Transforming Classroom Discourse:

A Multi-Layered Multimodal Exploration of Student Discourse Negotiation

BY

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ABSTRACT

Perceived power relationships and positioning in different spaces affect the way that people contribute to the development of community practices related to doing, communicating, and making meaning with one another, referred to as 'discourse' here. Whether or not discourse is explicitly made 'negotiable' in the classroom, students and teachers alike negotiate a discourse through their choices to accept, reject, transform, or resist each other's efforts at making meaning in the classroom space. In an attempt to more thoroughly explore the discursive 'moves' that students make as they negotiate for the authority to transform classroom discourse, several different mediational 'layers' emerged for students across three different moments of negotiation in three separate classrooms: verbal language, interaction with classroom objects, and movement through time and space. Most traditional studies of discourse tend to privilege verbal language, but if we dive deeper beyond what is explicitly said, which tends to foreground the authoritative voice of the teacher, the dynamism of these transformations and the students' agency in these moments are more readily revealed. This dissertation makes a methodological argument about discourse analysis, decisions about transcription in particular, and presents several examples of multimodal transcriptions which foreground student agency, along with some recommendations for how this approach to analyzing multimodal discourse might be useful for teachers and researchers alike.

Key words: classroom discourse, discourse negotiation, critical multimodal discourse analysis

DEDICATION

I dedicate this dissertation, and, more importantly, the years of formation and reflection that lead up to it, to my students, at all levels, and of all ages. You have all had an enormous impact on shaping me as a teacher, researcher, mother, and human being.

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I. INTRODUCTION

Background and Rationale

During my first year of graduate studies, I was visiting a charter school I used to teach at, and awkwardly standing in the front hallway waiting for a colleague of mine because I was sort of afraid of running into some of the administration, with whom I'd left on less-than-friendly terms. A former student, then in his junior year, who I'd known had had his share of conflicts with the school administration himself, came walking down the hall and sat down at the front security desk next to me. He was clearly very upset, and after some of the other teachers and staff that were in the hall questioned him about the circumstances of his being there (students were not allowed to leave the classroom unescorted in this school), I had the chance to chat with him, too.

"So you're a doctor now, huh?" he asked, smiling and referring to the fact that I had left teaching after the previous school year to pursue my Ph.D. Students at this school had gotten quite used to a high rate of teacher turnaround and were always curious about what 'bigger and better' things their former teachers had left the school to do. The truth was that the discipline system, something both teachers and students were subjected to in different degrees, and the underlying philosophies that seemed to shape the culture and theories of learning at this school (which was, and still is celebrated as a great success and model for other 'urban' schools to follow) had made me so angry, so disillusioned with the profession, that I had sought graduate school as some kind of outlet for my frustration.

So basically, I had *quit*. After only two years at this school. And only five years of teaching in Chicago. I ran away from the thing I had imagined would be a fulfilling, lifelong career, which connected me to a community I had quickly grown to love. I still loved the

community, but it had become too difficult for me to ignore all the ways in which the schools I was working in asked me to set aside my own deeply-held personal beliefs about the purpose of schools, how people learn and develop, and moreover, how best to address the educational needs of communities that had been ignored, cheated, exploited, criminalized, and treated otherwise unfairly by our education system (and, well, most 'systems').

I couldn't tell *him* all of that, though. Not there and then, anyway. He was still very much caught up in it. He didn't really have many options to escape this system or the privilege to be able to walk away and throw himself into something else like I had. His mother had enrolled him at this school because he had friends and family members who'd gone through or were going through their neighborhood public schools and had experienced some of the violence and less-than-ideal conditions that unfortunately affect many of our youth, no matter what school they attend. She wanted to keep her son safe. She wanted him to get a 'good education,' to graduate, and go to college. She wanted what nearly every parent wants for their child.

That's what this school promised. And in many ways, it delivered on those promises for the students who complied and conformed, with higher-than-average test scores, graduation rates, and college acceptance rates (all of which were, and still are, very much subject to alternative interpretations). So many of the students and their families at this school believed this was their best chance at avoiding the disastrous fates they had been convinced would inevitably await them in the city's public schools. Many of the teachers and administrators believed it, too. And many of them (the ones who didn't leave after a year or two) also believed that a strict policing of students' actions and language, and a stripped down, skills-based curriculum calibrated to standardized tests was the only way to achieve that.

"Well, in a few years, I'll be a doctor...of *philosophy*, I guess," I said to him, "but I don't

know how much good that'll do anybody."

"That's great, Miss Allen."

I could sense some impatience (and sarcasm) in his voice since he was clearly waiting to see how severe his consequences would be for whatever had gone down in class that had resulted in his dismissal. He was eyeing the door to the classroom down the hall, waiting for his teacher to emerge.

"We'll see," I said, "I have to write a dissertation, you know...about 200 pages, probably!"

"That's too much!" he said, looking at me in horrified disbelief.

"Why did you get sent out of class?" I asked, not wanting to discuss the overwhelming task of actually writing my dissertation any more than he probably wanted to discuss *his* current situation. But even if I was no longer his teacher or a representative of this school, I was still an adult, and he allowed me to exercise that authority as I steered the conversation back to his predicament.

"'Cause my teacher was talking to me like I was a dog!" he said, his demeanor suddenly changing from curious to pissed off all over again, but since I was no longer an extension of the disciplinary system of the school, I assumed his anger was not directed at me.

"What do you mean?" I asked. His teacher also happened to be an administrator, who'd taken over as the advisor to a group of boys including him, whose previous advisors, like me, had left the year before.

"He told me to 'sit down!' and shut up and…I didn't appreciate it."

"That sucks. What were you doing?" I cringe at the conflicting roles I was trying to play here in retrospect. But here I am, revealing all my assumptions from prior knowledge and

interactions with this student and conveying to him that I think this must somehow be his fault, the same message he would no doubt be getting in just a few moments when someone came to fetch him for his punishment.

"Nothing, man! It doesn't even matter! He shouldn't have treated me like a *dog*!"

"Well, did you say anything?"

"Yeah, I told him I wasn't no dog!"

"How do you think he thought you were talking to him?"

"I don't know, probably disrespectful...but he shouldn't have talked to me like that! I don't let nobody talk to me like that!"

"Have you ever talked about that with him, like, not when you're all angry, but just like as two people having a conversation like we're having right now?"

"No, shouldn't have to…"

It wasn't even just that. I knew as well as he did that this wasn't exactly a 'school culture' that was welcoming of these types of conversations between adults and kids, and especially not teachers who were also administrators and students who already had a history of disciplinary issues and a tendency to go off on teachers who they perceived as being disrespectful towards them.

"How else are people supposed to figure out how to talk to each other?" I asked. Like a jerk. A first-semester-of-graduate-school jerk. I knew from experience that 'figuring out how to talk to each other' in a way that allowed students much power in explicitly defining the terms of what constituted respectful discourse was most definitely not a part of the official curriculum here.

"Well, my *mama* taught *me*, and you just shouldn't talk to people like that!"

This conversation went on for a while. I asked about his mom, whom I'd met a couple of times, and his girlfriend (now ex-) who babysits my daughter. Finally, I asked him if he'd help me write my dissertation.

He laughed. "Yeah, okay, Miss Allen…" he said, clearly dismissing this as a sort of joke.

"No, I'm serious! You'll be what? A sophomore in college? You should be able to handle reading a 200-page paper by then, right? I'll send it to you, and you can help me revise it."

He laughed, "Sure…yeah, okay."

I have since followed up with this student a few times through various mutual contacts and via social media. He was expelled or pushed out of the school later that school year (not long after this conversation, actually), but was able to enroll at a neighborhood public school with a well-regarded baseball team that he was excited to be able to be a part of. He went on to finish high school with surprisingly little disruption to his academic or social life and did well at his new school. Looking back, he says it was definitely for the better that he left the charter school when he still had a year and a half to be able to start fresh and make the most of his junior and senior years at a seemingly less punitive place. A student who was dismissed as "disrespectful of authority" by more than one of his teachers and the administration at one school, was popular and well-liked by his peers and the adults he interacted with at another, a testament to the shifting, dynamic nature of school discourses and the way a student's agency can be exercised and received differently in different school settings.

Experiencing discourse negotiation as a *teacher*. As a young, inexperienced, solidly middle-class, white, female teacher fleeing the dying suburbs of southeast Michigan to live and teach on the west side of Chicago, I had many opportunities to reflect on the discourse I used as a teacher and the discourse my students used in my classroom, usually when something went

terribly wrong in our attempts to understand one another. Teaching, more than any other activity I've ever engaged in, forced me to examine my own ways of making sense of the world, and the ways I interacted with not only my students, but also their parents, my colleagues, and my administrators.

I had been a linguistics major and then decided to add on a teaching major in Latin and History, and I was striving to teach Latin, of all things, in the most culturally-responsive way possible (though I certainly didn't know that's what it was called at the time). I hadn't yet read any Gloria Ladson-Billings or Paulo Freire or Lisa Delpit, but I believed Latin could be fun and worthwhile for anyone, having stumbled upon it myself entirely by accident during my first semester of college when I still thought I was meant to be a chemist. I had big hopes for its potential to illustrate and make explicit some of the more elusive aspects of standardized English grammar and vocabulary. But when my students taught me the word *finna* and we mapped it onto a Latin verb tense and mood that we found nearly impossible to translate any other way into standardized English, we were creating a shared discourse about language study -- a way of doing 'linguistics' that was far more meaningful to all of us than the way *I* had originally structured the curriculum. This expanded to include the second person plural (*yall* and *youse* came to be considered acceptable translations within our classroom community), and a few ways of representing habitual tenses utilizing *be* constructions often found in AAL, among other things. When I started teaching at a school with a large population of Spanish-speaking students, we found that conjugating verbs made a lot more sense in Latin and Spanish, and the students who didn't know Spanish, or were less confident about their Spanish abilities, had the opportunity to gain more practice and begin to see the many similarities in vocabulary through the shared etymologies of the two languages.

But I also quickly realized that there were plenty of other 'non-verbal' languages and discourses developing and interacting in my classroom, and most of it was almost entirely out of my control, and way more interesting. Rather early on, without even realizing it, I started using the *tsk* sound my students made by sucking air through their teeth and clicking their tongue to show they were disappointed, something another teacher, who came from the same community as our students, found so disrespectful that students could face disciplinary action for doing it in her classroom. My then-boyfriend (now-husband) pointed it out to me and would raise his eyebrows when new words or phrases or morphologies or pronunciations would creep into my language outside of the classroom. He was not spending most of his waking hours with teenagers. He couldn't possibly understand how influential they were!

I was also getting much better at reading my students' body language, and they were nearly experts at mine, able to mimic the way I gestured and paced around the room excitedly along with my tone and other mannerisms. To any of my colleagues who would claim that our students didn't know how to talk or "act right," (in some version of standardized academic English and behavior that represented adherence to certain cultural norms of respect within this particular community) I would point out how well they could imitate *our* language and behaviors, at least.

Within my first few weeks of teaching, my students were already systematically investigating my own semiotic ideologies, the most memorable test being their use of a silently raised fist during times of unrest or conflict in the classroom (and there were plenty). One student asked me explicitly if it made me uncomfortable when they did it, a wry smile on her face. I had no idea how to answer this question. I knew it was a test. I was certainly uncomfortable, but did I find it disrespectful (that term, which was thrown around a lot in the

schools I've worked in, had its own process of discursive negotiation in my classroom)? No. Did I think it needed to stop? Not really. I was more curious about what it meant to them and how they intended for me to interpret it.

But what she (and her classmates) wanted to know, I think, was did I feel threatened by this symbolic gesture? It certainly had power. Sometimes, I *had* to admit to them (because they already *knew*), when it felt like they were all in solidarity *against* me on something, it made me feel pretty insecure. In this way, I surely met some of their expectations as the one who was meant to have an unequally large share of power in this classroom, fearing some kind of uprising from those I was meant to exert control over (and there's a *whole* lot to unpack there regarding race, gender, history, class, and my institutional positioning!). They also wanted to see how would I respond to this perceived threat? What effect did it have on me? On them? On our classroom? Most often, I responded by turning red and getting embarrassed, something that I think actually worked in my favor, though it certainly felt, at the time, like I was failing their test. As much as I might have wished to avoid these conversations, they continued. They got easier. And through this ongoing negotiation of what the gesture meant, we were able to construct new understandings together about more than just raised fists.

Upon further discussion, I found out they had an 'acceptable' interpretation of the gesture ready at their defense in case I ever decided it warranted any sort of disciplinary action (to be honest, I was afraid it would make me look bad to administration if I ever sent a kid to them for "silently raising a fist" in my classroom): This is how they'd been taught to 'quiet down' collectively at the charter middle school that many of them had attended. Ironic, maybe not even accidentally, considering the more widely-held interpretation of the fist as a sign of solidarity and power, both in the African-American community and in other marginalized communities as

well. They could simply claim I'd misunderstood the sign, something quite believable in our situation, an *expert* discursive maneuver playing into the often uncomfortable, power-laden context we were faced with!

This became an ongoing negotiation of discourse (and power!) in my Latin class as we talked about the history of the movement (I found out, for instance, that one of my students' grandmothers had been an influential local member of the Black Panthers), whether using it to tell your classmates to quiet down was an appropriate use of the gesture (*I* certainly never felt comfortable using it in this way for a number of reasons), what it would mean if I ever *did* use it, whether or not I was like that white lady teacher in *Freedom Writers* (the movie had come out a few years prior, and some of their teachers, the same ones who had used the fist to silence them, had shown them the film), and trying to decide what all of this meant for our relationships in our particular classroom and how it might be used in our study of Latin and ancient Rome (my students were super into the R-rated, show *Spartacus: Blood and Sand*, and would find absolutely *any* excuse to bring it up in class because…gladiators! Ancient Roman slave revolts! Of course!). The principal of the school, totally unaware of this ongoing discussion, put a huge blown-up image right across the hall from my classroom of Tommie Smith and John Carlos on the platform at the 1968 Olympics with their fists raised, and this became an additional resource (along with all the other symbols on display in that image) for us to point to as we tried to come to a shared meaning. The image, the history, all the nuances to what the three men are doing, and what they and others have said since about it, all of that served as both a mediational tool and a symbol of our classroom's ongoing relationship with this particular gesture and all of its possible meanings for us.

Looking at discourse negotiation as a *researcher*. I realize now that my experiences and the way I approached this work in my own classroom was probably a little bit different from many of my teaching colleagues, owing to the luxury I had as a teacher of a subject that was focused on language (and a dead one, at that) and relatively low stakes in a conventional curricular sense (Latin is not on most standardized assessments, and I had the freedom to create and destroy my own curriculum whenever the whim struck). But having spent time in other people's classrooms as a researcher, I now recognize that *all* teachers and students are inherently engaged in a process of negotiation about what languages, signs, and ways of interacting count or are even 'allowed' in the classroom and in school (and what they mean), be it in the formalized evaluation of schoolwork, the demonstration and acceptance of knowledge, or in the day-to-day tasks of simply trying to be together, to accomplish the work of school, and reach shared understandings in the classroom. This continuous and dynamic process of discourse negotiation develops and emerges over time, and sometimes, neither teacher nor students feel good about where negotiations are headed. However, viewing this as an ongoing discursive process, with social actors *doing and saying things* to influence this process from many different positions and perspectives has been imperative for me in understanding how classroom discourses develop.

Teachers *and students* as social actors. Students, with their own individual linguistic and cultural histories, have as much of a role to play in this process as their teachers, even though they may be positioned quite differently in the classroom, and their work in negotiating discourses may go uncredited or under-valued. I find some prevailing views of languages and language variations in educational contexts problematic in that they may (intentionally or not) categorize students by their language practices in "Otherizing" ways, implying that students'

linguistic and semiotic resources are somehow static, separate, unique, or 'other' from school, where they just so happen to spend a lot of time, not influenced by or influencing the linguistic and semiotic resources that are used in the classroom. While students may certainly feel a disconnect with discourses that are privileged in school, and they may choose to try to distance themselves from the identities associated with them, and schools may also try very hard to restrict and distance school discourses from outside influences for a variety of reasons as well, it is difficult to imagine that these systems of being and doing and making sense remain completely closed off and separate from one another in actual usage by the people who move in and out of and through these spaces (Leander, Phillips, & Taylor, 2010), just as it seems unlikely that individual languages (and other modes!), try as hard as we might to name and codify them as such, function as separate, closed, contained linguistic systems (García & Kleyn, 2016) as their users navigate through different contextualized interactions.

Other views of classroom discourse might assign students a passive role in this process so that the discourse of school is something that is inflicted upon them by their teachers or the larger institution of school. The oppressive use of hegemonic discourses to silence certain voices and marginalize certain groups of people within our education system and broader society should not be minimized, but we should also not ignore the influence students themselves can have on classroom language practices at the level of interaction, even in the most teacher-centered authoritative classrooms. Discourse is always discursive…that is, people interacting with other people and ideas are constantly acting on and reacting to one another. Students, as social actors, choose to take up discourses or comply with them. Or not. They can certainly resist them as well, and moreover, they can work to transform the discourses of the classroom. Even non-action could represent some action on the part of the person choosing to ignore or resist the

expectations of another. The number of students, after all, far exceeds the number of teachers in most classroom settings, making the process of developing a shared form of communication, with rules and roles and shared expectations, all the more important for maintaining the delicate (im)balance of power and authority that is generated by the institutional constraints placed on participants in this environment. If we ignore or minimize students' agency in this, the many ways they are able to negotiate within and against existing social structures, we only silence these voices further.

Discourse as a mediational tool. Many studies of language in school also treat language as the *object* of learning, with emphasis on mismatches between the way teachers and students use language, or the way they may struggle to use the 'correct' discourse in the right way at the right time for the right purposes, and the impact this has on formal and informal assessments of literacy and language learning. These perspectives do not often take into account the foundational sociocultural idea that language and linguistic systems are the primary *means* through which learning and social goals are accomplished (Vygotsky, 1934). Shared beliefs and practices and understandings about language and behaviors in the classroom are necessary for accomplishing the work of school. This 'work' could be learning how to form the Latin accusative just to see your nerdy Latin teacher squeal in excitement and embarrass herself. It might be getting through a math lesson so you (and your teacher!) can enjoy your lunch and 20 minutes of recess without losing any of the limited free time you have throughout the school day. It might even be something intrinsically-rewarding, like reading and enjoying a story together as a class.

Whatever the 'work' that needs to be done, and whatever the motivation to do it, there is a basic requirement that the people engaged in this work are able to communicate with one another

at least somewhat effectively, establishing what Bloome et al. refer to as a "working consensus" (2004). This communication simultaneously shapes and is shaped by the work that is being done. The process by which people doing work together come to these shared communicative practices and understandings is what I'm referring to as ‘discourse negotiation.' It is a dynamic, continuous, and recursive process since people necessarily use discourse as a mediational tool to negotiate discourse as well, building upon their existing ways of being and doing and making sense of the world as they do so.

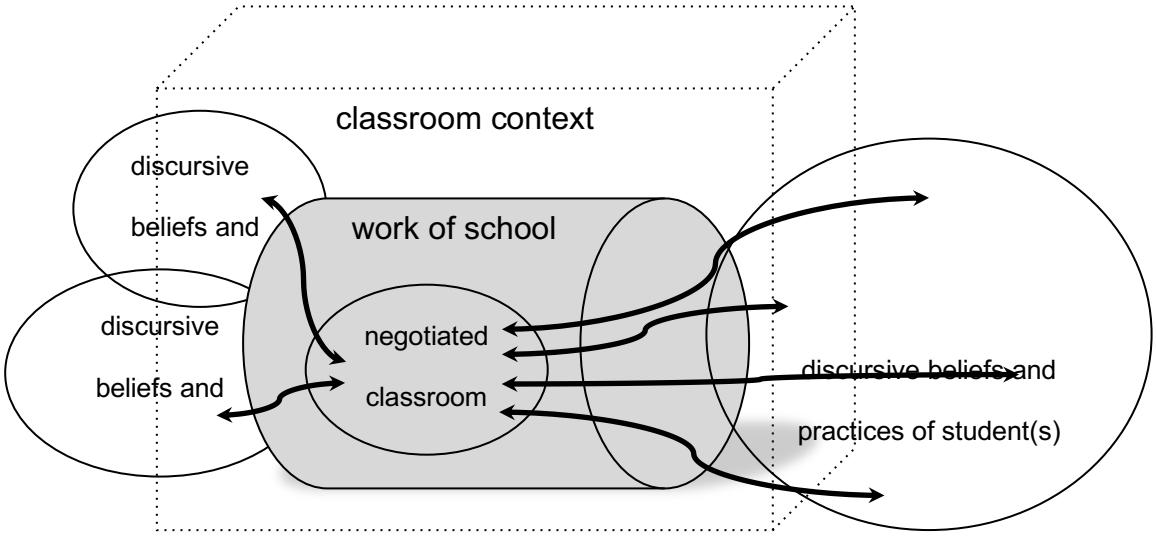

Figure 1. Discourse negotiation within the classroom context.

In this crude (and admittedly incomplete) model of the process, we see that the discourse beliefs and practices of institutions, teachers, and students are not completely separate from, but also not completely embedded within the (permeable, not-a-container) classroom context. There are other contexts outside of the classroom, such as the institution, community (or communities) in which the school is embedded, and other larger local, state, and national contexts that impact the work of school. I purposefully positioned the institution’s and teacher’s discourse beliefs and practices as slightly further within the classroom context and more restricted. Notice how the

institutional discourse overlaps with the teacher discourse (to a greater or lesser degree depending on the teacher and how they relate to the institution and the work they do as teachers), since they most likely have been formally apprenticed into some kind of specialized academic discourse with a narrower disciplinary idea (and typically more power to 'officially' decide) about what is acceptable and allowed within this specific context. The students' discourse beliefs and practices (which are not uniform to all students or completely separate from the classroom context) are much broader, and extend a bit more outside of the classroom context into those other contexts in this model since there are presumably far more individual students than the single teacher in most classrooms with a greater collective discursive repertoire and greater diversity of semiotic resources at their disposal. More importantly than any relative distance or arbitrary 'size' of the repertoire of beliefs and practices that students and teachers and institutions bring together is the fact that they all interact with one another via the work that is done in the classroom.

Statement of Purpose

Through this dissertation, I have begun to develop a framework and methodology for exploring this process of discourse negotiation systematically with teachers, students, and across different classroom contexts, with the intent of highlighting the discursive 'moves' and the semiotic modes through which students engage in this process. I have examined and re-examined data from classrooms that I worked closely in as a research assistant with Project ELMSA (English Learning through Math and Science Action Research), a federally-funded teacher development and endorsement program, which engaged teachers in the work of designing and analyzing their own integrated, community-centered, math, science, and language curricula. The students and teachers interacting in these classrooms represent a variety of ages, cultural groups,

languages spoken, and different kinds of communities, along with each unique classroom context and the relationships therein between participants and the work they do there creating a unique, dynamic setting for the negotiation of classroom discourse. I examined audio-visual data collected as a part of teachers' own action research projects and conducted detailed analyses of three 'moments of negotiation' in order to explore how students contributed to the co-construction of a negotiated classroom discourse.

Research Questions

The overarching question that this dissertation addresses is *"How do students transform classroom discourse?"* But in the process of answering that question, several others arose and came to be prominent aspects of this investigation. I have categorized them as they align with the different goals of my work:

- *Exploratory*: What linguistic and semiotic practices, verbal and nonverbal, do students use to negotiate a shared classroom discourse in order to mediate classroom activities and learning?
- *Critical*: How do participants' different roles in the classroom give them special affordances or limit the ways in which they contribute to this negotiation process?
- *Methodological*: How can we represent and better reveal student agency through alternative kinds of transcripts?
- *Aspirational*: How can teachers *and* their students be involved in collaborative classroom discourse research?

Defining Terms and Constructs

Student agency. The loaded term 'agency' has already come up countless times in this introductory chapter, and it deserves some clarification, as it won't be going away any time soon. All people, even students, exercise agency in their interactions with other people. We all make

decisions about how we receive and respond to others, exercising agency even in the decisions we may make about ignoring, refusing, or rejecting their attempts at communication.

The focus in this study was on the agency students exercise in classroom interactions, which is often hidden or implicit given the social arrangement of most classrooms. These interactions tend to be heavily teacher-directed, when things are seen as 'going well.' Student agency can be much more explicit, obviously, when students are directly acting against the teacher's wishes, but I argue that even when they appear to be doing exactly as the teacher has asked, they are still exercising agency.

Gibson defines 'conversational agency' as people's success at achieving their own personal goals through discussion with others (2000), and describes a discursive process by which people's flexibility, seizing on opportunities within the constraints of conversational conventions, and adjusting their use and objectives in conversation, might be seen to be the most 'agentic.' I think students exhibit this flexibility in myriad ways, exploiting the conventions of classroom discourse, utilizing multiple systems of communication, shifting their own and the teacher's objectives, and greatly influencing the meaning-making process in subverted ways that operate both above and below the more overtly-agentive teacher-dominated classroom 'script.'

Discursive authority. Related to agency, is the idea of discursive authority. If agency is the individual's purposeful contributions to the ongoing classroom discourse, their initiative, intentions, the actions they do or do not take, then their discursive authority is related to the way in which others react to or take up these discursive actions (or inactions). Someone with discursive authority is recognized by others in the interaction as someone whose actions are valid, important, worth noting, recognizing, engaging with. Discursive authority is defined here

as both the recognized right to be speaking/doing/acting, but also the right to evaluate and share knowledge with others.

Discourse *negotiation*. Operating within the larger institutional context of school and in the midst of classroom activities and school-based disciplines, teachers and students use verbal and nonverbal cues to send implicit and explicit messages to one another as they actively negotiate what constitute the meaningful communication practices in the classroom. Influenced by their own existing discourse practices, and the positioning of each in the classroom and in the work they are doing, participants give feedback in different ways to other participants about how things are to be done in these settings. These interactions establish the norms, expectations, and meaningful ways of using language for classroom communication, and they are used to develop a shared discourse to solve problems, accomplish things, and mediate learning in the context of the classroom.

