and bodily techniques on teachers' professional development. In this paper, I presented multiple shreds of evidence of how preservice teachers' use of their bodies in teaching, coupled with instruction in their methods course targeting bodily techniques, changed their classroom practices and their understanding of themselves as teachers. Bodily techniques are undoubtedly an essential tool for teaching and communicating with students. When preservice teachers become aware of their uses of bodily techniques, they become more intentional and conscious in their teaching. With video-cued reflection, bodily techniques can be learned, practiced, and improved. Aware of how they use their bodies, preservice teachers can plan embodied teaching techniques in advance of teaching the lesson.

In this process of development, the field experience component of a teacher preparation program functions as a field of action, which must be crafted as a safe space for preservice teachers to experiment and reflect on their teaching habitus as it emerges and solidifies. This early stage in their development as teachers is of tremendous importance as the time they are given to craft and consolidate their habitus will have an orienting influence as their identities become more fully developed in their first several years of teaching. After this point, changing one's identity or habitus becomes a greater struggle, so this underscores the great responsibility of the teacher preparation program to create an environment that fosters development that is reflective rather than accidental or arbitrary—and that is based on sound pedagogical research. For the

preservice teachers in this study, the videos functioned to make their field experiences more sharply focused and to create a field of action that was shared among them, their classmates, and their instructors.

Lasting effects of embodied pedagogy

The vast majority of the students in this study wrote in their reflections and told me in interviews that watching and reflecting on videos of their own teaching has made them more aware of and better able to apply bodily techniques, and therefore has improved their teaching. However, it is vital to keep in mind that their written reflections came from course assignments. They were interviewed by someone they knew to be an instructor in their program—factors that may have led them to overstate the helpfulness of the video-recording and viewing process. I also have little evidence to suggest that the video assignments will lead to lasting change in their pedagogy as these young women move from being preservice to in-service teachers. I found improvement in their use of bodily techniques between the midterm and end of their second semester in the program, but this is a small segment in time in view of their career-long professional development process. Future research should ideally have a longitudinal design, following students into student teaching and on into their first few years in the classroom, using videos at different stages to track continuity and change in their embodied practice.

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