I purposely use the term 'negotiation' for this process to draw attention to the complex back-and-forth nature of these interactions, the importance of power, the ways it is experienced and distributed differently among participants in this context, and the struggles and conflicts that sometimes arise in the process. The discourses that develop through these negotiations are heavily context-dependent, even volatile at times, with potentially new meanings and uses developing at the slightest change in situation: a new teacher, or a teacher who is acting differently, students who are tired, angry, excited, or feeling particularly empowered (or disempowered), a change in the subject matter or instructional practices, even the day of the week or the time of day the class meets! Certain conditions, however, such as the relative power structures in the classroom, or individuals' pre-existing discourse practices and beliefs may have a profound and continuing effect on the way that they give feedback about communication in the

classroom. Students and teachers are not only in negotiation with each other for different levels of continuity and change in the way meaning is constructed and communicated, but they are also, in many ways, negotiating with themselves.

Discourse negotiation is verbal and non-verbal. It is easy to see moments of discourse negotiation that happen through verbal language. When someone (usually the teacher) corrects the way a student says something or tells students to "raise your hand" or "wait your turn," they are attempting to set or reinforce rules about classroom discourse. They might also say things like "just shout out the answer!" or "go on…" to try and signal or encourage students to feel more free to express themselves within the classroom discourse. Likewise, when students say things like "real talk" (which they probably don't say anymore…) or shift into different registers to make certain meanings with one another or invite the teacher to participate in a discourse that may challenge institutionalized norms or ideas about how to communicate and relate to one another in the classroom, they are using language to attempt to negotiate a classroom discourse that allows room for 'alternative' meanings, viewpoints, and forms of expression.

We reinforce what we say through our bodies, as well, signaling our emotional state and underlying meaning through our faces without much conscious thought on the matter, and using our hands to point and gesture and convey relationships in the material (or metaphorical) world. The direction we orient ourselves, and the manner in which we do it (slowly, reluctantly turning to face the speaker or eagerly tracking their every move, for instance) says a lot about how we think the negotiations of meaning and discourse are going. Even a smile can be interpreted in a number of competing, contestable ways (just look at all the different smile emojis we use to cue our digital text-based communications!), ranging from warmth to hostility, depending on the surrounding interaction.

In addition to verbal language and gestures or body language, people use objects and artifacts to send or reinforce signals as well, both literally and metaphorically. Notes passed, classroom signage about discourse expectations, the presentation space in a classroom and how it is utilized and by whom…these are more obvious uses of the materials in the classroom to convey messages about classroom discourse. A book slammed on a desk, feet propped up on the back of a chair, or a pencil tapped can mean a lot in different classroom contexts as well.

Discourse negotiation can be explicit or implicit…and is usually both. When a student rolls his or her eyes, they are sending a message and reacting to what or how something has been said or done. Some might even call this message explicit, and take great offense, depending on their own histories and interpretations of this kind of body language. To others, this might be more implicit, or they may simply choose to ignore it, adding another layer to this complex process of negotiation whereby one's attempts to negotiate can also be accepted or rejected by omission by different participants in the classroom. Whether or not their feedback is heard, the eye-roller has contributed something to the classroom discourse, even if they did not say "I disapprove in some way," as might be expected in some classroom discourses, and chances are it will have some effect on the negotiation process as a whole, even if the participants do not seem to engage with it directly. In fact, many of the messages we send through our interactions seem to fall somewhere in between consciousness and sub-consciousness, which explains why we so often find it difficult to articulate what 'went wrong' when we misunderstand each other.

Another classic example is the form that some teachers use to give instructions to their students. A teacher (particularly a white, middle-class, Midwestern, female teacher such as myself) may phrase certain commands as questions, like "Can you guys *please* quiet down?" for

example, when the teacher really means for the students to quiet down and does not intend for this to be a question at all. Students with some familiarity in this particular classroom discourse might recognize this as an explicit command, an alternative, slightly softened form of the imperative, “Be quiet now!” for teachers who would prefer not to appear to be barking orders at their students for a variety of reasons (the obfuscation of authority, for example). Some students, however, may not yet be familiar with this usage and the underlying intention, or from prior experiences may expect actual commands to take a more direct tone from someone with the teacher’s level of authority. In order for the teacher to achieve her goal in this context (and assuming that students actually wish to obey their teacher), some negotiation must take place as students learn to recognize this new use of questions as commands or the teacher must learn to be more direct in her instructions in order to proceed. Usually, there is some combination of both as the classroom language practices continue to develop over time.

Discourse negotiation is, by nature, contentious. I’ve attempted to theorize this process in a way that simultaneously acknowledges the uneven distribution of power and the associated disparities of semiotic resources and tools made available to participants in these particular contexts, but also draws attention to the agency that all members of the classroom community have in negotiating a way of communicating and developing shared understandings in the classroom. I want to hold in tension the idea that students have agency within a system that seems, in many ways, to overwhelmingly try to undermine or restrict that agency. I refer to the discursive system in most classrooms as well as the larger educational system, and most systems at various levels in between. But in *every* interaction, there are overarching tendencies toward continuity with existing social structures and orientations, and there are opportunities for change. It would be tempting to view classroom discourse negotiation as teachers always trying to restrict

and control and students always trying to transform and change, but we know that the negotiation of classroom discourse is much more nuanced than that. In the words of one of the Jesuit priests, a lifelong urban educator who came from the community we were teaching in when I first began my career in education, "Of course we want empowered students fighting for social justice in our schools! But do we *really* want empowered students fighting for social justice *in our schools*?" [emphasis mine…and note that italicizing the different parts of the prepositional phrase yields several different interpretations as well!]. Being out of the classroom now, it's easy to say, "YES! ABSOLUTELY! YES TO ALL OF THIS!" But then I remember what it felt like to be positioned, like it or not, as an authority figure in these spaces by students, colleagues, and institutions alike, someone whose job it was to enforce rules I may or may not have even agreed with. But discourse can do that to you, too.

I have attempted to make my own biases quite clear with personal examples from my own teaching experiences while I continue to work to develop a framework that honors the realities of my own former students as they are the ones who motivated me to begin this work in the first place. The next step, one which I am unfortunately limited in my ability to do with the data I have already collected, will be developing methods for collecting and analyzing data that involve these student participants directly in the research process and the construction of their own understandings about these kinds of interactions, so that the agency and dignity I am attempting to bring to the forefront can be directly exercised through the work itself.

II. LITERATURE REVIEW

Overview

In *Discourse Analysis and the Study of Classroom Language and Literacy Events*, the authors point out that any examination of discourse relies on three sets of theories: 1) theories in the field about the nature of classroom language, 2) theories that guide the specific approach to analysis, and 3) theories embedded in the classroom event and held by the people involved (Bloome et al., 2004; Moses, 2012). This section focuses mostly on the first set of theories, how others have theorized and looked at the process of discourse negotiation and some of its prerequisite constructs. The second set of theories is addressed in Chapter 3, and the third set will emerge through the analysis that follows in subsequent chapters.

Process and rationale. I have attempted to unite existing lines of research on the language of school and establish a background of theory for understanding the process by which students and their teachers engage in a dynamic, ongoing, multi-level construction of classroom language practices. I have reviewed literature from a variety of disciplines that focus on literacy, language, and culture in educational settings. The focus of my initial literature search was on language variation in spoken classroom discourse in the United States, but was expanded to include social semiotics and sociolinguistic theories about human interaction in general as I realized that the people in my data, especially the students, were using things beyond verbal language as powerful discursive tools in order to make and negotiate meaning in the classroom.

Language in the Sociocultural Paradigm

The study of language has long been foundational in the sociocultural paradigm as one of the primary means through which we communicate and co-construct understandings about ourselves and our worlds through contact with others. Vygotsky claimed that ‘reasoning’

develops through activity mediated through signs and symbols in social contexts, and therefore relies on cultural practices and language as much as on individual cognitive processes (Vygotsky, 1934). He described the development of language practices and speech in children as mediational tools for their development of higher psychological processes resulting from historical, dialectical exchanges between the individual and society that allow children to be "both the subjects and the objects of their own behavior." The line between language and culture and learning is intentionally blurry within the sociocultural paradigm, since all three of these constructs are only realized in contextualized social practice, conceived of as a means and process of accomplishing something with others, not objects to be studied and decontextualized. Social constructivism, an epistemological stance also largely attributed to Vygotsky, which informs understandings about knowledge in the sociocultural paradigm, focuses on the learning that happens as groups of people co-construct artifacts with shared meanings. Whenever one is immersed in and engaging with others, group culture is developing, as is language and other ways of communicating and understanding the world together. One is both learning how to be the kind of group member one wants to be with these people, and deciding what makes another person a part of the group. In order to do so, they must learn what signs and symbols are meaningful in this culture, and how to use them. So it becomes nearly impossible to separate the signs and symbols from the cultural contexts in which they have significance.

Educational researchers working with this perspective have paid considerable attention to the language that teachers use in their classrooms and its effects on their students. Donato and McCormick (1994) state that "Sociocultural theory maintains that social interaction and cultural institutions, such as schools, classrooms, etc., have important roles to play in an individual's cognitive growth and development." In highlighting the importance of contextualized social

interaction in cognitive and social development (Vygotsky, 1978), researchers must acknowledge that learners' decisions to use or not use certain signs or symbols according to one set of cultural norms must be understood within the contexts in which these practices have emerged, as well as taking into account the kinds of power structures within which people find themselves in schools and classrooms (Bourdieu, 1991). Situated within a larger sociocultural and constructivist perspective on language and learning, several key ideas and areas of theory arise as particularly relevant: context, activity, language variation, discourse, and multimodality.

Classroom Contexts

Everything we do and make sense of happens within a particular social and material context. There is always a tension between continuing the practices and belief systems that have previously developed in these spaces, or challenging them and changing them to create something new together. Many sociocultural theories of learning and development focus a lot of attention on defining the context and its role in limiting what is possible, or at least expected**.** Power structures within school settings (Bourdieu, 1991) are institutionalized in many ways, but can also be contested by participants in their everyday interactions. Cultural contact and interaction between people in these spaces creates opportunities for examination of sociocultural beliefs and practices and necessitates the sometimes rapid development of new practices to reconcile some of the most important differences (Makihara & Schieffelin, 2007). The classroom setting can be conceived of as a "community of practice" (Lave & Wenger, 1991), in which people come together and necessarily develop a shared way of being and doing (a "working consensus" according to Bloome, et al. (2004)) in order to accomplish something. They may come together with different levels of authority (teachers and students), different linguistic and semiotic resources ('academic' and disciplinary ways of demonstrating knowledge along with

other ways of knowing and doing), opposing interests and purposes, or with contentious values and ideas about all of it. In spite of all of this, these shared practices can become somehow stable and consistent enough that they become powerful tools for determining who gets to be included as a member of these 'communities,' i.e. who uses its practices in the right way at the right time and for the right reasons. Many things at multiple, intersecting levels inform the definition of what is 'right' in this sense, and the classroom is no exception. The majority of participants are required by law to be there and authority is often institutionally vested in one or two people who may seem to have little in common with the rest of the group. Textbooks, standardized assessments, curricula, and institutional ideas about the purpose of school each exert some distal pressure on what it means to be in and do school. Administrators, teachers, students, and parents interact to make sense of these broader understandings in their everyday practices.

What does this mean then if we try to conceptualize classrooms as "speech communities" (Gumperz & Hymes, 1972) where certain language practices, their particular meanings, and contextualized uses develop and are shared by the participants as they communicate and make sense of shared experiences? Why, then, do so many people report feeling alienated by the languages and practices in school if they are helping to co-construct them? Rather than understanding context as a community, with a stable set of constraints and shared practices, or as an institutional setting that restricts what is possible, schools and, particularly classrooms may function more like intersections of people's histories, cultures, practices, and beliefs (Leander, et al., 2010). Understanding the process by which these ideas and practices converge through interaction in the classroom and produce new ways of communicating and doing and being things within this special space can help us rethink our views on school, its purposes, and its potential.

Activity in Classrooms

With this understanding of context, it is important then to consider what is bringing people together in these "intersections," what they are trying to accomplish, in order to fully understand why they are interacting and how their activities necessarily shape and are shaped by their interactions and other influences.

Cultural-historical activity theory (CHAT). With classical German philosophical roots, and ideas taken from the writings of Marx and Engels, Vygotsky (as interpreted by 'Western' translators and editors several decades after his death) claimed that learning cannot be studied as the isolated, individual capacities of a child, but by the emergence of abilities that are revealed in collaboration and interaction with others engaged in social activity (Vygotsky, 1978). It was through this book, and the resulting scholarship surrounding these ideas that Vygotsky came to be taken up as the founder of cultural-historical research and sociocultural theory, although many others who worked with him such as Aleksei N. Leont'ev and Alexander Luria, or after him, like James Wertsch, have contributed greatly to the refinement of these theories.

Engestrom (1999) describes how the rapid expansion of CHAT (also referred to as activity theory) into other disciplines has introduced the international community to a new type of multivoiced theory that reflects the richness and mobility of human action at both the individual and societal levels. Engestrom introduces several activity triangles to represent human activity, wherein the self is the subject, the objects are who or what one wishes to know, understand, or influence, the "mediating artifacts" are tools used to interact with the object and other subjects, and the outcome is the result of the interaction. He then concluded with an iterative cycle of internalization and externalization of activities and ideas that gain momentum as they are learned, critiqued, refined, and relearned. He has applied CHAT to the development

of activity theory itself, and it is worth noting that since 1999, CHAT has continued to expand (and so have the triangles) and include aspects of other theories in its modeling of activity systems, just as Engestrom predicted.

Language as a mediational tool. Cultural-historical activity theory helps us theorize the different features of interaction that influence classroom communication for different activities and purposes (Roth & Lee, 2007). CHAT also includes language as one of the many tools that we have at our disposal for accomplishing our goals in social contexts. Acknowledging that teachers and students may be engaged in different activity systems simultaneously, sometimes even working against each others' aims, and that their roles and ways of making meaning in and through these systems can be embedded, competing, and/or overlapping, we can begin to look at the different language decisions individuals in classrooms might make, and how these might help them achieve their goals within the social practices and activities of school.

We can also examine the ways that the different activity systems at work in the classroom can influence each other, in particular how figuring out the 'ways of interacting in *this* classroom while doing *this*' becomes an emergent language-mediated activity system itself as individuals attempt to communicate in ways that are meaningful for themselves and the larger classroom community.

Below, I have shown how this might be modeled in CHAT, with one activity system directed toward developing classroom language practices as its outcome, which then feeds into another activity system where classroom language practices function as mediational tools. You can see that while this model is certainly capable of representing some of the complexities of this process, it seems unwieldy, and if we extend the theory out to acknowledge that many other aspects of the activity system are products of other embedded activity systems, we could

probably do this indefinitely. For now, I have focused on what is happening in classrooms as subjects (students and teachers) act on the classroom communication practices and each other to arrive at shared understandings and contextualized ways of engaging with one another (the results of the activity triangle on the left in *Figure 2* below). The outcomes of this activity system, then, become tools as students and teachers engage in subsequent classroom activities.

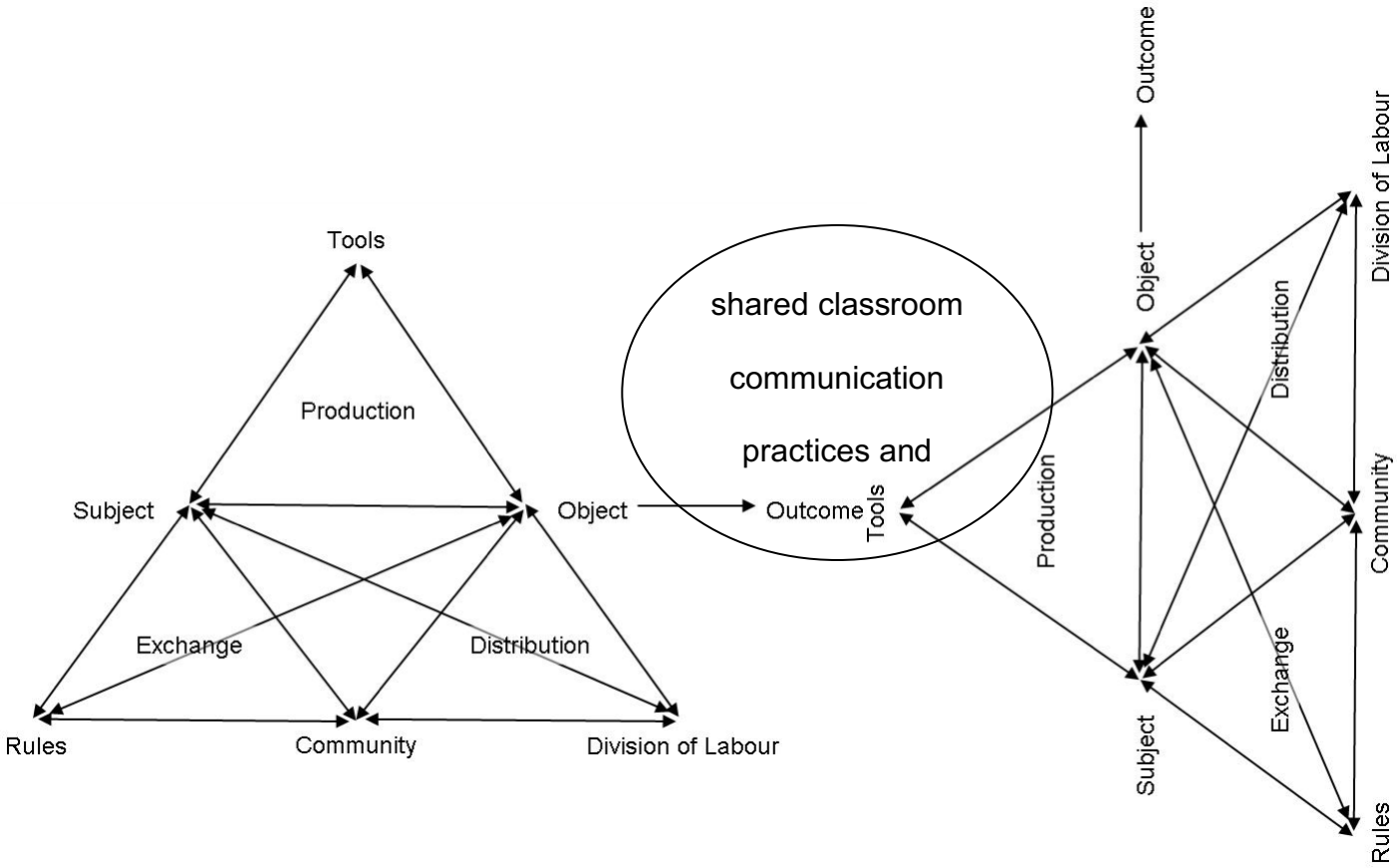

Figure 2. Connected activity systems.

Making meaning. It seems that one of the most important classroom activities people engage in, then, is constructing knowledge and making meaning. There are many ways that people make sense of things when they come together and interact in classroom spaces. Students and teachers can use language, gestures, physical movement and orientation, and interactions with other objects (and ideas) to position themselves and others in relation to both the immediate

activity, and within larger contexts and ideologies. The term ‘meaning-making,’ arises out of the constructivist paradigm in educational psychology and also greatly informs the work of those taking a sociocultural perspective on learning. Neil Postman and Charles Weingartner, in their book *Teaching as a Subversive Activity* (1969) explained their preferred use of the term “…to most of the metaphors of the mind that are operative in the schools. It is, to begin with, much less static than the others. It stresses a process view of minding, including the fact that ‘minding’ is undergoing constant change.” They also assert that naming things and talking about them, a process they call ‘languaging,’ is one of the fundamental ways that humans make meaning. Meaning-making emphasizes the constructed nature of knowledge, and the active and dynamic nature of learning as people encounter new experiences and attempt to integrate them with their existing ideas about how the world works.

Language in Classrooms

Much work has been done to try and make sense of the experiences of students who use non-standard variations of English or whose discourse practices may not align closely with the practices valued by their schools or teachers (Brown, 2006; Hudley & Mallinson, 2011). The concepts of standard and non-standard language are increasingly viewed as examples of ideology rather than linguistic fact (Woolard, 1998), and the false dichotomies that exist between “slang” or dialects and “proper” Languages are being questioned since most people, no matter what discourse communities they may have experiences in or identify with, employ a wide range of language variation to achieve their communication goals. Rosina Lippi-Green describes this ideology of standard language as "a bias toward an abstract, idealized homogeneous language, which is imposed and maintained by dominant institutions and which has as its model the written language, but which is drawn primarily from the spoken language of the upper middle class."

Both in describing languages as non-standard, or assuming that there even is such a thing as a group of people whose language use remains internally consistent, standard language ideologies are revealed as inconsistent with actual observed language-in-use (Lippi-Green, 1997).

Research on language variation has thus evolved in recent years from the legitimization of dialects and other cultural language practices that have been historically devalued or marginalized as "non-standard," (Labov, 1972) to an examination and analysis of the metadiscursivity that all speakers learn and engage in when they make decisions to express themselves differently in different contexts depending on their goals and audience (Gee, 2012; Morales, 2012). We see the importance of positioning and language ideologies in these "code-switching" events as speakers weigh the pros and cons of solidarity versus status, but we also see how even the concept of a self-contained "code" or closed set of signs and symbols to switch between can break down upon closer examination or attempts to "translate" between them.

Stanton Wortham, in his explanation of the field of linguistic anthropology of education discusses the field's commitment to studying "emergent patterns of identity formation that are created (partly through language use) in particular contexts, instead of presupposing stable social groups and individual identities that are merely presupposed by speech" (Wortham, no date). He is specifically referring to the labeling and classification of dialects, cultural practices, and their associated cultural identities as problematic (a legacy of formal linguistics and anthropology). Linguistic anthropologists such as Alessandro Duranti (1997) and Michael Silverstein (1976) have demonstrated that language use is only one mediational tool that people use to build-up and tear-down identities through their language ideologies and positioning, and that we often use these tools to index any number of dynamic, shifting identities as we interact with others.

ESL, ELLs, and bilingualism in schools. Research on the experiences and trajectories of students whose first languages are not English has shown that these students are especially vulnerable to deficit or essentializing beliefs about language and culture as they work to understand and use the language of school to learn and demonstrate knowledge of content in unfamiliar ways (Gutiérrez, 2002; Short & Fitzsimmons, 2007). Similar to studies that address the mis-match of discourse practices between "non-standard" speakers and school, the literature on language learners has largely examined the ways in which K-12 schools are failing to meet the needs of these students, whose individual cultural backgrounds, learning histories, and language experiences vary widely, making the simplistic and overly-generalized designation and grouping of ELLs (English language learners) problematic. Some attention has recently been given to the criticism that assessment, classification, and instructional strategies for ELLs rely on a confused dichotomy that distinguishes between those who are proficient with English and those who are not through a number of inconsistent measures (Abedi, 2008). Further, the designation of students in ESL (English as a second language) or bilingual programs assumes again that languages are Languages, translatable codes that are internally consistent enough to be able to classify and number them (as in the terms monolingual, bilingual, trilingual, etc.), and to make them objects of instruction instead of one of the mediational tools through which learning and activity happens.

Many studies of bilingualism and language learning, while most definitely falling under the broad category of "educational linguistics" (Hornberger, 2000) do not draw from the core theoretical insights briefly described above or the methods employed by linguistic anthropologists to investigate these theories. Those who study language in use, not linguistic structure by itself, are interested in how the structure of language is used in communicative

practice and tend to view all participants as social actors, engaging in discourse, not as "repositories of linguistic competence" (Wortham, no date) who only engage in interaction when they have arbitrarily reached some kind of proficiency level in a static, standardized discourse.

From multilingualism to plurilingualism and "languaging." Originating in the field of second language acquisition (SLA) and in the study of international multilinguistic communities, an emerging area of theoretical work seeks to reframe the way we view the phenomenon of multilingualism, or "code-switching," moving away from the imagined constructs of individual, compartmentalized languages and discourses that reside separately and disembodied in the brain (Pennycook, 2010), waiting for the "right" context to be accessed and used, provided the speaker has attained a certain level of mastery for use. Sites of (like schools!) often necessarily promote rapid construction of new discourse practices, drawing from the existing language practices and ideologies of different groups to develop shared communicative norms (Makihara & Schieffelin, 2007). Traditional linguists have studied this for some time as the process of "creolization" or the emergence of pidgins, hybrid languages that arise out of social necessity when two groups are forced to interact. Historically, this was seen as a blending of discourse practices and cultures, with rules related to the aspects of what is taken up depending on the dominance of one group over another, as in colonization. While still acknowledging that power and authority play a key role in what emerges as new shared discourses out of interactions between individuals and groups who perceive each other as different in some way, more attention is being paid to the way that individuals understand and use language in these contexts in creative and transformative ways, when it becomes necessary to directly address ideologies and negotiate and reflect on discourse practices in order to avoid misunderstandings (Makihara & Schieffelin, 2007).

The related concept of 'plurilingualism' offers us a view of language as a dynamic, emergent process whereby individuals are always learning language and always building and refining their integrated language practices (Canagarajah & Wurr, 2011). This view moves us from a monoglossic orientation, whereby languages are separate and therefore have the potential to interfere and compete with one another, toward a heteroglossic perspective, viewing languages as integrated and dependent on one another (García & Beardsmore, 2008). One is never truly *mono*lingual, or *bi*lingual, or *tri*lingual, and there are no clear lines between one language, dialects of that language, or another language altogether as the speaker continuously adopts and adjusts their language practices to meet the needs of a given social action (Canagarajah & Wurr, 2011). This metaphor can presumably be extended to different modes of meaning-making as well, including gestures, interactions with objects, and movement. Instead of being separate systems of 'code' located in the brain, that are accessed and shifted between in different contexts (this also relies on a static and limited understanding of context), our full repertoire of linguistic and semiotic practices are all part of an integrated system of human communication that develops through interaction, along with the rules people hold about who, what, where, when, why, and how to use them.

We can conceive of this as a process of 'languaging' (García & Beardsmore, 2008) where the "-ing" focuses one on the continuous nature of the process, or 'translingualism' (Canagarajah, 2013), which draws attention to the ways people move *through* (trans) a continuum of language practices at their disposal. These shifts can powerfully change our way of thinking about language and other semiotic processes and offer new possibilities for understanding learning and discourse in the classroom, allowing us to move through, across, and beyond the neat and insufficient language or modal categories that have ultimately limited our

views of students, teachers, and their social selves in the context of school. Whatever the prefix or terminology, the implications for understanding human language and meaning-making as a continuously-evolving, co-constructed, dialogic, mediational tool that does not separate out into an English box, or a Spanish box, or a Mandarin box (or math or hand gesture boxes, either) in functional use are important for connecting the existing research on language and school.

Discourse

The languages, cultural symbols and meanings, underlying assumptions, and power structures that a group of people develop together and share as they interact and engage in activity together have all come to be regarded as aspects of discourse, either directly observable or part of what directs or results from discourse. Discourse theory attempts to offer some explanation about the connections between human communication, social organization, and the world, insisting that all of these things develop through interactions between people.

Discourse theory. The French philosopher Michel Foucault, often credited as the father of discourse theory, theorized certain "regimes of truth" (Potter, 2005) in medicine, psychology, and the social sciences (Foucault, 2005/1970). He was attempting to understand the rules by which certain people and groups develop ideas that then become established and accepted as unquestioned assumptions about how the world works, either among small specialized groups or in larger society. He observed in his later work that some dominant discourses can influence not only the way people think and speak, but also the way people act, prompting some to govern themselves in certain ways related to discipline and punishment, even when it does not seem to be in their own individual interests (Foucault, 1971; 1980). Discourse theory, then, at its roots, provides one way of understanding power and the politics of social interaction and knowledge construction as a kind of activity that people do to each other and themselves.

James Paul Gee provided a new generation of language-minded educational researchers with a renewed interpretation of discourse and discourse analysis that incorporated the ideas of situated language and the social construction of meaning within communities of practice (Gee, 1999). Gee discusses two kinds of discourse, little d discourse and big D Discourse. Discourse (big D) is the term he uses to talk about the language along with other social practices (behavior, values, ways of thinking, clothes, food, customs, and perspectives) used by a group of people, or a 'Discourse community,' whereas discourse (little d) refers to language-in-use, the process of language, not some decontextualized description of it. Gee combined Hymes' idea of 'speech communities' with Lave and Wenger's idea of 'communities of practice' to unite these two in the concept of 'discourse communities' (Gee, 1999/2014). These are the spaces where Discourses are co-constructed and employed for different social purposes by people engaged in discourse (little d) in order to achieve some kind of social action. He discusses the unequal distribution of power across and between Discourse communities, and how being a member of some Discourse communities (and thereby being familiar with their Discourse practices) can be an advantage or disadvantage for moving into other communities depending on how similar the two are or how one privileges the Discourse of another.

John Swales, working on what he referred to as 'genre analysis' of academic language, used the term 'discourse community' to refer to "groups that have goals or purposes, and use communication to achieve these goals" (Swales, 1990), refocusing this type of analysis on the intention behind the discourse. Gee also sees language as intentional, insisting that it is never used 'neutrally' but always for some purpose or to convey something about the user and their relationship with the audience (Gee, 2012).

Discourse, then, is defined in a number of different ways, even by researchers working

within the same sociocultural paradigm, and even among those who focus primarily on educational discourse. In this study, I include all the meaningful signs, language, behaviors, values, and knowledge assumptions that are developed and shared through interaction within sociocultural contexts as potential features of an emerging, dynamic classroom discourse. This emerging discourse might include gestures, facial expressions, and tone of voice, as well as the actual words that are being spoken (or not being spoken) and their particular meanings, intended interpretations, and the messages they convey to other members of the group. Even objects and artifacts can be taken up as part of a classroom discourse practice. I use the term 'discourse' to refer to the contextualized communication practices (language and everything else!) and the underlying beliefs about those practices of a group of people who necessarily must find ways to work together.

Beliefs about discourse. Language ideologies are sets of beliefs or feelings about language use that are held by people and connected to the values and interests of larger social and cultural systems. Linguistic anthropologists seek to identify and explore these beliefs and to understand how they relate to people's social experiences and aims. While some researchers have conceived of language ideologies as sociocultural ideas and objectives about language held by the group, arising out of the particular social and political interests of the group (Heath, 1977; Irvine, 1989), Michael Silverstein, in an attempt to better define language ideologies for study, emphasized the speaker's ability to articulate their beliefs about language and the effects of these beliefs on their own language structure and use (Silverstein, 1979). Silverstein's view of language ideologies gives them a direct role in shaping and influencing language both formally and functionally, as people's language ideologies mediate and regulate variation in language use

that does not fit with their beliefs about it or the beliefs of the social group they are attempting to be a part of.

Repair and language ideologies. The study of repair is closely related to the study of language ideologies, wherein researchers look for instances of language correction or self-correction and attempt to understand the underlying language ideologies that motivated the correction. Those who ascribe to Silverstein's interpretation might ask people to reflect on why they made the correction in order to further reveal their beliefs about language, but this is not an isolated process located in the individual, as language ideologies develop and spread through social systems.

Work that attempts to reveal and analyze the language ideologies that teachers and students bring with them to classroom interactions or develop as a result of their immersion in school environments has helped researchers and educators engage in important critical reflection on school-based language beliefs and practices and the messages, both implicit and explicit, that are received by students about language and identity in the school setting (Gee, 2012; Razfar & Rumenapp, 2011; Razfar, et al., 2015). While Schieffelin and Ochs (1986) made their beliefs clear about the language socialization of children through 'language-mediated interaction' with adults and older peers, thus acquiring a world view through the sociocultural meanings and structures of language (Labov, 1972), few studies have closely examined the school language ideologies of students, and the ways that these may influence the discourse negotiation process in classrooms, as students' beliefs about the social implication of different kinds of language use interact with their teachers' beliefs.

Demonstrating knowledge. Within the sociocultural paradigm, language is seen as the main mediational tool available in human interaction, and is key for both developing

understanding and also sharing it (Vygotsky, 1978). In different spaces, knowledge develops and is demonstrated in different ways through the learned discourse of each community. Being able to demonstrate knowledge and be recognized as 'knowledgeable' within a given context is one form of positioning. Crawford shows how this happens in different ways for students in a science classroom through demonstrations using material objects and through different kinds of language (Crawford, 2005). In any classroom, certain ways of being and demonstrating knowledge arise as more valid than others, often controlled in large part by the teacher, but also accepted or rejected by other students. This is also influenced by the affordances of certain materials and language made available (or not) to students for explaining or sharing their ideas. By claiming discursive authority, defined here as both the right to speak, but also the right to evaluate and share knowledge with others, students are shaping the discursive norms of the classroom community.

Positioning. Positioning theory emphasizes the contextualized nature of our physical, social, political, historical, and relational positions, constructed in our moment-by-moment interactions with others. Positioning theory attempts to explain the connection between group and individual thinking, building on Foucault's conception of discourse that distinguishes the 'I' from the 'other' (Foucault, 1971; 1980), and relying on discourse as a mediational tool for carrying out these social actions. Positioning theory replaces the analytical concept of a person's 'role' in any given social situation, a static categorical relationship, with that of their 'position,' (or their 'positioning' if we really want to emphasize it as an ongoing process!) which carries with it a more dynamic, spatial-temporal, contestable notion of relationships as they are experienced and enacted by participants through discourse. Harré defines a 'position' as a "cluster of short-term disputable rights, obligations and duties" (2012). A 'role,' for instance, might be something like 'parent,' something we may consider to be relatively stable and we

might associate that role with certain kinds of authority or expertise in caretaking. Whereas, in a given interaction a particular parent, or sometimes, whole groups of parents and their collective knowledge, might be positioned discursively as novices in caring or understanding their own children by school personnel and/or larger discourses that involve deficit views about certain communities and the way they 'do parenting.'

We position ourselves through discursive actions that communicate information about us in relation to our assumed audiences, just as we attempt to position others, and are at the same time positioned by others who are also positioning themselves any time we interact. We bring our own unique histories as positioners and positioned to each interaction, and may choose to accept or reject a certain positioning for a variety of reasons, both explicitly and implicitly. Positioning theory is "…based on the principle that not everyone involved in a social episode has equal access to rights and duties to perform particular kinds of meaningful actions at that moment and with those people" (Harré, 2012). This is certainly the case in the classroom, where teachers and students are on some level pre-positioned by the institutions they interact through and can choose to accept or reject this positioning through various discursive maneuvers according to their goals and the identities they wish to construct (Rumenapp, 2013).

Positioning can be added into the activity system, and indeed, in second-generation activity triangles it shows up as 'rules' and 'division of labor/roles' (Roth & Lee, 2007) which draw attention to the power structures and the limits or affordances placed on one's participation in the activity system that contribute to their positioning in the classroom. It is important to always view these aspects as developing, though, and to remember that the use of 'role' in many ways does not fully acknowledge the role that discourse plays in the interactive positioning of participants.

Role shifts as positioning in process. In an attempt to better understand the dialogic nature of human relationships through interactions, specifically on the negotiation and distribution of rights and duties, the related concept of role shifts from the field of social psychology and conversation analysis can help us analyze students' maneuvers to claim discursive authority in the classroom as attempts to reposition themselves within the classroom discourse (Davies & Harré, 1982; Harré, Moghaddam, Carinie, Rothbart, & Sabat, 2009). In the context of the classroom, pre-existing social relations such as teacher and student along with the assumed authority, roles, and duties of each in comparison with the other makes it significant within the context when a student attempts to 'role shift' and take up any of the behaviors or authority of the teacher.

Using positioning theory (Davies & Harré, 1982) as a lens for studying classroom discourse has shed light on some of the social dynamics of teacher-student interactions that can help us to better understand why students may engage or disengage with the learning opportunities and social identities offered in the classroom (Wortham, 2005; Bucholtz & Hall, 2005), but it also has the potential to highlight the creative ways that students and teachers may use positioning to resist and transform them, or take up their own novel positions!

Discourse Beyond Language

Embodiment and multimodality. There is a growing emphasis in literacy research, not dissimilar from other trends in the social sciences, towards an appreciation of the 'embodiment' of human understanding and experience. Lakoff & Johnson (1999) are probably the most famous in the language and literacy world for their connections between the body and metaphors, philosophy, and the political discourses that we use to make sense of these embodied, lived experiences of the world. According to Overton (2008), "embodiment references not merely

physical structures, but the body as a form of lived experience, actively engaged in and with the world of sociocultural and physical objects" (p. 3). Out of this movement to understand the ways we make meaning not only through words and code but also through our very physical relationships with each other and the world, we see an emerging emphasis on investigating the system of overlapping and reinforcing mediational modes (Kress, 2009) that we use in social interactions. In addition to language, the growing interest in 'multimodality' draws our attention to textual, aural, spatial, and visual semiotic resources - or modes - used to compose messages (Jewitt, 2009).

Discussion

Much of the work on classroom discourse has focused on the language ideologies and discourse practices of the teacher or school institution as the subject and the effects of these practices on the students as objects in the classroom activity system, often in settings where there is a mis-match between student home culture and language and the discourse practices valued in school or by the teacher. Even studies of *student* discourse tend to frame student practices as somehow conflicting with the discourse of school, not also influencing it or engaging in a dialogic construction of classroom practice, but using student discourses as ways to understand the student as an 'Other' in the classroom. Moreover, much of the literature treats student discourse practices as static instead of the dynamic discourses that they are as students interact with and within the intersections of the school environment. Often times, with even the best intentions, these perspectives on classroom discourse materialize in educational practice as deficit views of students, as teachers come to view their students' language and semiotic practices as something to be studied, remediated, accommodated, or overcome by changes in the teacher's practices (or by intense struggle on the part of the student). This tendency to downplay

student agency, I believe, is the biggest obstacle to a thorough understanding of classroom discourse, and more importantly, an honest and open understanding of teaching and learning.

It makes sense that these teacher-centered views on discourse dominate the literature, since teachers are often the target audience for educational research and they are sometimes considered one of the few things we can attempt to control in our loosely-coupled classrooms and schools (a feature of teacher professional development that I find particularly amusing). And I do believe they come out of a genuine concern for understanding student perspectives and experiences and how to best acknowledge, affirm, validate, and meet the needs of students from diverse communities and backgrounds! But by positioning students as passive participants and their discourse practices as fixed, we ignore their agency and ability to actively participate in classroom discourse, transforming it in the process, and in so doing, transforming their teachers, their schools, and even themselves.

Moving towards a plurilingual dialogic theory of discourse negotiation in the classroom, and viewing the processes, tools, and activity systems present in each context allows us to move beyond simply categorizing students as ELLs, 'non-standard' dialect speakers, or users of 'out-of-school' literacy practices, with prescriptive and hegemonic language and cultural ideologies that arise when treating language and/or culture as an obstacle or object of learning. Instead, examining the kinds of decisions students and teachers both make as they engage in the dynamic process of 'languaging' or, to extend the metaphor beyond language, meaning-making, to mediate learning in the classroom could have important implications in how we prepare teachers to engage with their students in meaningful discourse-mediated learning. This perspective on classroom discourse, since it is not anchored in the discourse practices of one particular group, could be used to examine the discourse that develops in any classroom or social setting.

Multimodal discourse negotiation. Discourse theory formally unites the signs, symbols, behaviors, languages, cultures, and even the underlying knowledge assumptions, values, and power structures that a group of people develop together and share as they interact. Along with the traditional considerations of verbal language, I intend to expand this to include the other modes by which we express ourselves and make meaning in social interaction All of these things have come to be regarded as aspects of 'discourse,' either directly observable or part of what directs or results from discourse. Donato and McCormick (1994), writing about the implications of a sociocultural perspective on language-learning, believed that "…this perspective goes beyond current cognitive and social psychological conceptions of strategic language learning, both of which assume that language tasks and contexts are generalizable. The sociocultural perspective, on the other hand, views language learning tasks and contexts as situated activities that are continually under development and that are influential upon individuals' strategic orientations to classroom learning." In this statement, we see traces of CHAT (situated activities), positioning (strategic orientations), and aspects of Canagarajah's multilingualism (language and language practices as continually under development in use) in the way the authors describe language-learning from a sociocultural perspective. I apply all of these perspectives to a process I call clumsily call multimodal discourse negotiation. I choose the word 'negotiation' because this process necessarily involves certain struggles for power and authority in any context along with the inherent balancing of all these different aspects of discourse practice.

Discourse negotiation is the dialogic process that individuals engage in as they both enact and resist dominant discourses with the ability to transform and construct agreed-upon discourse practices as a group in different contexts for different purposes. This is integral to the distribution

of knowledge and meaning in these contexts and also part of the larger process of challenging and resisting institutional injustices. This process does not happen first, second, or last, nor is it ever complete, but it happens simultaneously along with other activities of enactment and resistance in the school context, so that other events and policies inform and change the way the process unfolds.

III. RESEARCH DESIGN AND METHODS

Theoretical Frameworks and Methodologies

This dissertation explores unique interactions in ever-changing contexts. Rather than looking for generalizable discourse practices or strategies in these interactions, I have begun to develop a framework for more closely investigating individuals' contributions to the process of discourse negotiation that all participants in the classroom are engaged in. Without depicting the practices themselves as pre-determined or static, I show the ways in which discourse is negotiated by people who are positioned differently in terms of their relative power and discursive authority, something that can fluctuate radically in moment-to-moment interactions. Conceiving of discourse as a tool that must be continuously re-calibrated, including my own ways of making sense of these interactions, it is also important to me to explore how these discourse practices and the interactions in which they take shape are understood and reshaped by the participants themselves through their own discourse analysis. To that end, I have included some of the analyses and interpretations that have come from the teacher participants, as well.

The following sections briefly describe the major frameworks and methodologies I have drawn from in order to understand and analyze these interactions through a hybridized method I'm referring to as 'critical multimodal discourse analysis.'

Social semiotics. If semiotics is the study of signs, then social semiotics focuses on the way we use and construct those signs through interaction with one another. It takes meaning-making to be an inherently social process, focusing more on the variable, moment-to-moment semiotic practices Saussure referred to as *parole* than the slow-moving, more stable sign systems he referred to as *langue*. Instead of trying to theorize the underlying structures or systems of signs, they set out to explore the social processes which form them. Social semioticians pay

special attention to shifting power relations and the effect they have on language and other systems of meaning-making. These systems in turn shape individuals and societies…and everything in between (Hodge & Kress, 1988). This is the approach I have taken in studying classroom discourse negotiation -- not as a stable, static practice that can be described monolithically as being essentially any one set of things, but as a process of figuring out how to make new meaning together in an instant, in order to get things done in school.

What draws me especially to semiotics is the way it unifies and integrates multiple modes (visual, verbal, aural, tactile, spatial, temporal…virtual, even!) for interacting and making sense of each other, the world, and our place(s) in it (Thibault, 1991). One of the first things I realized while looking preliminarily at some of the classroom data I have and trying to figure out how classroom discourse is constructed within a particular moment, is that there are so many powerful things happening beyond what can be transcribed as language. There are posters on walls, images and texts being projected on boards that can be pointed to, written on, and erased, objects such as the teacher's chair that hold mystical powers of authority when wielded properly, not to mention all the meaningful gestures and para-linguistic features of interaction that are hard to capture through traditional verbal transcription. Remarkably, all these different systems are often used together (somewhat coherently, even) by teachers and students alike to make multimodal meaning (Kress & van Leeuwen, 2001), often without much conscious effort. This parallels the increasingly popular ideas about 'languaging' (discussed in the previous chapter), whereby none of these systems is separate from any of the others, but all emerge and become unified as part of a larger repertoire of things people do to make meaning in social interaction.

Linguistic anthropology. I am also positioning myself as a linguistic anthropologist, since I have examined the ways that language and other semiotic processes shape and are shaped

by people in sociocultural-historical contexts through a close examination of interactions *in situ* (Wortham, no date). While this dissertation is limited in its examination of three unrelated 'moments' of discourse negotiation from three different classrooms, I have still related face-to-face interactions to larger scale social interactions without losing sight of the situated nature and possibilities that these small scale "speech events" (Hymes, 1972) have to transform social relationships **(**Duranti, 1997). The treatment of each 'moment,' could be considered a kind of micro-ethnography (Streeck & Mehus, 2005), drawing on methods from conversation analysis, interaction analysis, and sociolinguistics, as I have provided rich descriptions and re-presentations of these interactions with special attention to the students, what they are saying, doing, interacting with, and responding to as they transform the semiotic system of the classroom.

Interactional sociolinguistics. I have also drawn heavily from overlapping and extended ideas in the field of interactional sociolinguistics (IS). According to Jaspers (2012), one of the foundational ideas in IS is that, "when people talk, they are unable to say explicitly enough everything they mean." Thus, we must rely on extracommunicative knowledge and features, which Gumperz calls 'contextualization cues' (1982), in order to figure out how what people say relates to the situation at hand and what people *really mean* by it. IS attempts to describe how people index other ideas and contexts through communication, sometime explicitly, but more often implicitly, and how others come to take up these meanings in subsequent interaction. IS views everyone in an interaction as social actors, navigating and interpreting and contributing their own cues that subsequently shape every interaction and context. It also acknowledges that the process of figuring out what others mean based on their cues is inextricably related to larger

values, beliefs about language and identity, and unequal power and rewards in the social world (Jaspers, 2012).

Critical multimodal discourse analysis. Originating in a more formal study of language at the sentence level, 'discourse analysis' seeks to understand the connection between form, function, and different layers of meaning. Sociolinguists interested in studying human interaction and communicative practice have applied discourse analysis more broadly, often referring to these methods as 'conversation analysis' (Rawls, 2004) or interaction analysis. Bridging the gap between formal linguistics and the social theories of Foucault which deal with power, authority, and the disciplinary power of language, *critical* discourse analysis attempts to examine power relationships as they are expressed through language and activity. It considers three inter-related levels of discourse analysis: [micro-] analysis of (spoken or written) language texts, [meso-] analysis of discourse practice (processes of text production, distribution and consumption) and [macro-] analysis of discursive events as *instances* of sociocultural practice (Fairclough, 1995, p. 2; 2001; Rymes, 2015). I have adapted this kind of analysis to include multimodal 'texts' and text production, in the sense that these are also part of discourse and can convey equally meaningful (sometimes even *more* meaningful) power relationships in the classroom.

Research Design and Setting

This study involved multimodal discourse analysis of three 'moments' of discourse negotiation and transformation from three different classrooms which I worked closely in for the length of a school year, along with triangulation with my own field notes, participant data from interviews, participant field notes, and action research reports to better understand the ongoing negotiation of discourse practices and beliefs in each classroom setting. Each classroom over the course of the school year represented a unique and dynamic context for discourse negotiation,

and has been treated as an individual case. I have also situated these moments in relation to the broader social organization of each classroom based on the discourse analysis that teacher participants conducted as part of their action research.

My intent was not just to provide rich descriptions of the discourse practices of one cultural group or another in the classroom and hold them in conflict with an equally-static view of what counts as 'school-based' discourse practices. While these descriptions are useful for understanding and appreciating the diversity of human language and the deeply-meaningful, sometimes painful experiences of our students, they don't necessarily capture the uniqueness and constructive nature of *every* interaction as it is situated in social practice between people. On the other hand, I did not wish simply to describe the practices that develop in classrooms as the products of a single shared 'classroom culture,' downplaying the very real conflicts and struggles that often characterize these settings.

Instead, I set out to better understand what happens when discourse practices (and all the beliefs, values, relationships, and histories they represent) collide in these spaces and what people do in and through these collisions, when people propose or ratify or reject new ways of doing and being and making meaning in classrooms. These plurilingual and multimodal processes of discourse negotiation occurred continuously in these settings and continued to occur after the researcher stepped away to code and analyze and attempt to decisively declare what meanings were constructed in each particular classroom in each particular moment.

Procedures

Project ELMSA. The data used in this dissertation was gathered as part of Project ELMSA (English Learning through Math and Science Action Research), a federally-funded teacher development program that sought to engage teachers of language learners in community-

centered integrated curriculum development and action research (Razfar, 2011b). In-service teachers took coursework to earn their ESL/Bilingual teaching endorsements with the state of Illinois and worked toward a Master's in Education, culminating with a year-long action research project in their own classrooms. They were organized into cohorts by school, and assigned a graduate student research assistant who met with them regularly and worked with them during the action research project collecting data and facilitating collaboration and reflection throughout the process (and often, in other capacities as instructors, informal academic advisors, mentors, and friends). Teachers worked together through the year to plan three 'activity units,' centered around a social question or problem that was meaningful to their students, and bringing in math, science, and language skills, to answer or solve that problem.

One of the goals of the project was to get teachers, as 'teacher-researchers,' to pay more attention to classroom discourse themselves, and to seek out and design for certain shifts or changes in the language practices of their classroom. As they attempted to implement what they'd been learning about in their coursework and document the results, teachers often felt compelled to strive for more open dialogue, and to encourage role shifts and participation shifts that positioned students as the experts. Many of them also expressed a desire to develop classrooms which honored students' home cultures and languages and acknowledged their students' funds of knowledge and meaning-making practices (Razfar, et al., 2015). I began by re-examining classroom videos and information gathered from these teachers through interviews, personal correspondences, and project documents on the discursive organization of their classrooms and their own analyses of 'interesting' discourse moments.

IRB Approval. All of the data I have explored in this study had already been collected with IRB approval as part of Project ELMSA. Schools within Chicago Public Schools (CPS)

were also approved as research sites by an additional review board. Teacher participants and the parents of student participants signed approved consent forms, and students signed assent forms to participate as well.

Participants. My data comes from three classrooms I personally worked in as a research assistant on *Project ELMSA* in three different schools. Two of the classrooms are third grade classrooms and one is a multi-grade-level summer school classroom with students ranging from early elementary age to middle-school.

The students represented in this data come from a wide range of racial, ethnic, linguistic, and socio-economic groups, including several students with IEPs,[1] a few with behavior plans or histories of disciplinary issues within their school, and a significant number of students who could be considered language learners or linguistic minority students, though in the moment-to-moment interactions featured in this study, these broad demographic categories seem insufficient as identity markers. Almost all of the students in the first classroom were fluent in both Spanish and English, many of them identifying as Mexican-American and/or Latino/a/x.[2] The second classroom was the most diverse, with a mix of African-American students, several Latino/a/x students, including some who had recently immigrated to the United States, and one white student. Spanish and English were both heard in use by students in this classroom, as well. The third classroom was predominantly made up of African-American students, with a few

[1] IEP stands for "individualized education program" and is a legally-binding document developed for every child in public school in this country who is eligible for special education services.

[2] Not all of these students shared a common identity and many had family or had come from other parts of Central and South America, so I have chosen to include the broader classification of Latino/a/x to refer to people who identify in some way with the languages and cultures spoken and practiced in these places, and in communities here who trace their origins back to these "Latin American" communities. The -o, -a, and -x endings are meant to be inclusive of those who preferred masculine, feminine, or other non-binary gendered descriptors.

Latino/a/x students. Spanish was not observed in use in the classroom, but the Zulu word “yebo” was used as part of a call-and-response.

The teachers in these classrooms were just as diverse, their identities as immigrants, language learners, or members of some other marginalized group inspiring their work and the relationships they sought to have with their students in different ways. Ms. T, the first classroom teacher, immigrated from Mexico when she was in elementary school, and often shared her own personal experiences with language and learning with her students. Ms. Mdawg often positioned herself as an advocate for the students who struggled the most with the cultural and linguistic norms of school (this included special education students and students from minority groups, whose experiences, unfortunately, tend to overlap in the ways we marginalize them in schools), and relied on her work as a track coach to help her build relationships with students and the community. Mr. W, who immigrated from Ghana as an adult and is multi-lingual and active in several of his own out-of-school communities, modeled respectful classroom discussion and disagreement, along with peer evaluation within a community-based curriculum.

And the schools themselves, their institutional positioning and the ways they view students, teaching, and learning are all uniquely-situated within larger community contexts (or intentionally separated from them in several cases). The first school is a single-site charter elementary school, with a holistic curriculum that incorporates mindfulness and well-being and has an established dual-language program from pre-K to eighth grade. Most of its students come from the surrounding neighborhood, which is a mix of working- and middle-class and multilingual and multicultural. The second school is one of three public elementary schools in a nearby inner-ring suburb, with a large working-class, Latino/a/x population and a very small middle-class white population from a separate “village” within the district’s boundaries. Its

students had consistently the lowest scores on standardized tests and it was seen by teachers and parents alike as the least desirable elementary school in the district. The third school is an independent school founded on principles of social justice and community activism that serves an almost entirely African-American student population who come from various neighborhoods around the city. It has an open, familial feel, with open classrooms, and a high level of parental and community involvement.

Although consent was given at the time of data collection by teachers, parents/guardians of students, and assent was given by students themselves, I believe it is important to seek continuous consent, especially since I have used teachers' perspectives on their own classroom discourse to situate the events I have analyzed more closely. I am still in touch with most of the teacher participants, either through social media, or our various institutional connections, and I regularly update them and check in with them whenever I review or share their data. They chose their own pseudonyms and helped choose the pseudonyms for their students, so that they might be able to recognize themselves in the data and write-up of findings which have been shared with them throughout the dissertation process.

Data collection. Working as a participant-observer and Project *ELMSA* research assistant in these classrooms over the course of a school year (or, in some cases, two or three), I conducted observations, took field notes, collected video and audio recordings of classroom activities that teachers designed in their attempts to integrate math, science, and language, took pictures of important classroom objects or artifacts, and interacted with students when it felt least disruptive. Depending on my relationship with the teacher, their students, and what I thought the teacher was trying to accomplish, my participation level and the nature of these interactions varied. I also worked closely with teacher participants as they collaboratively designed and

analyzed their classroom activities using activity triangles (from CHAT) (Appendix A), an activity protocol that focused on the social organization of their classrooms (Appendix B), and coding sheets for different classroom discourse features (Appendix C).

I also conducted and recorded semi-structured focus group interviews with teacher participants as they began and concluded each unit of their action research project during the year. These interviews (see the protocol in Appendix D) were intended to help us better understand the ways that they were developing and thinking about the different aspects of the project including their students' funds of knowledge, language use, math and science knowledge construction, and the action research process. These interviews were often very conversational and free flowing, especially as time progressed and the participants and I got to know each other and became more comfortable talking about their work as teachers and as researchers together.

Table 1. Data Sources and Collection

Data Source	**Collection Process**
Audio-visual recordings of classroom activities	Digital video cameras were setup and maintained by research assistant (and sometimes students), files were stored and shared with teacher participants for their own analysis
Images of student work and other classroom objects/artifacts	Digital cameras were used by research assistant, teachers, and students to document work or other important classroom objects
Researcher field notes from classroom observations	Research assistant took field notes (when possible) using a digital pen with audio recording capabilities and saved these in pdf form
Teacher field notes from classroom observations	Teacher participants took their own field notes for each classroom activity related to their action research project (they were required to submit at least nine, three per unit, three units)
Activity protocol	Teacher participants filled out the "activity protocol" for each classroom activity related to their action research project (they were required to submit at least nine, three per unit, three units)
Activity triangle	Teacher participants filled out activity triangles to represent the activity system in their classroom collaboratively and, sometimes individually (they were required to submit one triangle per unit, three units)
Teacher coding	Teacher participants watched their classroom videos and coded them for different discourse features in order to identify patterns, changes, and

	'moments of interest' for their action research reports (they were required to code at least one video per unit, three units)
Action research reports/theses	Teacher participants submitted group and individual reports with updates on their action research at the end of each unit (three units) and a full report/Master's thesis documenting their year-long action research project
Fields notes from teacher participant meetings	Research assistant took field notes using a digital pen or her laptop, both with audio recording capabilities and saved these either in pdf or as Word docs
Focus group interview recordings	Research assistant conducted and video-recorded semi-structured interviews with groups of teacher participants at the beginning of the project and the end of each unit (four total interviews per group of participants)

Analysis

Initial viewing(s), re-viewing, and video coding. I began by reviewing video data, looking for moments of interesting 'discourse negotiation' when students and teachers were engaged in interactions *about* classroom discourse practices. There are explicit verbal things to look for, such as talk about talk ("We are at level zero so I should hear zero talking!"), correction/repair of the *way* something is done or said ("Let's be careful about saying things that might be considered stereotypes…"), or even instructional goals that attempt to structure interactions ("When I say your name, you say 'Here I am!' and you go to the front of the room"). These are overt, explicit, verbalized negotiations about discourse, and they are, more often than not, things that teachers do and students react to, usually by complying. There are less explicit, often nonverbal things that people do to resist or transform discourse, though, and those ended up requiring much closer attention to intonation, body language, gesture, eye contact, ignoring or refusing to go along with classroom discourse practices that have been proposed, movement of bodies, hands, and other objects, etc. These are the moments that began to draw my interest.

I compared teacher participants' coding sheets to my own initial reactions in order to guide my viewing of the videos, looking in particular for stretches of classroom data where they

noticed high amounts of tension, third space, participation and role shifts, and rule negotiations (g-k on the coding template, Appendix C) as potential moments of salient discourse negotiation. I've theorized that disruptions to otherwise uninterrupted discourse patterns constitute moments of discourse negotiation. Whether it is a student stepping into the role of teacher and taking over an explanation, a student doing something they have not been told to do as part of a classroom demonstration, or a student offering a new form of response that the teacher had not anticipated, these are all attempts to change the trajectory of an interaction.

Noticing 'moments' of transformation. In order to answer my exploratory (what linguistic and semiotic practices, verbal and nonverbal, do students use to negotiate a shared classroom discourse in order to mediate classroom activities and learning?) and critical (how do participants' different roles in the classroom give them special affordances or limit the ways in which they contribute to this negotiation process?) research questions, I needed to zero in on a few rich 'moments' of discourse negotiation, and I realized, the ones I was most interested in, were the moments where students seemed to have 'successfully' negotiated a transformation in classroom discourse practices. These were the times when the students had initiated a shift in the discourse (as opposed to being prompted to do so by the teacher), and when there was evidence of uptake in the reactions of their teachers and/or peers.

In terms of their 'negotiation,' I began to notice and refine the following functional categories or 'moves' that students seemed to be making as part of the process of negotiating classroom discourse and have used these to describe and analyze the process in the findings:

- *Using existing practices as expected* (examples: raising a hand, waiting to be called on/acknowledged, when these are established classroom norms)
- *Using practices associated with different roles* (examples: a student interacting with the

board or some other artifact typically used by the teacher, or a teacher sitting down at a student's desk)

- *Resisting 'established' or 'institutional' practices* (examples: refusing to raise hand or responding without being acknowledged in violation of classroom norms, or giving a response in a way that has already been deemed unacceptable or inappropriate)
- *Introducing new practices* (examples: offering a response in an alternative format or language than what was expected or previously done, i.e. a picture or gesture to illustrate a concept that was previously only discussed verbally)

Many teachers go to great lengths to structure their classroom discourse, even in seemingly 'student-centric' ways. Requiring participation is one example that comes to mind, for both children and adult learners, and providing 'sentence starters' for every imaginable classroom interaction is another I have seen in elementary schools, particularly with a high number of language learners, but all of these instructional 'strategies' seem to reinforce the idea of the teacher's omnipotence, or, at the very least, their handing-over of the authority to speak, be heard, and demonstrate and evaluate knowledge, provided it's done in a manner that has been modelled and deemed acceptable by the teacher.

Searching through classroom videos and pointing out moments where students seem to claim their own authority in spite of the teacher, through non-compliance or outright resistance, can feel uncomfortable for most teachers whose administrators and institutions often demand complete 'control' over classrooms (an increasingly impossible expectation as teachers see bigger and bigger class sizes, longer hours, less investment in schools, and limited resources). But another major goal of ELMSA, developing the identity of 'teacher-researcher,' was often served by taking closer looks at these uncomfortable, albeit significant, moments of

transformation.

Transcription(s). After choosing three of these moments which seemed to represent 'successful' discourse negotiation initiated by students, I began to transcribe the interactions using a more traditional method (such as that presented in Jefferson, 2004) that highlighted the verbal interactions of the classroom in addition to content.

Partly fueled by my own frustration at the lack of student agency apparent in the traditional transcripts, which lead me to my methodological research question (how can we represent and better reveal student agency through alternative kinds of transcripts?), I re-examined the video data to see if there were salient multimodal features that the transcript did not convey and tried to find new ways of representing the data to highlight these. This required different kinds of transcription in order to truly show what was happening (see Appendix E for the various transcriptions and their conventions that I developed in order to accommodate the multimodal demands of this data), and I organized these features of classroom discourse I was trying to highlight into three 'layers': verbal language, interactions with objects, and movement through time and space. This actually reinforced some of the things I was curious about initially as part of the critical aspect of my research: Since teachers tended to dominate and focus more on structuring the verbal interactions of the classroom, did this mean that students would utilize other semiotic resources, below the 'official script' to negotiate classroom discourse?

A note about transcription. The act of transcription is itself full of decisions about what is meaningful in an interaction and the process of transcribing and re-transcribing these interactions has reflected my own developing theoretical assumptions as a researcher as much as it can fully recreate any sort of interaction. The decisions I made in this part of the analytical process have definitely "influence(d) and constrain(ed) what generalizations emerge(d)" (Ochs,

1979, p. 45)). For this reason, I remain open to alternative ways of "re-presenting" these interactions in different ways as the data seems to demand. Researchers' transcriptions reflect myriad decisions about what to ignore, what to include, and how to "re-present" it (Green & Stewart, 2012), and, though this study became a methodological argument, it by no means is an exception, nor does it ever reach a point where the transcription represents an 'idealized' or 'best' form for doing this kind of analysis.

Using these multiple transcripts and the coding of video data, I have attempted to analyze the 'moves,' their functions, and the way students and teachers position themselves and each other as they negotiate classroom discourse together through a multi-level functional analysis that shows how discourse is working and changing in the immediate context of the classroom.

Activity triangle, activity protocol, and focus group interviews. Looking at the reflections shared by teacher participants gathered in the focus group interviews, and their own notes about the social organization of their classrooms through the activity triangle and activity protocols, I have attempted to situate my discourse analysis of the interactions mentioned above within the particular classroom settings they occur. These documents, in a way, represent an idealized view of classroom interactions and relationships from the teacher's perspective. Activity triangles were not necessarily used by teacher participants analytically, but as planning documents and tools for discussing the nature of activity in their classrooms. Focus group interviews provided a broader view of how the teachers positions themselves and their students (from their perspective) and make sense of interactions overall in their classrooms. These have been a rich source of comparison with the micro-analysis of the dynamic, moment-to-moment interactions with students.

IV. FINDINGS

Three 'Moments' of Discourse Negotiation and Transformation

Three 'moments' of student-driven discourse negotiation are explored in depth in this chapter through a variety of discourse analysis approaches in order to demonstrate the many ways that student agency in discourse negotiation can be revealed when we look at more than just the words that are spoken in class. This is not just a demonstration of depth or thoroughness of analysis, but an argument for the *necessity* of such an approach if one truly wants to understand how students actively transform classroom discourse and are not simply the victims of it. Given the ways that power and authority are often distributed in schools, it makes sense that students, who are often positioned as *less* powerful than their teachers and other institutional agents, with little to no officially-recognized authority in most schools, must rely on negotiation tactics that fly above and below the 'official' script of the classroom, which privileges a type of language and behavior that serves the interests of those already in positions of authority.

The bottom line is this: Kids are very good at internalizing rules and norms in classroom systems and then using them and subverting them in unanticipated ways to challenge and reclaim power and authority, often without the ill-intent that most adults, when faced with a sea of children, assume. Teachers and researchers alike often lag behind in their understanding of these processes because they are *supposed* to be somewhat hidden from them. Understanding this *requires* an almost microscopic look at all the ways students in these brief moments are negotiating new ways of 'doing and being' in school in spite of the many ways authority and power and discourse are regulated by the institutions and their agents.

First I describe three 'moments' of rich classroom discourse negotiation below, explaining what struck this researcher as notable in selecting these moments, and providing

relevant data from the teacher-researchers about these moments and how they view and structure their classroom and its discourse more generally. After that, I have broken this chapter into three sections that each take a look at a different mediational layer of discourse in these moments of negotiation: use of language, interaction with objects, and movement through space and time

The first section utilizes a more traditional approach to analyzing classroom discourse, and takes a closer look at spoken language, specifically for the ways students in these moments may use it as one mode for negotiating with, for, and possibly against established spoken discourse structures in each of these classrooms. In this section, traditional Jeffersonian transcripts of video-recorded classroom data are used to show evidence of the traditional spoken discourse structures (IRE/F, turn-taking, call-and-response, etc.), often making up a large part of the official 'script' of the classroom. But even though they may be traditional, students may still choose to comply with or resist these discourse practices, or transform them altogether.

The second section takes a look at certain physical objects or artifacts of classroom interest, and how students in these same 'moments' use them to claim discursive authority within the larger classroom context and negotiate through interaction with them. There seems to be more freedom, at least in these examples, for students to create and interact with objects in novel, sometimes 'forbidden' ways, often unanticipated by the teacher, and thus transform the overarching discourse about what it means to be a student, a mathematician, a scientist, or a grassroots organizer in each of these contexts. These interactions go alongside, under, around, and through what makes up the official 'script' of the lesson. But they are equally constitutive of the shared classroom discourse and in many ways, more revealing of how students can (and often do!) claim the authority to transform it. Video data allows us to pay close attention to what students are doing as they interact with objects that might go unnoticed by the teacher during the

lesson, and we begin to notice much more happening 'off script' when we begin to look at objects as a second mediational layer, or 'mode,' for negotiating discourse.

The last section attempts to look at how students utilize time and space and movement within these 'moments' as a means of further negotiating discourse and authority in each of the three classroom contexts. It is difficult to transcribe this kind of discourse via traditional means, but, in my opinion, physical positioning is one of the most effective 'modes' that students have for claiming discursive authority and transforming the discourse of the classroom. Collectively, students occupy far more space than their teachers. And the way that they interact with each other in and through it can be quite powerful when it comes to negotiating and transforming the classroom discourse. It is also, not coincidentally, one of the hardest for teachers and institutions to regulate, though that doesn't seem to dissuade them from going to great lengths to try. There are many ways that students' bodies are regulated in schools and classrooms, in both the implicit and explicit rules that limit their freedom of movement in, through, and between classroom spaces. But like the other layers, or 'modes' that are explored here, students almost always find ways to claim authority over their own bodies and the spaces they occupy in order to negotiate with these institutional norms.

What these multiple and multimodal 're-presentations' of just three brief (but rich!) moments of classroom discourse negotiation suggest is that in order to really understand what is 'going on' in classroom discourse, and what students contribute, in particular, we have to look at *how* all of these layers work and interact, and *why* different participants might seemingly contribute and maneuver more through one mediational layer or another.

Moment #1: Re-mediating fractions. In Ms. T's summer 2014 enrichment class, students from grades 2-7 (ages 7-12) are learning about fractions together. All of them are part of

the K-8 charter school's dual-language program, which they (or, more accurately, their parents) have to apply to be a part of. Along with the unusually large range of ages present in this classroom comes quite a range in familiarity with the math concepts being discussed as well. To accommodate this, students are partnered up with someone who is close in age (referred to as "conversation partners") and given differentiated packets of fractions work to do in pairs or small groups following whole-class review and instruction. Ms. T has taken most of this material from Common Core-aligned workbooks that require students to use "written English Math discourse" as they not only solve math problems, but also explain the concepts and what they did to find the solutions. During this particular instructional segment, most of the students are sitting with their partners on a large carpeted area, facing Ms. T who is standing, sometimes sitting, in front of them next to a stand with chart paper and various math concepts listed and/or illustrated.

As Ms. T asks her students to review their prior knowledge about fractions with their conversation partners, many of the students look at and read aloud from the chart paper. Others repeat words or phrases from the previous day's lesson. She reminds them of some of the ideas they discussed before, asking them to turn and talk to their partners at regular intervals. At one point, Ms. T produces a notecard that she tapes to the chart paper, but she seems to have made a mistake (we know, because she says, "oops!" and apologizes to her students for it) and written the math term partially in Spanish, "fraction in *linea*." But she quickly assures students that "this is a cognate," and that they can use their knowledge of Spanish as a tool to help them understand English. Ms. T also asks students to consider fractions as parts of a whole "set," and, with student input, draws four circles and then draws Xs over two of them to suggest that they have been deflated. She struggles to find the word, in English or in Spanish, but several of her students anticipate her meaning and provide the Spanish "*desinflado*," acting it out by clapping their

hands together, as if squeezing the air out of something. She thanks them, then asks students to figure out how to represent the deflated balls with a fraction.

Finally, she introduces the new concept for the day, "equivalent fractions," and asks the students again to turn to their conversation partners and discuss what they think this might mean. Antonio, who becomes the focal student of this transformative moment, is the only student who is seen in the video data writing during the partner discussion. Previously, Ms. T had asked students to put their pencils and worksheets away or on the floor beside them, and made quite a big deal out of waiting for everyone to comply ('Making a Big Deal' out of something is a teacher discourse negotiation tactic that deserves more theorizing than can be given here!). But Antonio appears to be drawing something on his folder and showing it to his conversation partner, and Ms. T does not attempt to correct this behavior (or, possibly, doesn't even notice it from where she is situated in the front of the room).

After Ms. T calls the class back to attention with an elaborate call-and-response, she calls on Antonio to tell her "What are equivalent fractions?" Antonio breaks from the usual turn-taking that has been established in this lesson so far, with students responding to teacher prompts in spoken English math discourse to try and describe a concept. Instead, he begins with "In Spanish, they are *fracciones equivalentes*," and then offers to show her the picture he was drawing on his folder, and in so doing, introduces two new mediational modes, Spanish and diagrams, for demonstrating knowledge about math concepts in this particular classroom context. Ms. T beckons him forward to show the class, another divergence from the norm. This moment is captured in the filtered screenshot below.

Figure 3. Antonio shares his drawing and Ms. T invites him to show his classmates.

Many of the expected conventions and mediational means associated with the school setting are present in this moment: students are seated on a carpet facing the teacher who is presenting her lesson to them, using chart paper with fractions, number lines, fraction bars, and definitions of new terms like ‘numerator’ and ‘denominator’ written on it Behind her, there are lots of other pieces of chart paper, the more recent ones often posted on top of older ones, filled out with directions, reminders, sentence-starters, routines, graphic organizers, and information from previous lessons. During my first few visits to this classroom, I was overwhelmed by the thought of how much time it must take to make new posters like this by hand for every lesson. Some of these materials are in Spanish and some are in English, depending on the content (literacy content is presented in Spanish, math content in English) and many of them utilize graphic elements such as charts, tables, graphs, or symbols.

As part of their analysis, Ms. T and the other teacher-researchers generated the activity triangle below to describe the lesson as an activity system for answering the question "How can equivalent fractions be represented in different forms?"

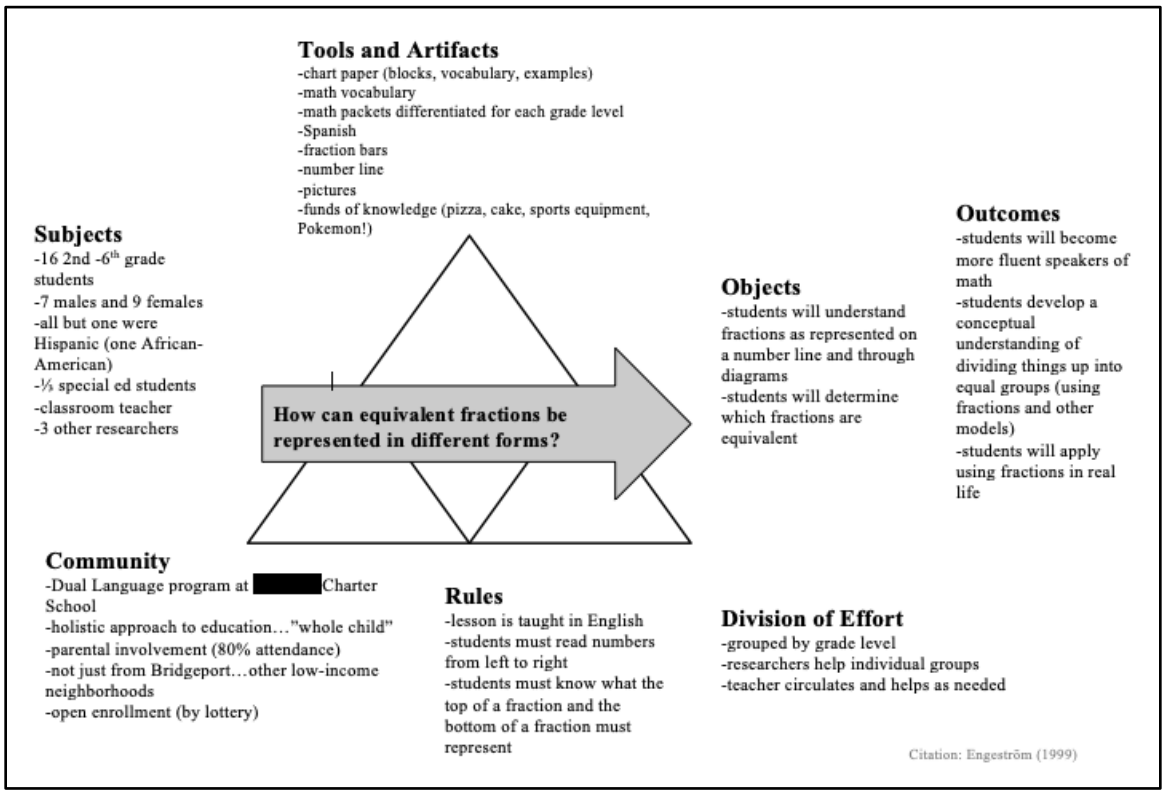

Figure 4. Teacher-researcher activity triangle for Ms. T's fractions lesson.

Notice, in particular, that within the Rules is the expectation that this "lesson is taught in English," and that in the Outcomes, we see "students will become more fluent speakers of math" (which, having spoken with the teacher, and seen the materials she uses to assess students' math discourse 'fluency,' is also done in English).

Just 10 or 15 minutes prior to this math lesson Ms. T was conducting the entire class in Spanish and the students were also interacting in Spanish, speaking, reading, and writing it during their literacy block. The day is split between literacy (which includes reading, writing, and social studies) and math instruction, which conveniently matches up with the percentage of

Spanish and English instruction that the school has prescribed for the dual-language immersion program at the elementary level. After a short 'movement break,' without any explicit instruction to do so, instruction suddenly switched to English as the teacher called the students to the carpet to begin their math lesson. I had to assume, due to the fluidity of the transition, that this was a normal practice that had been reinforced many times for the students in this context, and the teacher confirmed that the dual-language students are very much accustomed to switching from Spanish to English when they move between content areas, since this is a norm across all levels of the curriculum.

Ms. T is also a fluent speaker of both Spanish and English who came to the United States from Mexico when she was a teenager. Her identity as an immigrant from Mexico, a US citizen, as bilingual and bicultural, and as a community activist are salient in the classroom and she regularly refers to all or some of these identities in her teaching and in her reflections on her teaching. The students mostly come from the surrounding neighborhood, which is predominantly Latin@ and low- to middle-income, though there are some students who come from further away because of the school's unique focus on health and wellness and the offering of a dual-language immersion program with English and Spanish starting in pre-Kindergarten. Several students are immigrants themselves or have spent a significant amount of time outside of the United States with family abroad.

In her own written analysis of the math lesson, Ms. T offers this interpretation of the moment described above, a transformation in discourse which she calls a "role shift":

> On 7/23, the role shift[3] was more public. A student took the initiative to come to the front of the class to model. The student modeled an equivalent fraction that he drew on his summer school math folder the first day of school when Ms.T asked the class to decorate their folders. In front of the class, the student explained his reasoning behind his thinking.
>
> (excerpt from pilot study action research report, submitted August 2014)

In my own re-watching of this video, it seems to me that the so-called 'initiative' the student took here was more in the drawing he did in spite of the teacher's insistence earlier in the lesson that pencils and folders and worksheets all be put down during whole-group instruction. Unlike several other students earlier in the lesson, he is not called out for this or reminded of the expectations, but he could be seen to be *resisting* the established rule or practice of not writing during whole-group instruction, and he continues to *resist* the rule of using English math discourse (though Ms. T has actually modeled this, and he seems to be providing the Spanish almost as a way of meeting her previous mandate that they "use Spanish as a tool").

But Antonio actually seems to be a pretty quiet, 'well-behaved' student, one of the youngest in the class, and he does not seem to overtly resist Ms. T's authority or act out in many other ways, waiting to be called upon, deferring to the teacher for approval of his responses, and in these ways, he is *using existing practices as expected*. Ms. T claims, in her analysis above, that he drew the diagram previously when she asked the class to decorate their folders. It's possible she just didn't notice it happening in the video or while she was teaching, and simply assumed he'd done it earlier, or this could be a conscious (or subconscious?) reframing of the negotiation of discursive authority on her part, allowing her to resolve the conflict here between her

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[3] "Role shift" was an analytical code used by this team of teacher-researchers to study changes in discourse patterns or behaviors that involved students stepping into an "expert" role. This was one of the areas Ms. T especially wanted to explore in her own classroom.

impression of Antonio as a ‘well-behaved’ student who is respectful of her and her authoritative role in the classroom, and what she was able to notice in the video. It’s also interesting that in her analysis, she implies he came forward of his own initiative, when she clearly invites him, reasserting her authority as the teacher, at the very least marking his use of a diagram as ‘okay’ or allowable, and in a stronger interpretation, even making it seem mandatory that he share it with the class, a familiar trope in classroom discourse.

There were other moments of discomfort like this when we did analysis together with the teacher-researchers looking at their own classroom data. Many initially seemed to feel like our analysis of the video, or the attention we might pay to a certain student, was an indictment of their classroom management. I think this is a really interesting phenomenon, and definitely worth noting in this work, because it directly relates to the ways that students find to resist strong teacher authority in quiet, below-the-radar maneuvers. Some teachers or administrators might find these practices *more* threatening than the overt kinds of challenges to authority, or ‘misbehavior’ (or ‘disrespect,’ that problematic word from my own experiences as a teacher!) that many of them have already attempted to regulate and address through institutional means. The focus on classroom management and surveillance that has overtaken some schools only reinforces this discomfort with noticing students doing things off the official script of the classroom, as if it somehow reflects poorly on the teacher’s ability to exert ‘control’ over every aspect of the classroom and their students. When teachers and schools embrace a philosophy of highly-structured, highly-controlled learning environments, they give their students little choice but to reclaim their own discursive authority in alternative ways.

We spent a lot of time, then, early on having to frame our analysis of classroom video data in a way that didn’t feel punitive to the teacher or the students, reiterating over and over

again that students, people, are always engaging in some kind of discourse negotiation with one another. Trying to limit or silence opportunities for student agency in this process is often counter-productive, if not downright impossible. Ms. T eventually made this a focus of her action research, trying to better understand the differences between her monolingual class and dual-language class in terms of the ways that they developed their "voice" within her classroom and in their interactions with her and each other, and within the larger school community in spite of the fact that institutionally, they were pre-assigned certain identities based on assumptions about their differences in work ethic, parental involvement, motivation, and discipline.

And although we may have differing interpretations, this 'moment' with Antonio and the fractions was noted by every one of the teacher-researchers in this cohort as a significant (and overall positive!) shift from the established norms of classroom discourse in this lesson, as an example of *using practices associated with different roles* as Antonio comes to present his drawing to the class, in the teacher space and as an 'expert,' and as he *introduces new practices* through the use of Spanish and a diagram instead of limiting himself to English math discourse in order to make sense of the concept of equivalent fractions.

Moment #2: The moss ball. In Ms. Mdawg's third grade class, over the course of the 2013-2014 school year, students have been learning about different kinds of organisms and what they need to survive as part of a year-long action research project. This cohort of teacher-researchers have been trying to find ways to leverage students' funds of knowledge from caring for their pets as a means of building more meaningful connections with their science, math, and social studies curricula. Ms. Mdawg has decided to start bringing in actual living things for her third graders to interact with as they learn about different animal 'habitats' and needs, and attempt to figure out what kind of animal would make the best kind of pet.

Their exploration begins with a bright green, fuzzy, ‘Marimo’ algae moss ball that floats in a beaker of freshwater in the middle of a group of desks in one corner of the classroom. Ms. Mdawg introduces the moss ball to them, tells them it could be a potential ‘pet,’ and then encourages the students to hold it and look at it, smell it, “kiss it” (though she laters tells students she was only joking about kissing it when one student almost does), and pass it around the class. The students are passing the moss ball around, most of them simply holding it and looking at it, making a disgusted face maybe, some brave enough to sniff it and pretend to gag or flail their arms in disgust (as third graders love to do) or say “ew!” and then passing it along to the next person.

But when the moss ball finally gets to Jacob’s group, something different happens that alters the moss ball’s trajectory and the science discourse of the classroom. Instead of simply holding it and sniffing it, then passing it on to his classmates, Jacob (whom the teacher affectionately calls a “weirdo” in this and other interactions, and in her own reflections) tosses it up into the air, says (to the moss ball) “Have fun!” And then squeezes the water out of it onto his hand and his desk. Ms. Mdawg gives a deadpan look into the camera and shakes her head, while instructing Jacob to pass the moss ball to someone else. His classmates all watch, some gasping, some exclaiming “WHOAH!” others telling other students what he’s just done and re-enacting it, as he spreads the water out on his desk and eventually exclaims, “Now my desk is contaminated.”

Figure 5. Jacob the "weirdo" squeezes the water out of the moss ball.

Ms. Mdawg builds upon Jacob's interaction with the object, using the attention he's gotten to bring the class' focus back to her with a clap. "Jacob squeezed it so let's see if he'll float now…" is a (gentle) condemnation of what Jacob has done, but Ms. Mdawg also allows it to change the science discourse and shape the experiment as she places the moss ball back in the water. It still floats! The students take up the "contamination" terminology, as well, when Ms. Mdawg allows the last table to see the moss ball and a few students tell them, "Now you're all contaminated, too!" This segment of the lesson ends with Ms. Mdawg asking the students what the moss ball needs to survive. It is open conversation, and the discourse here is very free-flowing. Students shout out things like water, light, and someone even says 'Squeezing!" Jacob's interaction with the moss ball has clearly left a lasting impression.

This public elementary school is situated in a low- to middle-income inner-ring suburb of Chicago, close to one of the city's airports. The district has recently opened up its school boundaries so that parents may send their children to any of the three elementary schools that feed into one middle and high school. This has created tension between teachers, parents, and administrators across the district as parents try to weigh their options and the shifting demographics of the community as a whole, and the individual schools, creates expectations about achievement and which school is 'better.' Ms. Mdawg has taught at every school within the district, and coaches high school track, so, in that capacity, at least, she sees the high school as a melting pot of these tensions, and often interacts with students from a variety of racial, ethnic, and socio-economic backgrounds. Her own third grade class is one of the most linguistically- and culturally-diverse that she has taught after X amount of years teaching in the district so far, with a number of Spanish speakers, several of whom are recent arrivals to the United States, and several African-American students. She also has a significant number of students with IEPs. She chose specifically to focus on a group of students with two lower-achieving EL students, Alejandro, who had just arrived in the United States, and Ishmael, who had been part of the ESL/Bilingual program at the school for at least a year, along with two higher-achieving students, Salvador and Jacob, who both spoke predominantly English.

> One child that entered school late was named [Alejandro]and he came in with no English…[Salvador]is computer savvy, a great reader, quiet, hard worker, and has a genuine care for others. He was chosen for student council for his loving nature. [Jacob] was put in the focus group as well. He is also one of the highest with his reading and math scores in the room and Caucasian. He has an out-going personality and is quite comical…[Ishmael], who is ELL and low on both his reading and math assessments that are both teacher-made and standardized compared to the others in the classroom… He is much smarter than what he leads on to

> other teachers… This group turned into the focus group to see how [Alejandro] would acquire language in such a social classroom.
>
> (excerpt from final year-long action research report, submitted July 2014)

In this context, Ms. Mdawg, who is white herself, has come to consider Jacob, who is one of only a few white ("Caucasian") students in her class, a "weirdo." During cohort meetings and debriefing with me, she speaks fondly of Jacob as very intelligent, sarcastic, funny...all characteristics she seems to consider fairly positive. And their interactions in the classroom often feel familial. Ms. Mdawg jokes with her students, and allows them to joke with her. Sarcasm and dramatic reactions to things are all seen as fair game in this classroom. Ms. Mdawg also fiercely defends her frequent use of open discussion and interactive experiences with her third graders, often calling her teaching style "controversial" (see below) and "chaotic," and positioning herself as a sort of rebel within the school and the district as a whole, advocating for marginalized students in the Bilingual/ESL program, special education, and others whom some of the other teachers or school officials have labeled "at risk." In this way, then, she is the one *resisting 'established' or 'institutional' practices*, and her analysis in her final action research report is an attempt to show that doing so has resulted in better academic outcomes and growth for even her lowest-scoring students, including several who began the school year with very limited English proficiency.

> The purpose of this study was to show that open discourse in the math and science [classroom] is needed in order for students to understand higher-level concepts. Social and shared learning is a controversial education practice that currently needs more research and data to prove that it creates an atmosphere that encourages both sharing and math/science literacy.
>
> (excerpt from final year-long action research report, submitted July 2014)

But Ms. Mdawg still has a high level of authority. Her students may feel more welcome to contribute to the discourse than in other classrooms, as they shout out responses, disagree with her, express disgust, or engage in side conversations with her or their peers, but they do so with a high level of awareness of what is allowed in terms of 'joking' or teasing, and what is not. And when they violate these norms, they seem just as distraught, if not more so, than students in more structured classrooms. At one point in the lesson described above, Ms. Mdawg corrects two students who are off-camera doing something that apparently violates the norms of the classroom. Where Ms. Mdawg is usually fairly animated and verbose, she barely says more than a word or two to these students, and it is easy to miss her correction entirely until the students come into view looking absolutely ashamed, with their heads hanging low, and their eyes on the floor. One even asks, halfway to the board, "Wait, me?" And she nods. So it is not the case that Ms. Mdawg simply has "no control" over her students or that there is some sort of utopian egalitarian power structure at play here.

Ms. Mdawg worked closely with another teacher, Ms. N, who had previously worked in the district, but taken another position as an early childhood in-home intervention specialist for the school year. Their cohort included two other teacher-researchers as well, both in their own classrooms at other schools in the district. The use of knowledge related to caring for pets was a decision made by the entire cohort early on in our work together, and it really shaped the curriculum for Ms. Mdawg and Ms. N. For this lesson, Ms. Mdawg and Ms. N created the

activity triangle below.

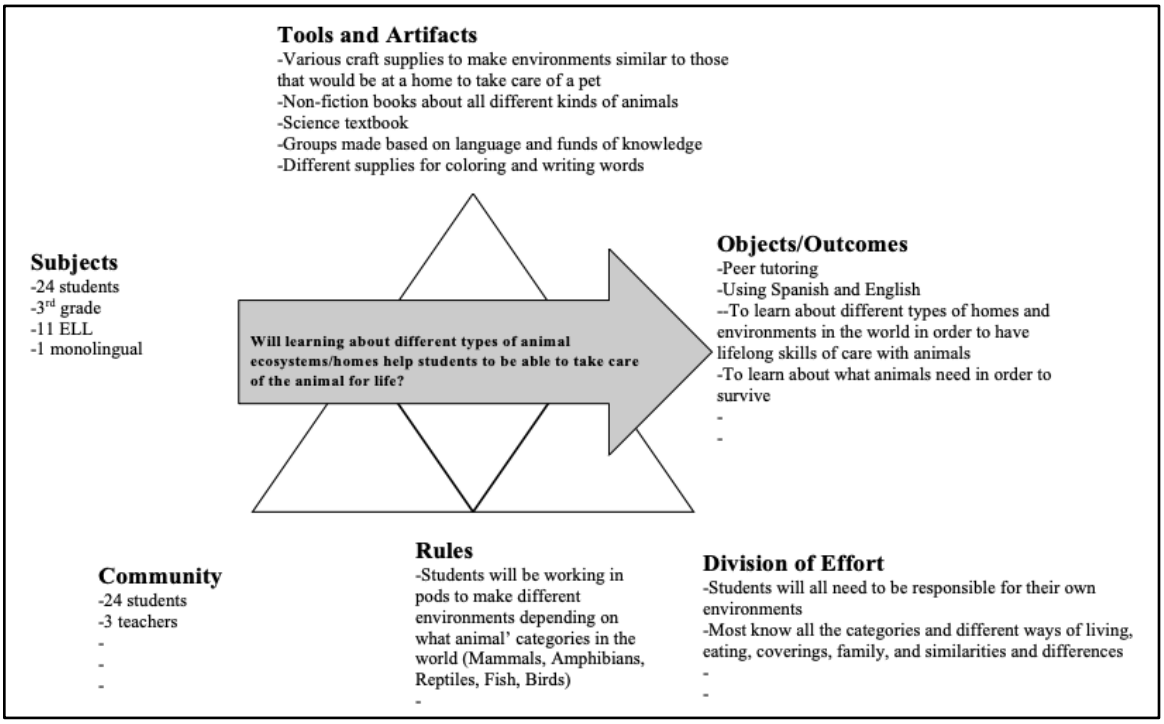


Figure 6. Teacher-researcher activity triangle for Ms. Mdawg's animal care action research unit.

Unlike the other two classroom activity systems featured in this study, there is not a lot of attention paid to rules of participation or expectations in terms of discourse patterns or authority. It is hard to quickly figure out what the norms are, but students do not seem uncomfortable or uncertain about what is expected of them. Jacob *introduces a new practice* with the moss ball when he squeezes the water out of it, and students often engage in role shifts by *using practices associated* with other roles, such as scientist or, when they take on the joking, sarcastic tone of their teacher.

Moment #3: Standing up. In Mr. W's third grade class, students are learning about the sources of pollution of brownfields as part of their 'Grassroots Campaign Project' (GRC) for the 2015-2016 school year. Every class at this school, from kindergarten through eighth grade, chooses a community issue to learn more about and then develops an action plan, and carries it

out over the course of a year. At the end of the year, they present their work and are judged by a committee of teachers, parents, and community members (I was honored to be invited as one!) who give feedback on things like 'community impact' and 'sustainability' (which is really fun to try and put into terms that kindergarteners can appreciate). This was already very much in line with the action research aspect of Project ELMSA, and the school itself, an independent 'community-centered' school that focuses heavily on an alternative, social justice-based curriculum, with a predominantly African-American student body from the south and west sides of the city (though their student body has become more diverse as the school has become more well-known), was a welcome partner in our work as they attempted to integrate their academic curriculum with the GRC projects.

As Mr. W's students have been reviewing the definition of a brownfield, and briefly sharing their thoughts about why brownfields are a problem in their communities, Mr. W is also trying to incorporate pie graphs into the lesson to give students a chance to review or build upon their abilities to read and interpret information in this form and review fractions and percentages. A student, Kayla (not her real name), has just been called on after raising her hand to answer a relatively straightforward question about the second biggest source of brownfield contamination, according to the pie chart. This is the second such question that the teacher has asked in order to help students get used to interpreting data in this format. Up until this point, the discourse structures have been fairly traditional IRE/F with a few appeals to the class to provide feedback to their peers' response if it was a question that seemed to have a clear-cut right or wrong answer. Without being prompted, and without there being any apparent precedent set by any of her classmates, Kayla takes a deep breath and, with a sort of exasperated confidence, announces

"OK!" before jumping out of her seat and heading to the front of the classroom where the pie chart is being projected on the marker board.

Figure 7. Kayla stands up and jumps into the 'teacher space' at the front of the room.

Like the other examples above, in order to better understand how he viewed the classroom discourse norms and practices, I looked at the teacher-researcher data that Mr. W submitted along with this video for his action research pilot study. From his notes about the social organization of his classroom, I found specific information about the expectations around hand-raising and getting out of one's seat:

> The structures and procedures are evident in the way the classroom is organized. Students raise their hands when asking questions, do not get out of their seats without permission, and [are] generally really polite.
>
> (excerpt from pilot study action research report, submitted December 2015)

We see that Kayla has met one expectation, by raising her hand, but also violated another, by getting out of her seat without permission. In the activity triangle below that Mr. W created to represent the learning that was happening throughout his pilot study, we see these norms and expectations reiterated, listed among the "Rules" of the activity system in this classroom. An added feature is found in the "Division of Effort" where Mr. W has specifically claimed that the teacher conducts whole group instruction. Kayla's movement to the board, where she can present her claim to the entire class, might be considered another violation of this expectation.

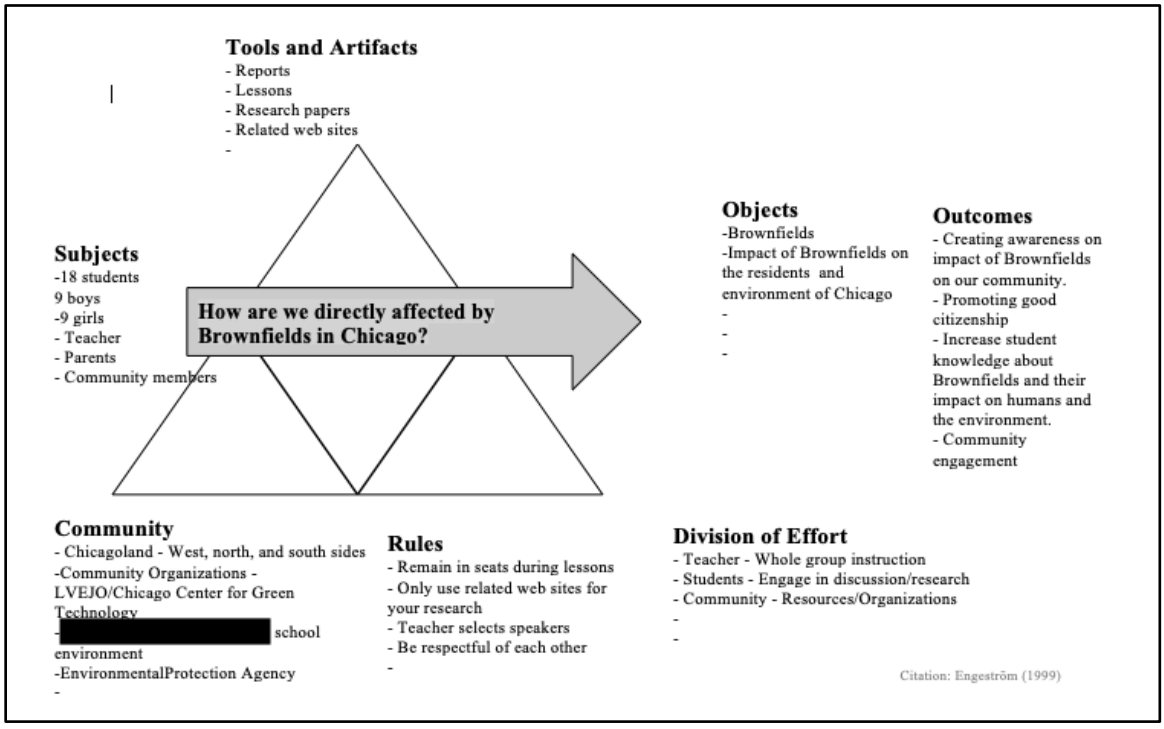


Figure 8. Teacher-researcher activity triangle for Mr. W's brownfields unit.

Additionally, in the activity protocol and in his action research report, Mr. W notes that his approval is a valued commodity among the students: "The students are vocal and seek the teacher's approval of their contributions." And in his own analysis of the discourse in these videos, he identifies the dominant discourse structure of his classroom as teacher-directed IRE: "The teacher uses the IRE (initiate-respond-evaluate) system of discourse by asking the

questions, waiting for an answer from the student, and then evaluating the student's answer by giving feedback." We will see exceptions to this in the way students react and respond to both Kayla, and the student who responds after her below.

Mr. W is from Ghana, and is multi-lingual, a speaker of Twi and Ga in addition to English. He has multiple Master's degrees in music and education and is currently working on his doctorate in educational policy, which he began while still a part of Project ELMSA. He seems well-liked and respected by his students, their families, and his colleagues (and I am speaking personally here for myself, as well!). At an after-school event, I saw how older and younger students alike were eager to interact positively and less formally with Mr. W outside of the classroom, though he has a more formal, commanding presence in most of the video data I collected, establishing a definite separation between himself as teacher and them as students through the discursive moves he describes above.

In this brief moment, then, Kayla has managed at least three of the four negotiation categories. She *uses an existing practice* when she raises her hand and waits to be acknowledged by the teacher, she *introduces a new practice* for responding to questions about the pie chart by interacting directly with it, and *uses a practice associated with a different role*, when she gets out of her seat and enters the 'teacher space' at the front of the room and in order to interact with what is projected there. One might even make a case that she is engaging in some small form of *resistance* as well, since the teacher begins to tell her she doesn't need to get up and go to the board, but then seems to change his mind. After a little hesitation, this practice is allowed by her teacher, Mr. W, and later replicated by another student, David, as shown below in the transcriptions of this moment, evidence of both teacher and peer uptake and a transformation of classroom discourse practices.

Students and their teacher in this classroom appear to have negotiated an arrangement through an ongoing process of interaction whereby interruptions to the typical teacher-directed IRE/F sequence (teacher initiates, responds, and provides evaluation or feedback) occurred with less contestation from the teacher when students provided incorrect or incomplete responses and their peers attempted to correct them, thereby taking on the role and authority of the teacher as the evaluator. Often, the teacher still maintained the ultimate authority over who got to speak and when (often reclaimed with a call-and-response that involved Mr. W asking "May I speak?" and receiving an affirmative response from the students in Zulu, "YEBO!"). But occasionally, students made overt attempts to claim some of this discursive authority for themselves in order to demonstrate knowledge in ways that were typically reserved for the teacher's use. In certain circumstances, this role shift or re-positioning of students continued into and through other discourse structures whereby students claimed authority through actions, behaviors, the enlistment of materials, and discourse moves often modelled first by the teacher, such as standing in front of the classroom, using the board, or using discourse markers associated with argumentation that other students or the teacher took up in future interactions. When students had particularly strong emotional responses or investment in certain arguments, they engaged in extended crosstalk in order to settle their disputes, often coming to a consensus without or even *in spite of* the teacher's attempts at intervention.

All three of these 'moments' of discourse transformation come from elementary school classroom contexts, but their participants are noticeably diverse. The teachers themselves represent three very different backgrounds and a wide range of personal and professional experiences, and their students and the schools they teach in, are equally diverse. Yet some

patterns still emerge across all three contexts in the multi-layered ways that students exercise agency and transform classroom discourse.

Negotiating Discourse with Language

Working with and against established classroom discourse patterns. In all three of these 'moments' we see the use of IRE/F, one of the most iconic structures in classroom language. We also notice that teachers usually seem to decide who gets to talk, and for how long (with a few very notable exceptions).

In Ms. T's classroom, students usually raise their hand and wait to be called on to respond to the teachers' questions, though she allows whole-class responses at various times throughout the transcript (see line 170 below). She usually follows up with an evaluation of their response (see lines 171-173 below), following traditional IRE (initiate-respond-evaluate) teacher-centered discourse patterns. Occasionally, though, they get excited or off-task and sometimes, the teacher allows them to share what it is they are excited about. Sometimes they step out of the established norms and share with or without the teacher's permission or recognition, which for the most part, seems okay in this classroom (see lines 174-178 below), provided that the teacher perceives it to be connected to the lesson and not too frequent (see lines 108-115 below for an example of a student whose out-of-turn contribution to the classroom conversation was *not* perceived as connected to the lesson).

170	TT: they're still the same pieces, but now, instead of having one piece, how many pieces does he have on this side?	Multiple Ss shout out answer without waiting to be called on…TT responds positively by restating, and adding affirmative 'mmhmm' and nodding
171	Ss: two	
172	[TT: two]	

173 TT: mmhmm...so it's two out of four because this thing is divided into four entire pieces and this is divided into two…pieces (nodding to class)

[00:07:51.16]

174 TT: Carmela?

175 S4: um, it's like...like if you have four and they were pieces of a cake...and then someone ate the half of the cake

176 [TT: yeah!]

177 [R1: mmhmm]

178 TT: that's right! right!

S4 is recognized by TT and given positive evaluation (by R1, too!) for contributing something TT perceives is connected to the lesson

---

108 [TT: buh buh duh buh buh buh buh!]

109 [Ss: buh buh duh buh buh buh buh!]

110 [TT: buh buh duh buh buh buh buh!]

111 [Ss: buh buh duh buh buh buh buh!]

112 TT: much better

113 [S1: buh buh buh buh buh!]

114 TT: (to S1) I'm gonna give you a warning

115 S1: oh

S1 is warned for continuing response out of turn in a way that is not perceived by TT as connected with the lesson

---

In addition to IRE and the occasional outburst of excitement, students in Ms. T's classroom are given many opportunities to turn and talk to a partner about something that has been introduced or asked during instruction. The teacher has explicitly stated that she believes students need to talk to each other and "dialogue" about concepts in order to better understand them and practice communicating about them. Language, then, is seen as both a means of learning and an object of it, explicitly talked about in both ways in this dual-language context. On average, these "turn and talk" moments happen about once every 2-3 minutes during whole-class instruction. These opportunities to talk are short, often no more than 30 seconds or a minute, and the Ms. T has several strategies for getting students' attentions back quickly and

signalling the shift back into IRE discourse. See this excerpt from the transcript below for one such transition into partner talk (lines 17-29) and back into whole-class instruction (lines 30-32):

---

17 TT: for instance...what does that mean? part of a uh set? can you please talk to your partners?
18 S2: (to S3) what does THAT mean?
19 S3: I dunno
20 S2: you dunno?
21 R1: (to S2 and S3) what's a set?
22 S2: (to R1, turns toward camera) I don't know
23 R1: if I said I have a set of uhhh...a set of...I dunno, what do you have a set of?
24 [S2: it could be...a set...it could be...the whole]
25 R2: (from behind camera and R1) basketballs...
26 [R1: a set of basketballs? (laughing at R2)]
27 R2: yeah...(inaudible)
28 [R1: I'm gonna say a set of golf clubs, but (laughing)]
29 R1: if I have the full set of something...versus just part of it, right?
30 [TT: shh shh shshsh]
31 [Ss: shh shh shshsh]
32 [S2: (turning back to face front) oooooh!]

I am R1, and I consider this a real "researcher fail" moment as I was navigating rather clumsily and uncomfortably through my identities as videographer, teacher, participant, and observer in conversation with S2, S3, and R2 (behind me)

In Ms. Mdawg's class, there is less obvious IRE/F structure, as noted above, especially in the moment studied here since it comes during an activity where students are interacting with the moss ball and each other. Ms. Mdawg is following the moss ball from table to table in a supervisory role, urging them to pass it along to the next student, but there isn't a lot of verbal instruction or explanation. Most of the meaning-making here is largely missed in a traditional

verbal transcript, and the discourse negotiation process is unclear without tracing the movement and interaction with the object of interest around the room.

---

17 SJ: (is spreading the water he squeezed out of the moss ball around on his desk) now my desk is contaminated
18 TM: (picks up moss ball) alright! (takes it back across the room)
19 clap once if you can hear me!
20 Ss: (clap once…a few clap more than once)
21 TM: let me /
22 [TN:Jordan's table didn't...]
23 TM: Jacob just squeezed it so let's see if he'll float now
24 (walks over and places moss ball back into the glass vase it had been floating in prior to being passed around the classroom)

We do, however, see a teacher-initiated call-and-response in lines 18-20, that suggests the teacher still has the authority in this classroom, as a norm, to command the students' attention and decide when to transition into a different kind of discourse or practice. After the students respond to her, Ms. Mdawg has the floor, and Ms. N attempts to interject to let her know that there is a group that still hasn't had a chance to interact with the moss ball (line 22), but Ms. Mdawg has already transitioned into a presentation mode to inform the students of the next phase of the experiment, prompted by Jacob.

In Mr. W's classroom, we see more evidence of a strong established IRE/F practice as the teacher attempts to transition students into the content and new focus of their GRC block by reviewing what they already know, similar to Ms. T's work to review math concepts with her students before introducing something new. Students seem ready to participate in this way with few attempts to challenge or extend on their responses or the teacher's evaluations of them.

---

1 TW: (0.6) so! ((leaning over the projector)) (1.0) u::mm who can tell us what our project is: (0.2) for our GRC?
2 ((standing back and walking away from the projector, turning towards Ss))
3 Ss: ((hands go up)) (3.2)
4 TW: yes S1 ((uses her name))
5 S1: brownfields ((lowers her hand as she answers))
6 TW: okay! so we're studying brownfields
7 what I:S a brownfield?
8 Ss: ((hands go up))
9 ((S2's hand goes up last)) (3.0)
10 TW: S2 ((uses his name))
11 S2: abandoned or unused place?
12 TW: abandoned, ((some Ss raise hands)) OR, unused places

In lines 1-2 above, the teacher initiates a question and signals his expectation for a response by turning his body from the projector he's been setting up to face the students. Nearly all of the students raise their hands, and the teacher chooses one student (S1), who responds quickly with one word and lowers her hand (line 5). The teacher provides evaluation ("okay!"), and then repeats her response within the context of his original question, using the collective pronoun "we" again to return his focus to the entire class (line 6), thus closing this first IRE sequence. He follows up immediately by initiating another review-type question ("what I:S a brownfield?" in line 7), though this question seems to be slightly more open-ended, which he signals by emphasizing and elongating the word "is." Nevertheless, though the nature of the question has changed slightly, students' hands all go up almost before he has finished the question and the second IRE sequence continues as seamlessly as the first with the teacher selecting S2, S2 providing a response (with only some slight hesitation at the end of line 11), and

the teacher providing feedback by repeating the student's response without the heightened, uncertain intonation. Some of the other students seem to already be anticipating a follow-up question mid-way through his recast.

These two rapid IRE sequences represent what I consider the typical discourse structure of this classroom during teacher-directed instruction, although, as we see below, when answers to questions are less straightforward, or when new ideas are being explored, students and their teacher have developed ways of 'interrupting' these sequences or assuming new roles within them and claiming different degrees of authority to share their ideas.

Shifting language. We also see that there are certain shifts in the kind of language or discourse that students employ as they negotiate discourse practices.

In Ms. T's classroom, this is a shift between English and Spanish, a result of the artificial separation of the two between the different content areas. In spite of the attempted separation, however, we see, in this lesson, and in this moment in particular, math discourse in the two different languages. Students actually seem to drive this after Ms. T has sort of modeled it (accidentally, at first), explicitly stating that language is a tool. The students seem eager to take this multilingual approach up, using Spanish to help her come up with words and offering their math terms in Spanish as a response later in the lesson.

Through conversations with the classroom teacher and her own analytical work utilizing an activity triangle to plan and then reflect on the lesson, examination of the work students were asked to complete following the lesson, and my own analysis of the video data, I have identified the following as "English math discourse" items for this lesson: "fractions on a number line," "numerators and denominators," "parts of a whole or a set," and "equivalent fractions." These are seen as both math concepts to master and math discourse phrases associated with the

outcome of the activity to help students become more "fluent speakers of Math," aligned with the teacher's CCSS focus. In terms of Spanish, there is more limited evidence of its usage here, since most of the lesson was conducted in English as per the curricular norms of the dual-language program, but anytime Spanish was used, either as a cognate or in individual conversations between students to clarify math concepts or discourse, it was italicized and noted.

At the beginning of the lesson, the teacher demonstrates how Spanish can be used as a tool for understanding new math vocabulary terms through her own "mistake" while writing out a math vocabulary flashcard (lines 1-5).

---

1 TT: ah we also talked about...(reaching for index card)...fractions and number line
2 [S1: (inaudible)]
3 TT: right? a fraction *in linea*...(lowered voice) ooh, I'm sorry I did this in Spanish, but you know Spanish and English is also so much the same / so similar...
4 (pointing to index card) fraction in line or line / it's fractions in lines...that's a cognate okay?
5 use your Spanish as a tool to help you understand English and vice versa, okay?

The students readily pick up on this practice throughout the lesson, offering Spanish cognates or equivalents for certain terms (lines 53-58 below) and when asked to talk with one another, some use a mixture of Spanish and English while others seem to use English more in casual conversation. Here the teacher has been describing a set of four soccer balls (originally baseballs, but changed to soccer after asking for the students' preferences), two of which have been deflated. She has drawn them as circles on the chart paper and is in the process of shading in two of them to represent the math discourse concept of "part of a set." She stumbles a little as she is pronouncing the Spanish equivalent for "deflated" and S2 interjects with "desinflado!"

---

53 TT: okay...were deflated...okay?
54 [Ss: oh! (laugh)]
55 S3: (slaps hands together)
56 TT: yeah, the air came out...*desinfla*-...say um so then...
57 [S2: *desinflado*!]
58 TT: *desinflado*, very good...so then, how would I write my fraction here?

In this seemingly simple interaction, we see both languages or modes as integrated and dynamic mediational means for understanding and connecting with the concept of fractions as part of a set: English is being used as the predominant target language in math discourse, Spanish is being used to mediate the word and the concept of "deflated" or vice versa, and the drawing that the teacher is making to represent a set and shading part of it are all working simultaneously together. In line 55, S3 interacts with the concept of "deflated" in an additional mode by slapping his hands together, making as if to pop a balloon or show how the air collapses or is squeezed out of a deflated object. We even see the teacher attempting to integrate students' funds of knowledge, which for her seems to be their sports interests, as another possible mediational tool. Not only was this a highly-multimodal hybrid moment, but it was also an exciting point in the action of the lesson, with high modality for most of the students who were able to appreciate, respond, and connect with the concepts in a variety of ways.

In Ms. Mdawg's classroom, we see how students who took up the science discourse term "contamination" from Jacob's interactions with the moss ball suddenly became invested in a different aspect of the 'experiment' than the teacher intended.

---

16 SI: (smells moss ball and sets it back in front of SJ on his desk)

17 SJ: (is spreading the water he squeezed out of the moss ball around on his desk) now my desk is contaminated

---

When other students replicated Jacob's interactions later, they, too, claimed their desks were "contaminated."

In Mr. W's classroom, we see students utilizing an argumentation discourse with words like "actual," "because," "so that," and "another reason," when they intend, or are invited, to respond in longer turns. Though there were several notable interruptions to the kinds of typical IRE/F sequence illustrated above, I have chosen to focus on a few that represent the range of responses that the teacher and other students had to these attempts to claim discursive authority by other students, beginning with a teacher-signalled departure from the typical discourse structure.

---

13 ((Ss raise hands again))
14 TW: let me take three and then we'll move on
15 S5 ((uses name)) ((points to S5 in back of room))
16 S5: um, another reason is that the soil is polluted too (0.2)
17 ((SK keeps her hand raised))
18 when the / when / cuz of the, like, different things /
19 like sometimes it will be there cuz of how lo::ng these people have not been in there
20 which collects chemicals from different things
21 like when people are drunk *unclear* throwing then go in there
22 and people who / people who will go past it are the ones that mostly are sitting in
23 and we don't want brownfields to be like
24 we don't want to keep brownfields
25 we want to make things out of them
26 ((TW has moved back to camera and is turning it to include S5 in the shot))
27 ((Ss turn to face TW))
28 so that / because if we don't, a lot of people will get sick and, hurt and die

29 TW: okay, very good ((off-camera))

In line 13, we see that the students, by raising their hands, still feel that they have something to add to the class discussion, in spite of the fact that the teacher has not initiated another IRE/F sequence by asking a question. He concedes, and signals that this is no longer an IRE/F sequence in line 14 with the 'bargaining' phrase, "Let me take three and then we'll move on." Not only does this indicate that he is only going to allow three students to share, but also that he has an agenda, and that there are more things that he feels need to be discussed.

Nevertheless, S5's response is very different, both qualitatively and quantitatively, from the previous student turns. It is longer, and it includes connected discourse with markers such as "another reason" in line 16 which serves to connect his response to the ongoing discussion about why brownfields are abandoned or unused places. This is a common marker of argumentation used by students in this classroom, occurring in use by multiple students, and we see another such argumentation feature in line 28 when S5 concludes his point with an implication, "so that, because if we don't…" Interestingly, although the student has attempted to alter the discourse structure through argumentative language features, the teacher returns to a familiar kind of evaluation from previous IRE/F sequences in line 29 with "Okay, very good." The rest of the students, who have been tracking the teacher throughout most of S5's turn, also seem to be looking toward the teacher for an evaluation of his response. This, then, in spite of the increased length in student response, does not seem to be a significant departure from the typical teacher-structured IRE/F sequence.

It is worth noting that Kayla has had her hand raised the entire time S5 has been speaking. The teacher calls on her next, and she begins an even longer student turn.

---

30 TW: Kayla
31 SK: okay ((lowers hand)) (0.2) so another reason why:: / why we can't / why we can't / well why it can kill people is that / another reason is that it has the toxic chemicals and all the different kinds of gases
32 and everything can be polluted around the world ((maintains eye contact with TW))
33 ((turns whole body with TW as he moves back to front center of room))
34 and some people / what some people do, is that they live in the home,
35 and then / they / and they try / they live in the home and they do all the things that they need to / that what / that they need to do
36 the number one thing that they need to do is test the / test the / test the building to make sure all the toxic chemicals and everything is finished
37 TW: [great]
38 SK: ((shifting in her seat without pausing)) and then two what they do / two what they do is see what kind of person wants to buy the house
39 and three what they do is that the people who buy the house sometimes they just /
40 they just buy the house and they just waste all their money ((waving hands dismissively))
41 and / and just leave the home alone so it can become a brownfield
42 and that's why people / people die, because of / because of people, and also brownfields
43 TW: okay! ((TW nods, hands behind his back)) thank you so much, very good, and::
44 S7 ((uses his name))

Again, we see the “another reason” argumentation and connection marker in line 31, used by a different student. In line 36, we see a new discursive technique introduced as Kayla begins a list of things people need to do when looking into purchasing or reclaiming property that has been designated as a brownfield. In line 37, there is some attempted intervention by the teacher as he offers an evaluation, perhaps thinking she has finished (interpreting her “the number one

thing" to mean "the most important thing" instead of the beginning of a list of things), but she continues with her list, rejecting his attempt to conclude her speaking turn just yet. From her body language in line 38, it seems that she is not simply ignoring him or didn't hear him, as she shifts in her seat while still continuing to speak. In line 43, the teacher gives a final emphatic evaluation, "okay!" to more assertively reclaim his authority, and then some additional evaluation ("thank you so much, very good") before calling on another student.

Both of the examples above represent adaptations or concessions made largely by the teacher to allow extended student talk, in contrast with the next example, which is a more overt attempt by a student at 'taking control' of the classroom discourse.

---

49 TW: raise your hand if you know the answer please
50 more Ss: (raise hands)
51 TW: yes S9 (uses name)
(1.8)
52 TW: yes S10 (uses name)
53 S10: yes
54 TW: okay! do you all agree with S10?
55 Ss: YE::::SS!
56 Ss(unkown): [NO:::!]
57 TW: (to Ss saying no, in a quieter tone) I think we already spoke about that

---

In line 54, the teacher has already given his evaluation to S10's response, and he enlists the rest of the class to join him, perhaps as an attention-calling technique. Most of them respond as expected in line 55 with a loud, elongated affirmative answer, though some students signal rejection of this invitation to agree with the teacher with an equally loud, elongated "NOOO!" in line 56. It is clear in the next line that the teacher interprets this as a challenge to either his own

authority or the expectations of the classroom discourse (or both), because he speaks directly to the naysayers in a quieter tone with a reminder that seems more disciplinary or managerial in nature than the previous discourse. This interruption is not seen as relevant or recognized as part of the ongoing discussion by the teacher, but as an attempt to confuse or derail the lesson, so the teacher quickly attempts to counteract it and reassert his authority to these students before continuing with the lesson.

In contrast with the last example, there were also times when a student would introduce an interruption to the teacher-centered IRE/F sequence or make a claim for some of the teacher's authority that was not rejected by the teacher, and in fact, taken up by other students in subsequent turns.

---

59 TW: ok so manufacturing is where most of the contamination comes from
60 (TW walks up to the chart and touches the 'manufacturing' section) now we've been able to tell that (.) what clue did we use in figuring out that manufacturing is the greatest source of contamination?
61 what clue did we use?
62 Ss: (raise hands)
63 TW: (0.8) S13
64 S13: the clue we used is that the color (.) by man / manufactory is the color that's on the board that's the largest
65 TW: very good! so (.) since you used that clue let's try one more how about the SECOND largest?
66 what do you think is (.) the second largest source of (.) contamination?
67 (TW walks over to dim the lights so Ss can see it better)
68 TW: (2.0) u:::mm let's see (1.2) Kayla yes
69 SK: ok (stands up from her desk and approaches the board)
70 TW: [you don't have to / ok]
71 SK: (pointing to the pie chart) so since this one is the second / since this one is the

second largest the second one has to be other unknown
72 TW: do we agree with her?
73 Ss: NO::::!
74 TW: why not? David
75 SD: because the colors don't match so the actual real one
76 (stands up and approaches the board) is (.)
77 (knocks on the segment of the pie graph he's discussing)
78 utility
79 (swings his arms around and sits back down)
80 TW: I think that he's //
81 Ss: YE:::A:::HHH! (some Ss applaud, others give unclear praise)
82 TW: [// alright may I speak?]
83 Ss: YE::BO!
84 TW: so yes (.) utility (.) is going to be the second largest
85 Ss: [utility?]
86 TW: utility simply means things like like you know the heat we use in our homes (.) the gas (.)
87 u::m all that stuff ok? is utility

In this example, the teacher begins by giving feedback on a previous response designed to help students understand the process by which a student was able to figure out that manufacturing was the largest contributor to contamination in brownfields. He uses the pie chart that has been projected on the front board, pointing to the section that represents manufacturing in line 60, and then initiates another IRE/F sequence about the process, asking what “clue” was used to understand this information. He calls on a student, S13, they respond, and the teacher gives his positive evaluation in line 65 before immediately initiating another IRE/F sequence about the second largest source of contamination.

This time he calls on Kayla, who stands up and moves to the board. As she does so, he begins to stop her, but allows her to make this move after some hesitation in line 70. Kayla

attempts to claim not only the right to speak, but by occupying the physical space and utilizing the materials the teacher has been using, she is also claiming the authority to demonstrate knowledge to the entire class as she gives her response in line 71. Unlike in the previous example, where the teacher gave his evaluation and then asked students to agree with him, he genuinely asks the class whether or not they agree with her in line 72, and when the response is overwhelmingly "NOOO!" he asks the class to provide feedback, calling on another student, David to respond.

This is a significant departure from the superficial interruptions described above, since not only is a student claiming authority and positioning herself as the teacher, but the teacher is also allowing students to provide their authentic evaluation and feedback to her response. David uses the discourse markers "actual" and "real" to make it clear that he is arguing against Kayla. And when David stands up and goes to the board in line 76 to use the same materials to make his point, building off of the discursive moves Kayla has just demonstrated to the class, he is adopting her transformation of the classroom discourse structure from teacher-directed IRE/F sequences to a demonstration of knowledge to be evaluated and defended to one's peers. His body language is confident, triumphant even, and this is echoed in the response and evaluation he gets from his peers in line 81 without the teacher's invitation to agree or disagree (they actually interrupt the teacher's attempt to give his own evaluation).

This transformation of classroom discourse continues, as several students take up the role of initiators of their own question in line 85, even after the teacher has attempted to regain discursive authority in lines 82 and 83 through the call and response he uses often with his students ("*yebo*" means "yes" in Swahili).

While the verbal transcript was useful for examining the content of what was said, particularly Kayla's incorrect response to the question and the way Mr. W invites the class' evaluation of her response, I was left to describe certain gestures and actions in parentheses, which inherently places them as secondary or auxiliary to the words that were spoken, even though it seems that the physical movement is the real trigger for negotiating discursive authority in this moment.

Furthermore, since this format did not force me to come up with any systematic way of representing movement or participants' orientations to one another or the classroom space, it is easy to miss the way David took up the same practice, travelling to the same location, and utilizing the same kind of gesture to interact with the board, that Kayla had just introduced, not to mention how quickly we are able to forget about all the other people in the classroom who are not represented here because they are not speaking. But it is clear, from their enthusiastic reactions, that they are as much a part of this moment as the students who are speaking. So much so that the teacher has to utilize his call-and-response method for reclaiming discursive authority.

In this verbal transcript, by privileging the spoken words of the teacher and his students, we fail to fully appreciate the way the students used space and time systematically as semiotic resources to claim discursive authority in a new way that represented a departure from the classroom norms and discourse practices described in the teacher-researcher data.

Negotiating Discourse through Objects

Interacting with diagrams and graphs. In Ms. T's classroom, the diagram Antonio draws on his folder, then presents becomes an object that he and Ms. T both interact with to further transform the classroom discourse. A few other diagrams that the teacher drew on the chart paper were described briefly in the transcript above but, in order to do justice to the

intricate ways that Antonio and Ms. T interact with the diagram he presents, I had to develop a different kind of transcript that forefronted the diagram itself. I have chosen to represent this interaction multimodally through recreation of the step-by-step creation and interaction with the diagram, embedded as closely as possible to the language that accompanied these actions in an attempt to show how teacher and students layer mediational modes together. Students (and their teacher) rely on these and other modes to make meaning out of the concept of fractions and work towards the overall curricular goal of being able to talk about them using English math discourse, again reinforcing the explicitly-stated message in this classroom that language is both a tool and an object of learning.

Later on in the lesson, Antonio, who has been identified by the classroom teacher as a native Spanish speaker, and typically "quiet" according to the teacher, creates a diagram in front of the class to illustrate a concept that he names in Spanish (line 119), then later has difficulty explaining in English math discourse to the class (lines 147-150).

---

116 TT: okay...can you tell me, what are equivalent fractions?

117 [Ss: (raise hands)]

118 TT: (points to SA) Antonio?

119 SA: um...in Spanish they're *fracciones equivalentes*...and...I even drew this on my folder (holding folder up to show TT)

120 TT: ohhh...could you come to the front, yeah! and share that (TT sits back behind chart paper)

121 SA: (stands up next to TT) uhh...equivalent fractions are / uh for example if you have a square divided into four…

122 um and you color two it would be two-fourths, but you can also do that um if you have a rectangle and divided it into two parts, you color one

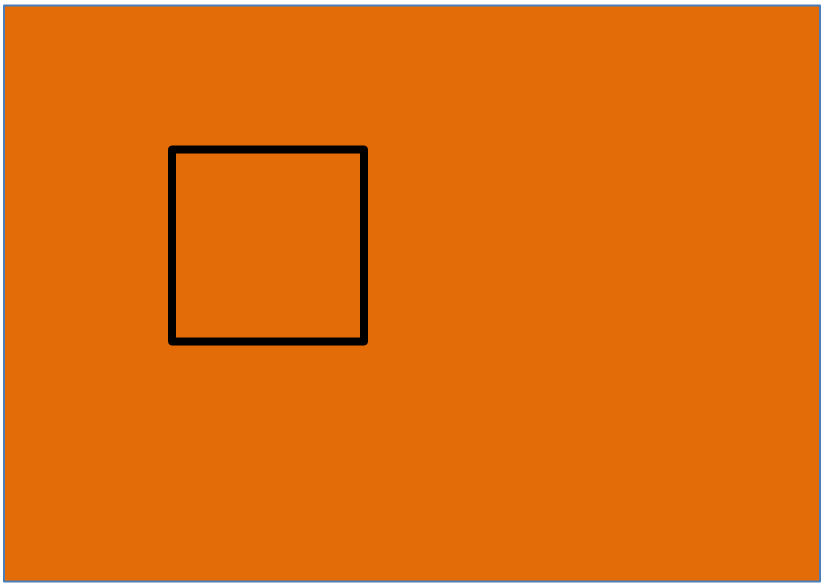
123 it would be the same thing but bigger…

124 S?: (whispering) cool(inaudible)

125 TT: (grabs a piece of orange construction paper)
126 mmhmm (nodding) would you wanna come and show me this in the /on the board for everyone? (holds construction paper over chart paper)
127 (to class) so equivalent fractions, pretty much they have the same value, okay?
128 [(TTputs hand on SA's shoulder)]
129 [(SA starts to move in front of chart paper, but stops)]
130 TT: they're just divided into different, pieces (hands paper to SA and motions for him to move in front of the chart paper, and he does)
131 TT: oh! you wanna do that in the front here? (reaching behind chart paper)
132 [(SA begins drawing with pencil on orange paper, placed on chart paper)]
133 TT: you um, why don't you use this Antonio (hands SA a black marker)
134 so that everyone can see it so it's nice and...um, visible (reaches behind chart paper for tape)
135 SA: is it...sorry (puts pencil down and begins drawing on paper with marker)
136 TT: here (tapes construction paper to chart paper)
137 (to class) I love that he went out of his way to do it on his folder

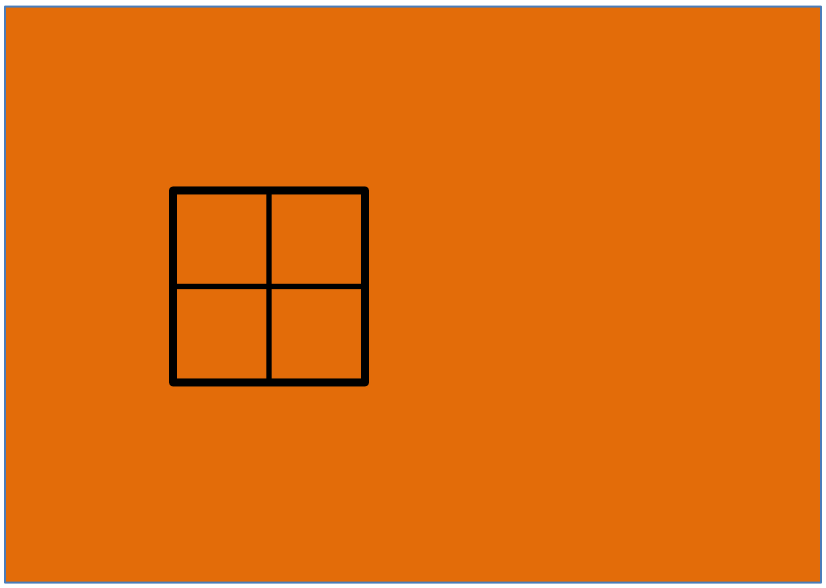
Figure 9. SA illustrates equivalent fractions.

[00:06:13.17]



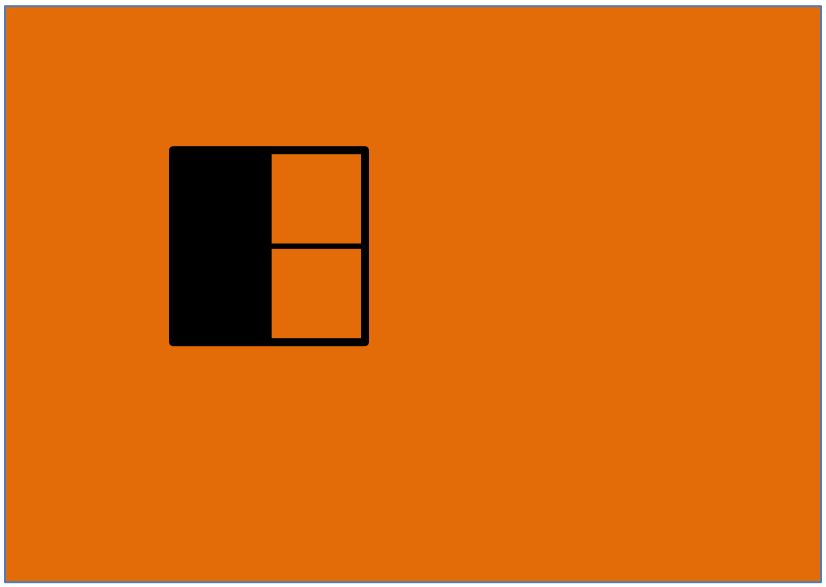
a. First, SA drew a box.

[00:06:18.20]



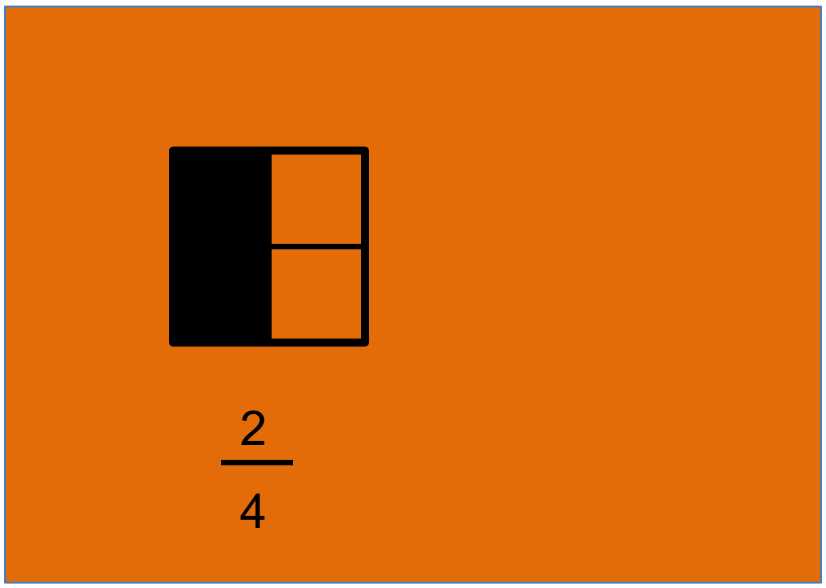
b. Next, he divided the box into four equal parts.

[00:06:23.25]



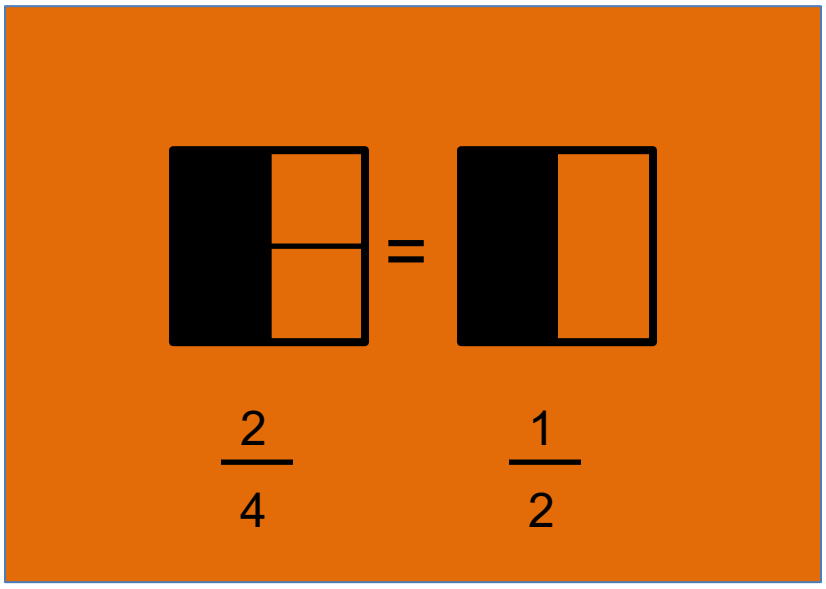
c. Then, he shaded two parts, or half of the box.

[00:06:27.04]



d. Finally, he wrote the fraction that represented this two-fourths shaded box.

[00:06:40.07]



e. …To show the equivalent fraction, one-half, he followed the same sequence (finished product above).

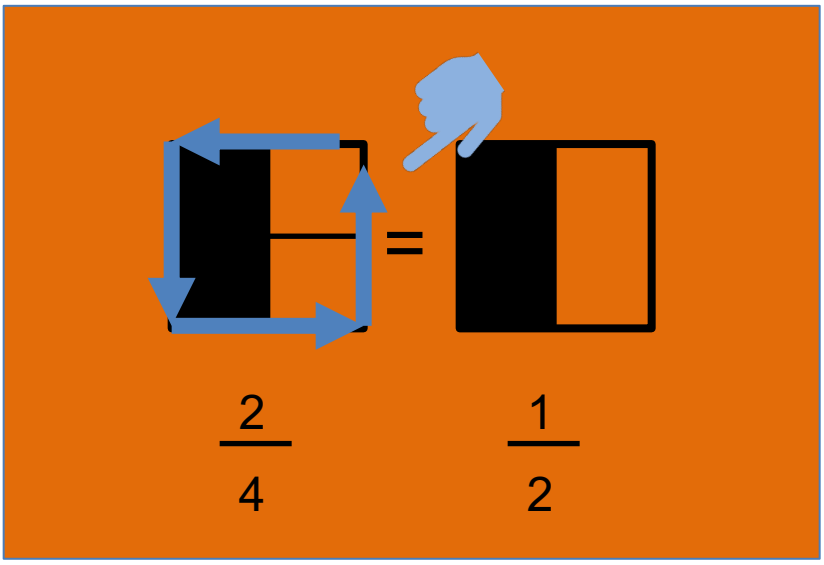
138 TT: (very quietly) okay, explain to the class (TT motions towards other Ss)
139 SA: (facing TT) umm, so if you cut (inaudible, holding and twisting marker) this into fourths (inaudible) (drops marker, picks it up)
140 and if you color two, it'd be two-fourths and it equals the same thing as… um… as…
141 um…two rectangles colored one it would be umm…
142 or four rectangles if you colored that'd be two

This is a big shift in both the lesson and my transcript, a pivotal moment of public resemiotization of the idea of fractions from something previously just talked about to something drawn and illustrated. This is also what I refer to as a discourse 'maneuver' in that the student is attempting to negotiate how to demonstrate mastery of a concept.

In the multimodal transcript of the diagram above, I attempted to show the steps the student took as he drew (with his back to the camera) embedded within the transcript as a recreation of the drawing itself. Ms. T then uses the student's diagram, interacting with it through pointing and increasingly sophisticated hand gestures, to further illustrate the math concepts she is explaining in English (illustrated below with a few examples from the transcript, lines 151-173). This is represented in the transcript using a hand (either open or pointing, depending on what the teacher was doing) and an approximation of the path her hands followed in relationship to the diagram using arrows and lines.

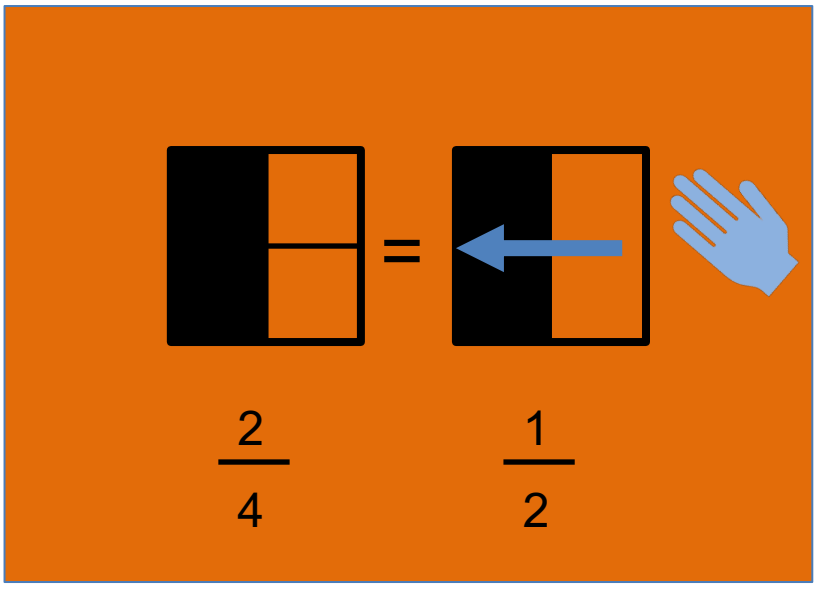
Figure 10. T begins interacting with SA's diagram through hand gestures to illustrate.

[00:07:15.28]



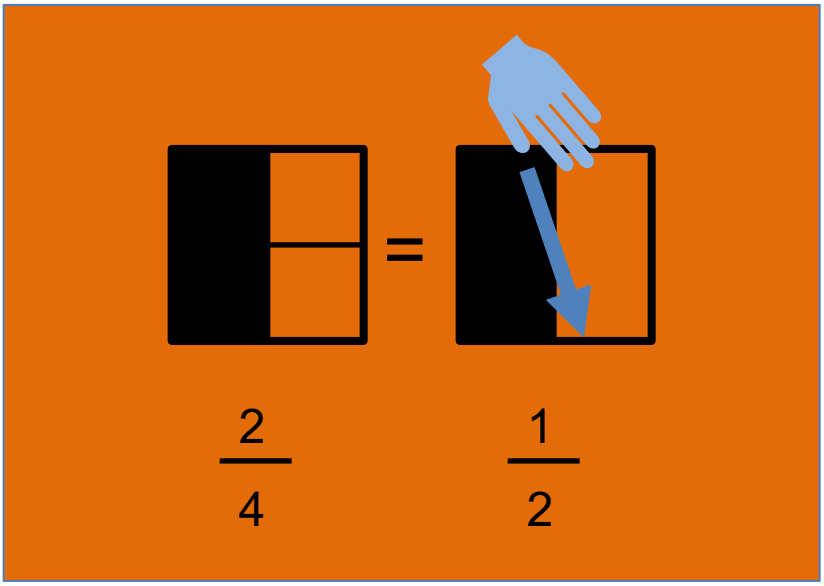
a. "…one whole piece here, right?"

[00:07:22.03]



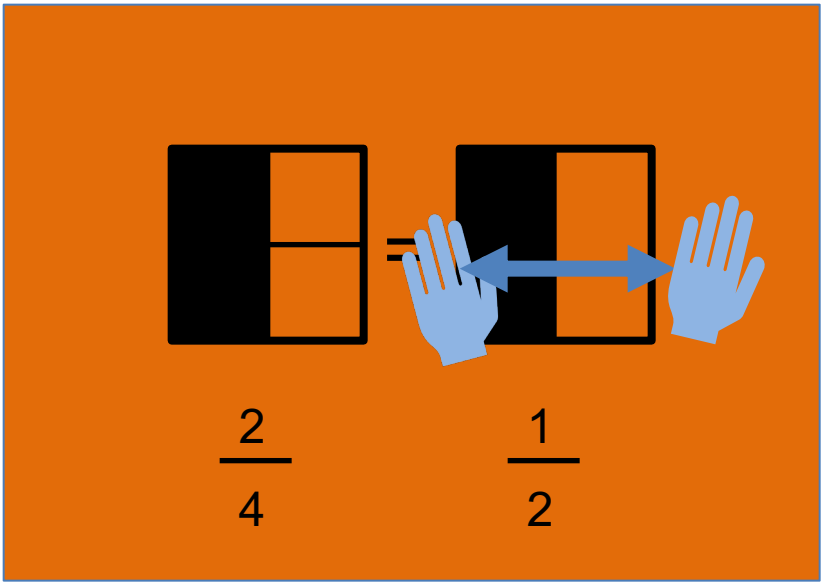
b. "he folds"

[00:07:23.04]



c. “he cuts”

[00:07:24.09]



d. “divides”

By drawing special attention to this representation, asking the student to re-draw his diagram for the class and by using it for the rest of the lesson as a visual reference, the teacher is

publicly recognizing and explicitly sanctioning yet another mode that is now available for *students* to use as they learn new math concepts -- the use of a picture or diagram. Previously, she had used it herself on the chart paper and through explanations, but giving students access to this mode as a means of explaining or demonstrating new knowledge is a powerful discourse shift, seemingly initiated by Antonio himself when he presented his original drawing on his folder as evidence of his understanding of equivalent fractions, or, in his words, *fracciones equivalentes*.

This kind of transcript attempts to show the generation and interaction with the diagram as equally important as any verbal communication by foregrounding it when it is elevated as the primary mode of meaning-making for Antonio and afterwards, by the teacher. The words being used (when there are words being used, which is not the case while Antonio is drawing silently and the teacher and students are watching attentively) are no longer the dominant meaning-making mode but require the diagram to make any sense of the interaction. It is interesting to note that Antonio, even after completing his diagram which shows that he understands the concept of equivalent fractions quite well, chooses to try to explain it in English math discourse *without* further interacting with the diagram. It is the teacher who initiates this possibility by taking over, so to speak, where Antonio leaves off. She gestures and interacts with the diagram through her own follow-up explanation to the class. The 'grammar' of gesture that the teacher uses to interact with the diagram could be considered another mode altogether (Kaltenbacher, 2004), though in this case, it would be meaningless without the diagram as a reference, so it is represented as wedded to the diagram in the multimodal transcript.

Playing like scientists. In Ms. Mdawg's classroom, students negotiate a transformation in science discourse utilizing the moss ball. In order to study the interactions they have with the

moss ball, I've created this multimodal 'transcript' which foregrounds the object instead of the spoken language, or even the people themselves. This allows us to trace the trajectory of the moss ball as it moves from person to person around the room, and shows the connection here that is made between what the students do to it and what the teacher takes up as another phase of the experiment after Jacob has squeezed the water out of it.

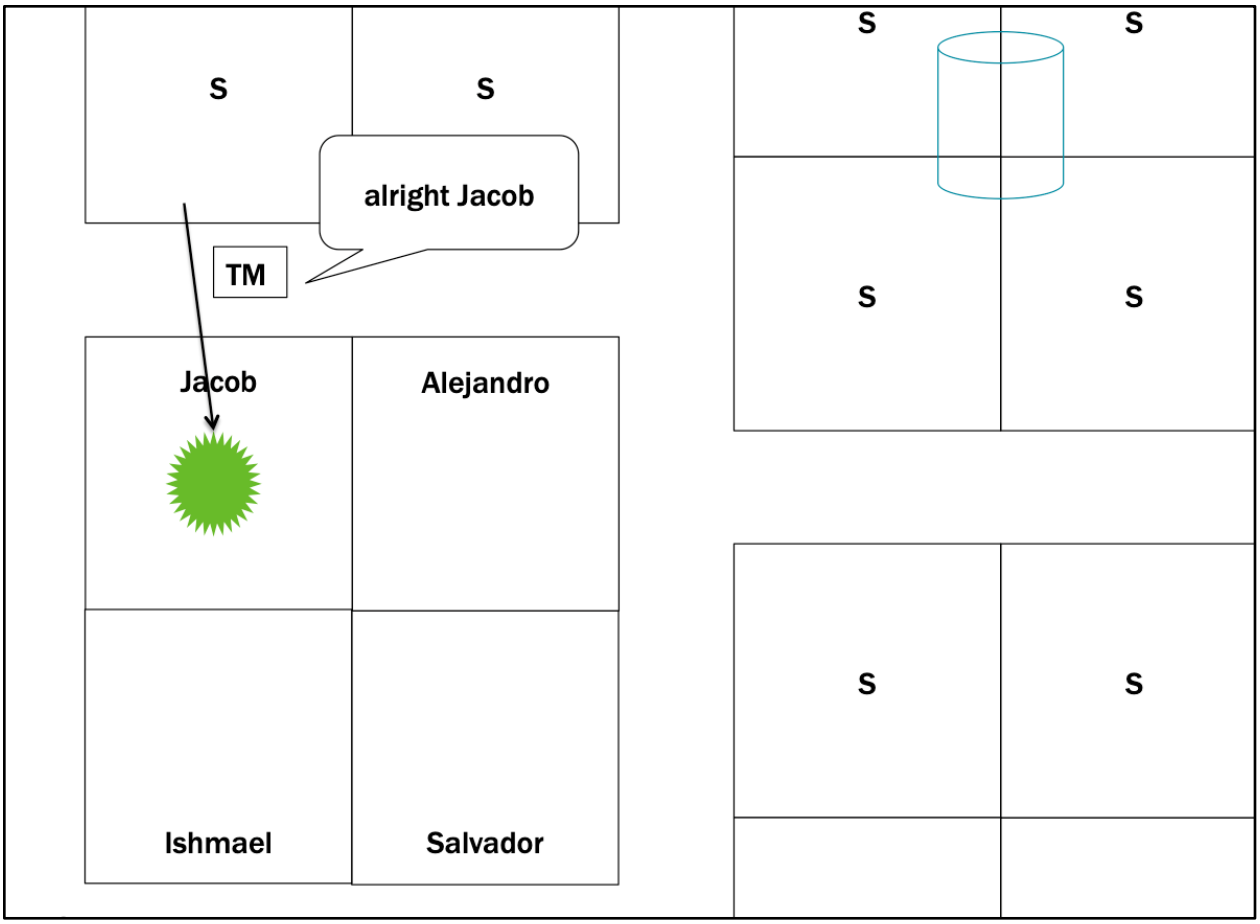


Figure 11. Ms. Mdawg passes the moss ball to Jacob.

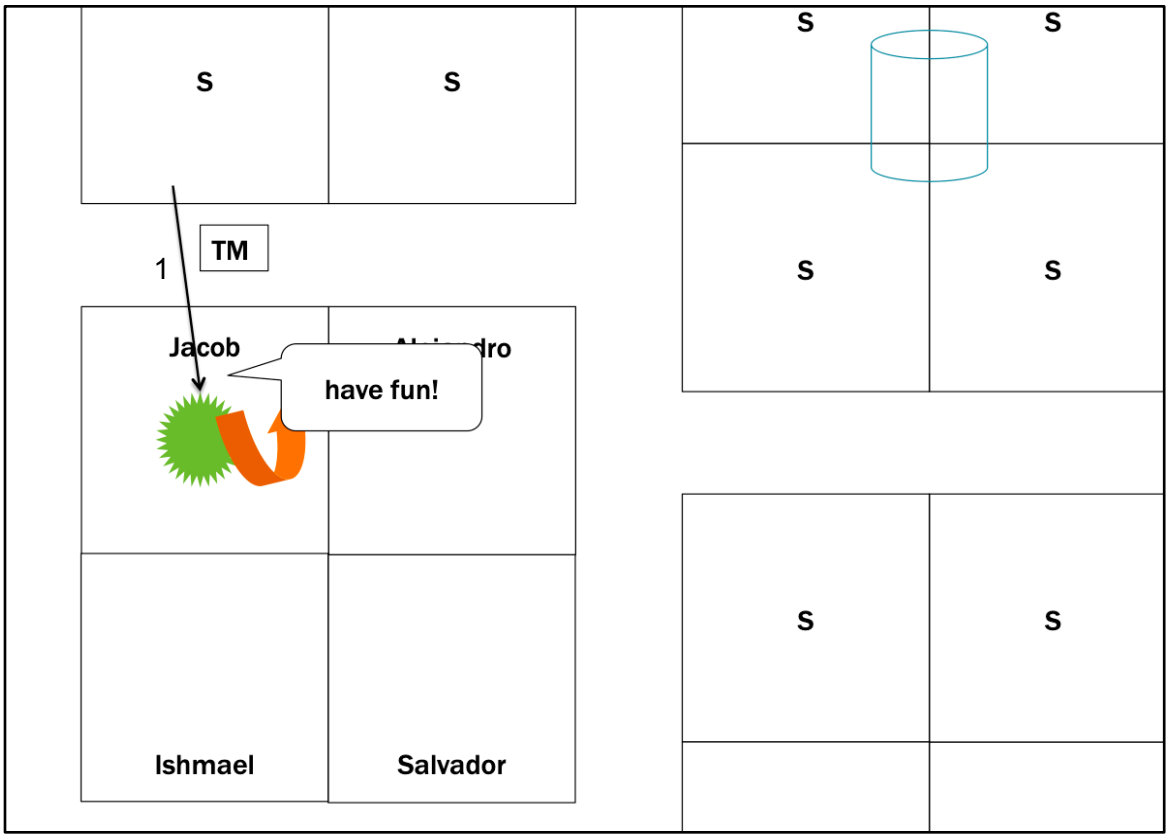


Figure 12. Jacob tosses it into the air and tells it to "have fun!"

While it is not my intent, with an object-focused transcript like this, to delve into material agency in any meaningful way here, but rather to show how students interacting with an object can transform the discourse of the classroom, it *is* interesting how Ms. Mdawg and her students have begun to anthropomorphize the moss ball. Jacob says "have fun!" to it as he tosses it up into the air, and later, Ms. Mdawg refers to the moss ball as "he" when she is explaining the new experiment.

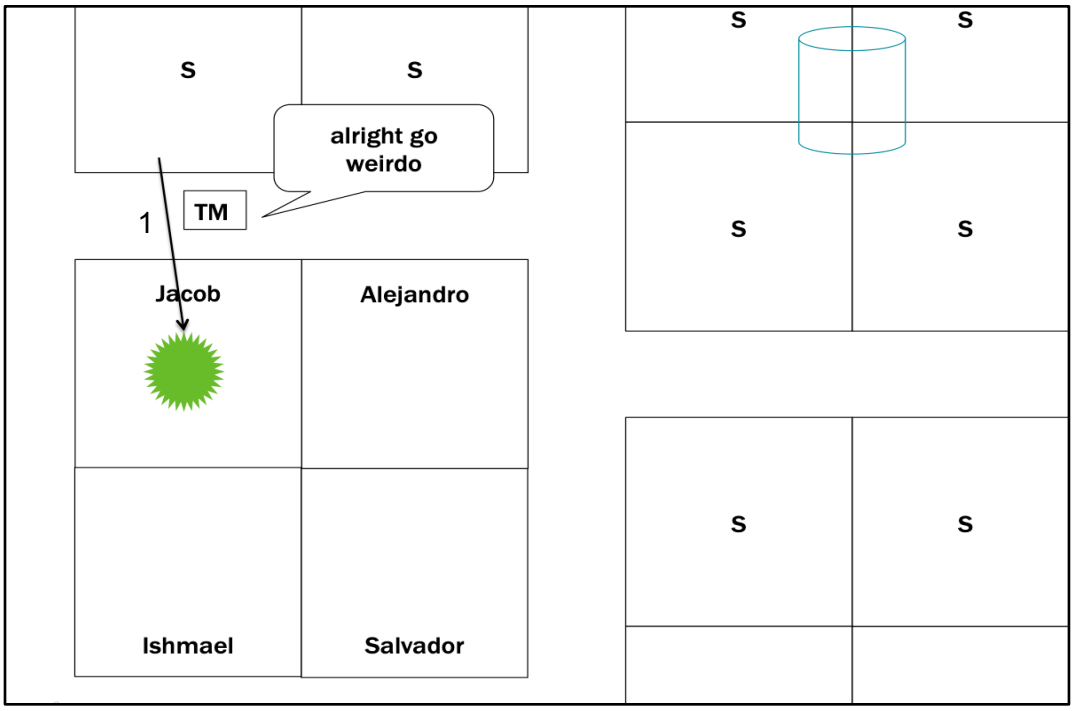


Figure 13. Ms. Mdawg urges Jacob to pass it on to the next student and calls him a "weirdo."

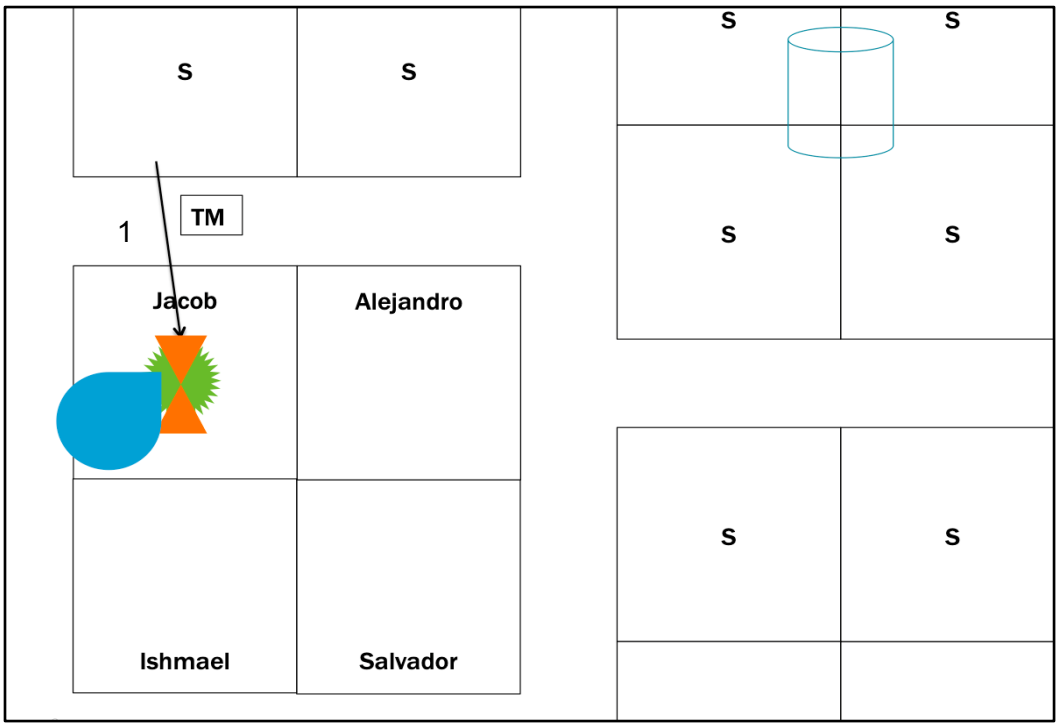


Figure 14. Jacob squeezes the water out of the moss ball onto his desk.

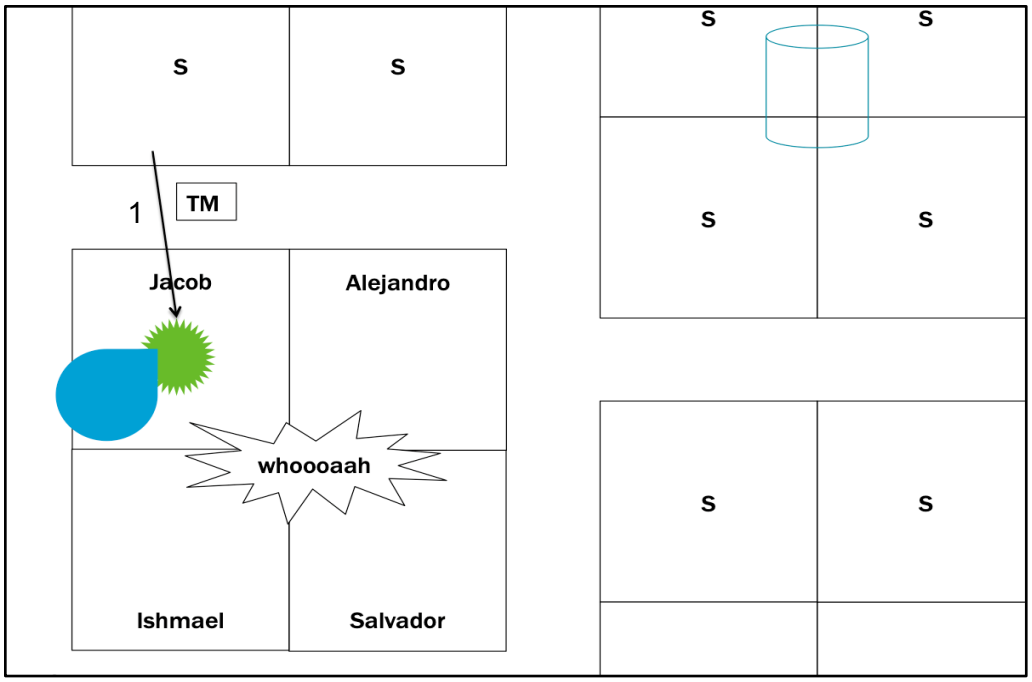


Figure 15. The students at Jacob's table react.

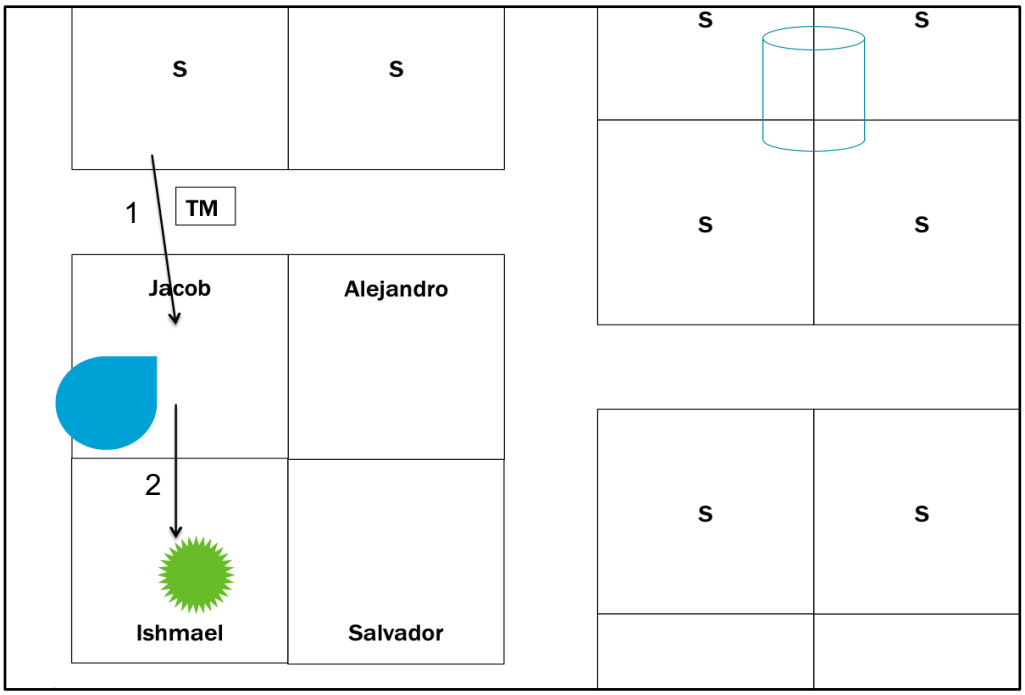


Figure 16. Jacob finally passes the moss ball to Ishmael and begins spreading water around.

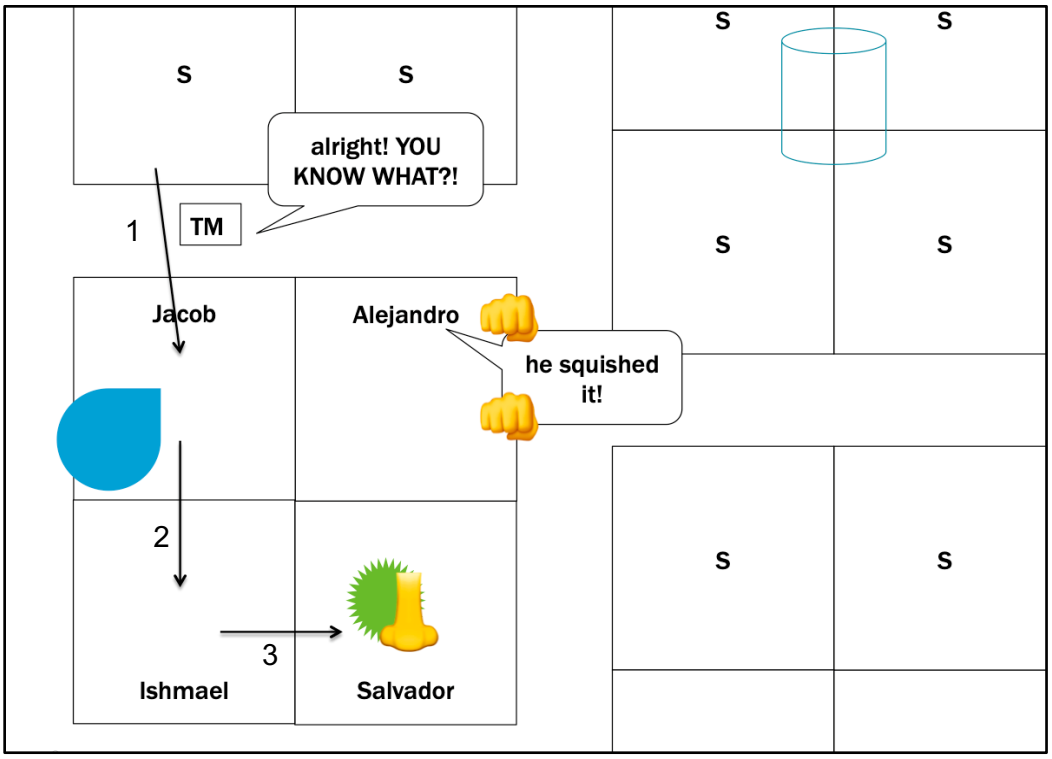


Figure 17. Ishmael passes the moss ball to Salvador without interacting much with it. Alejandro is laughing and telling the other students what Jacob did, and re-enacting it. Ms. Mdawg is speaking loudly with students across the room, out of view of the camera.

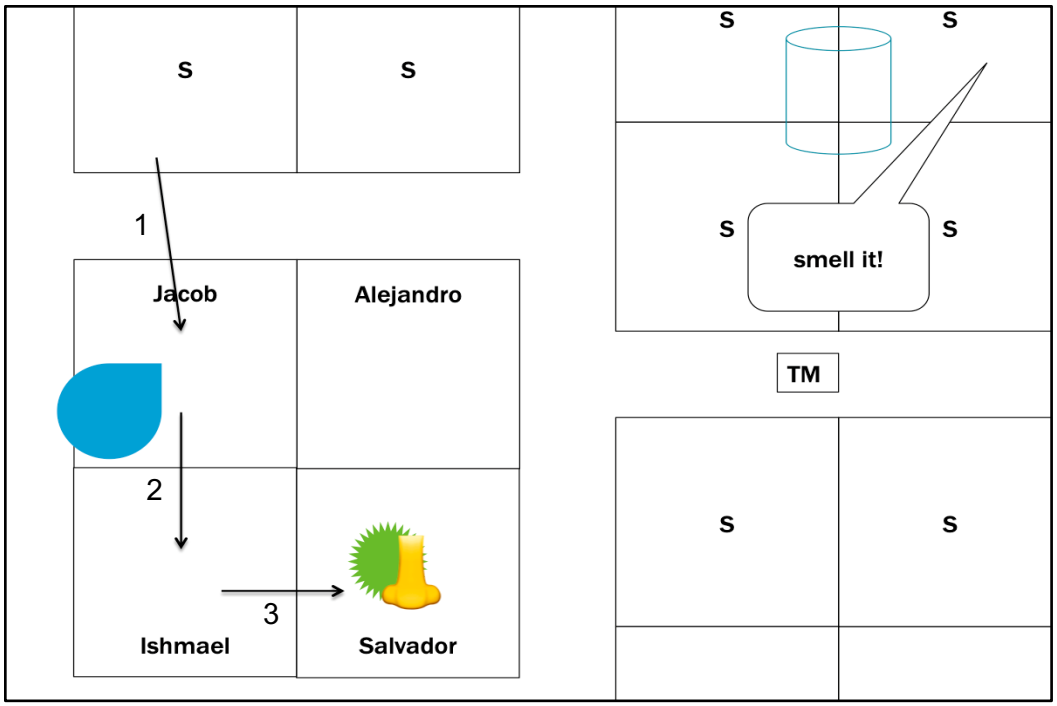


Figure 18. Another student yells "smell it!" while Ms. Mdawg moves toward the other students.

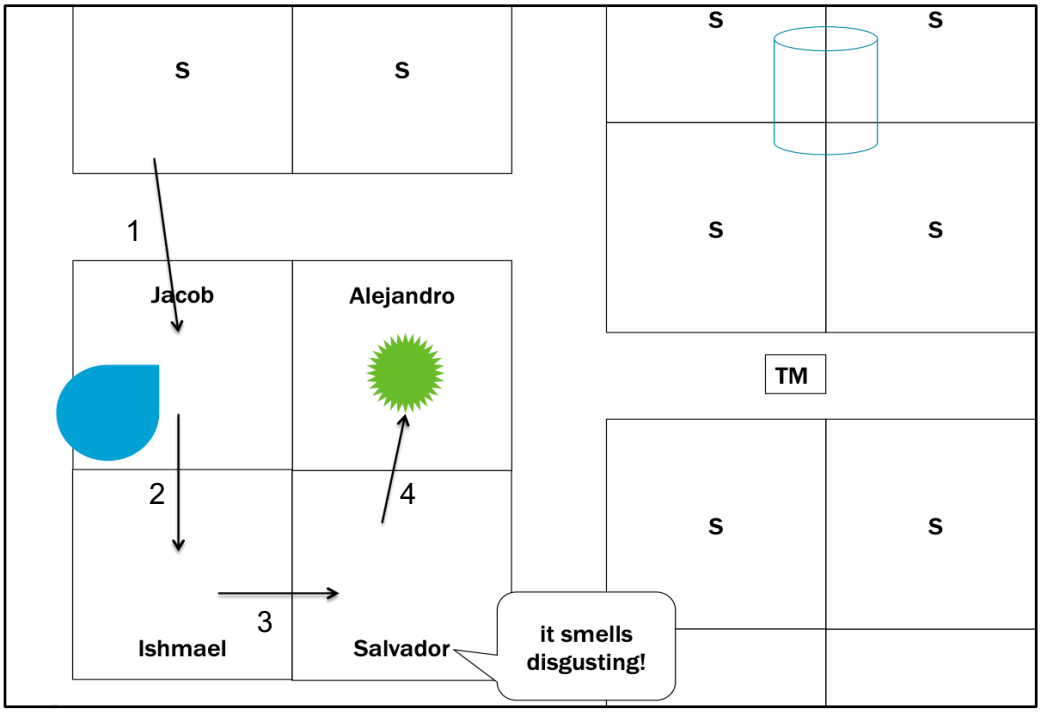


Figure 19. Salvador yells "it smells disgusting!" after passing the moss ball to Alejandro.

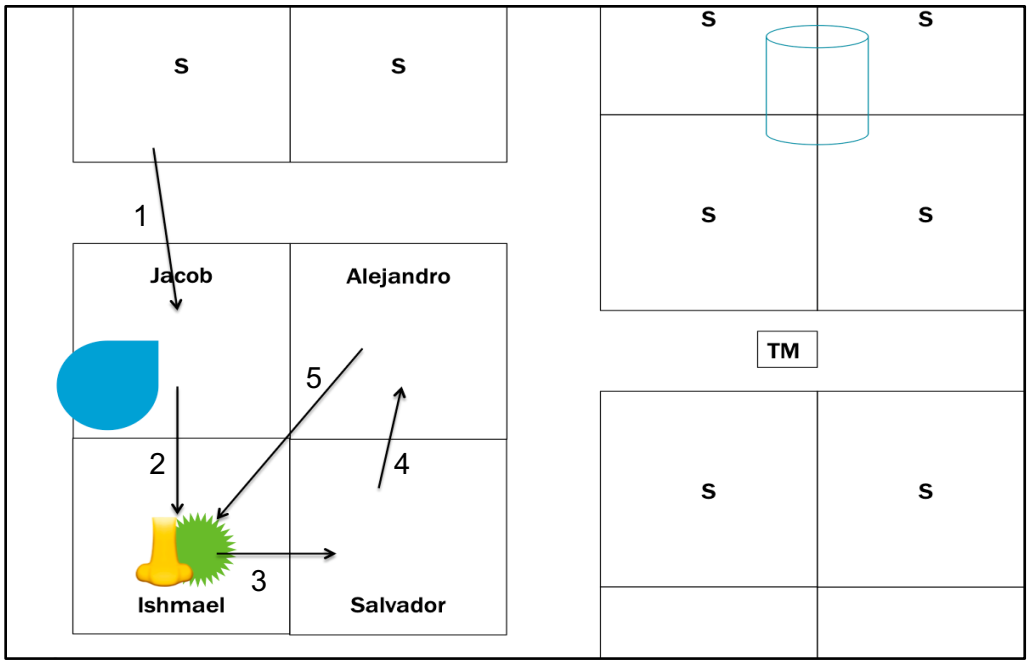


Figure 20. Alejandro passes the moss ball back to Ishmael, who smells it this time.

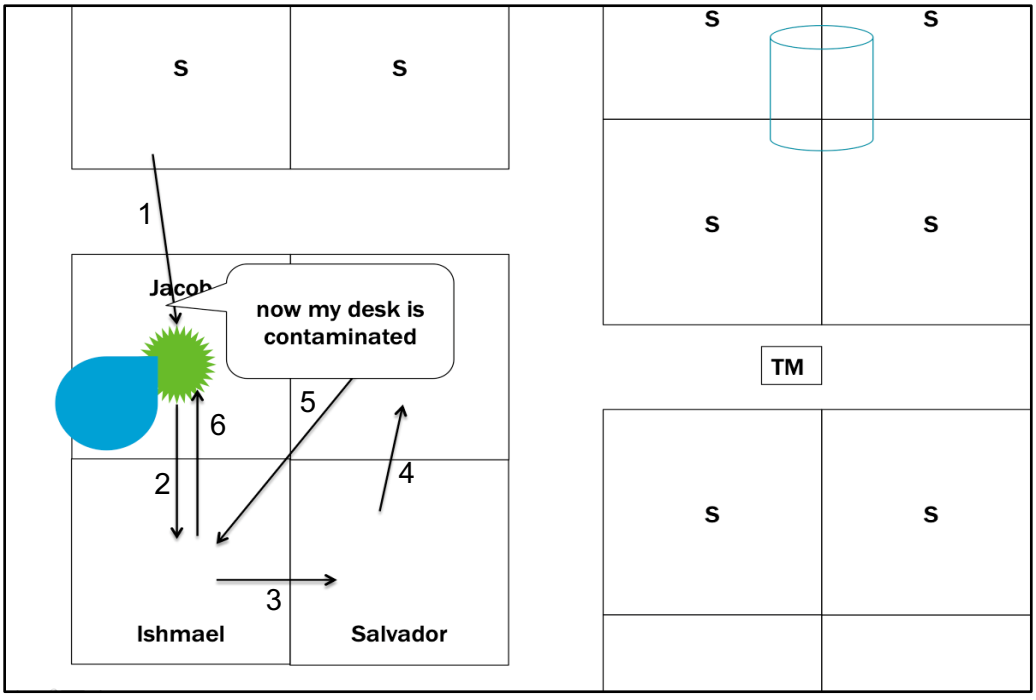


Figure 21. Ishmael passes the moss ball back to Jacob, who says "now my desk is contaminated."

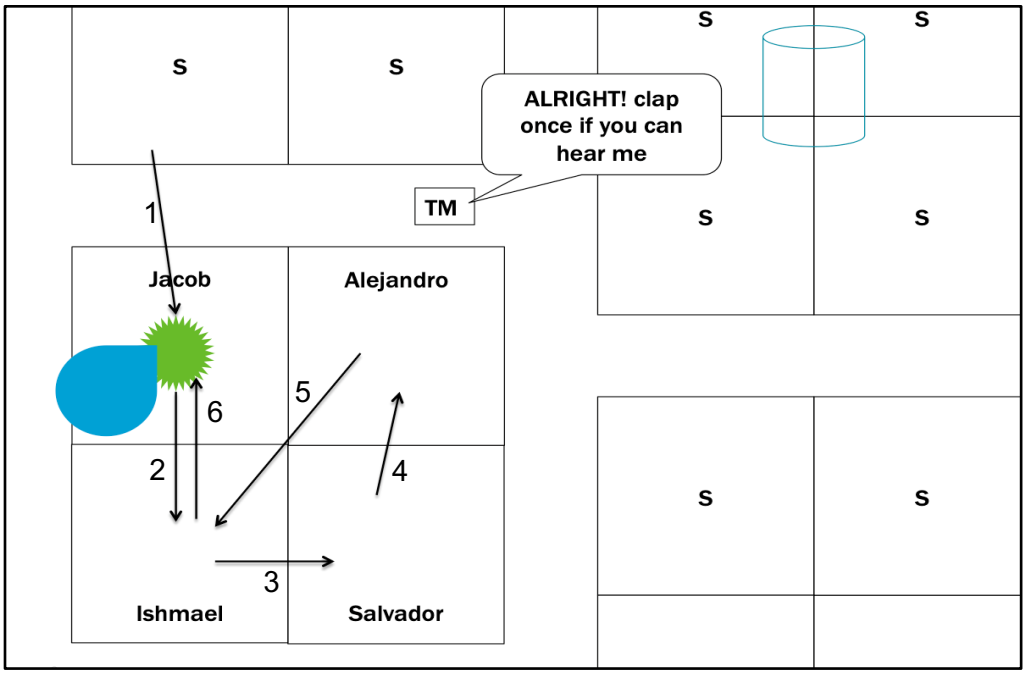


Figure 22. Ms. Mdawg initiates a call-and-response sequence to get the students' attention.

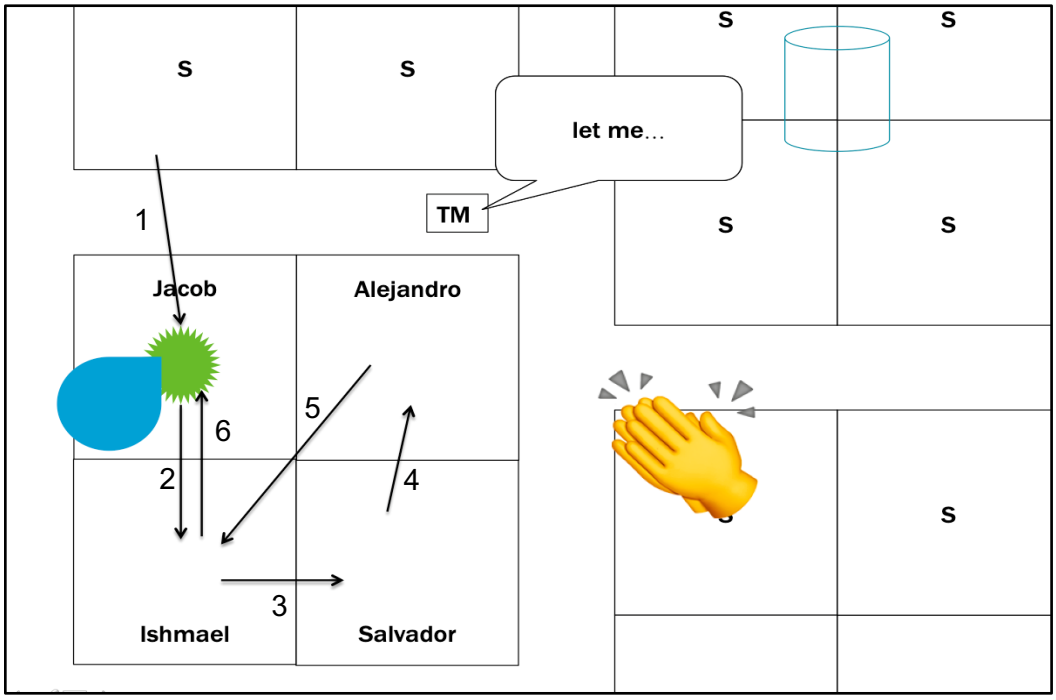


Figure 23. Most students respond by clapping and turning to face Ms. Mdawg.

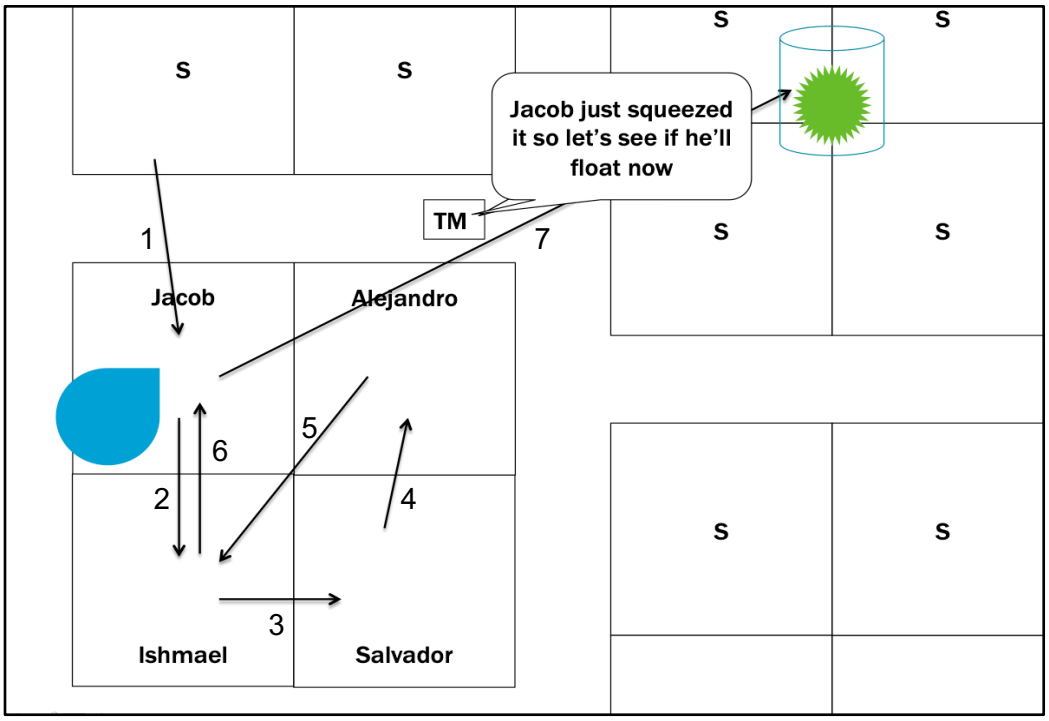


Figure 24. Ms. Mdawg takes the moss ball from Jacob and places it back in the glass container.

We can see more clearly the discourse negotiation and meaning-making that happens in Ms. Mdawg's classroom when we focus on the object in this moment and how students interact with it instead of the words that are represented in a traditional verbal transcript. The moss ball goes from being a mysterious, smelly thing to something students play with and collectively share their experiences and reactions to. The greatest physical transformation is in what Jacob does here, squeezing the water out of the moss ball and prompting Ms. Mdawg to amend this activity from a simple 'touch this, feel it, smell it' exercise to an actual experiment, to see if Jacob's squeezing has somehow affected the moss ball's ability to float.

Ishmael, one of the English learners in this classroom, is practically silent during the entire interaction, quickly passing the moss ball to Salvador the first time he gets it, but smelling it and holding it the second time, before passing it back to Jacob. This shows that he is becoming more comfortable exploring the moss ball, more comfortable in his role as a scientist, in this

classroom, prompted by the students' interest and reactions (someone yells "smell it!" from across the room). And this transformation in Ishmael is completely missed if we focus merely on the words that were spoken here. Yet, looking at the trajectory of the moss ball (numbered so we can follow each time the moss ball is passed), we see that Ishmael is really like the epicenter of the entire moment, being the one who has had the most contact with the moss ball.

The science concepts here are, admittedly, a little murky. Ms. Mdawg doesn't go into any detail about why she thinks squeezing the water out of the moss ball might change its behavior in water, or if it might have harmed the moss ball. But the actions and discourse of being a scientist (the doing, being, feeling) in this classroom are clear. Scientists experience things, make observations, replicate practices and share their findings with each other, do more things, and test hypotheses together. And now, thanks in large part to Jacob's negotiations with the moss ball and Ms. Mdawg, nearly all of the students in this classroom are taking part in that process in some way.

Negotiating Discourse in Time and Space

In Ms. T's classroom, there is a transformation that takes place when Antonio moves from his seat on the carpet to presenting his diagram at the front of the class with Ms. T. He is visibly uncomfortable at first, unsure where to stand or who to face as the role shift happens, partially from his own offer to share the diagram he has drawn on his folder, partially from Ms. T asking him to come forward and dictating where he stands, which direction he faces, and then having him recreate the drawing on a new piece of paper with a thick black marker for everyone to see as she re-semiotizes and sanctions Antonio's practices, and also reinforces her own authority. And in Ms. Mdawg's classroom, the moss ball moves and gains significance with each new interaction, with each new student, until it is returned to its fresh water for further testing.

In Mr. W's classroom, Kayla stands up, her first negotiation maneuver before even saying anything other than "Okay!," then moves into the teacher space to reclaim authority and transform classroom discourse. Frustrated by my inability to foreground movement as a semiotic resource in the verbal transcript, and inspired by a few other colleagues experiencing similar methodological challenges, I decided to produce a new transcript that focused on the embodied meaning-making of the students over time and in space. Students' bodies became represented by triangles, and the points attempt to capture who or what they are orienting themselves towards or facing, similar to Kendon's study of gaze (1990). People who are highlighted here are meant to be attempting some kind of discursive negotiation, though that remains one of my more difficult theoretical hurdles. I have also created an analytical boundary between what seems to be the established "teacher" space and "student" space in this classroom. It needs to be mentioned that this is not a universally-applicable analytical device, but it is supported by Mr. W's descriptions of the physical layout of his classroom and by observations before and after this interaction.

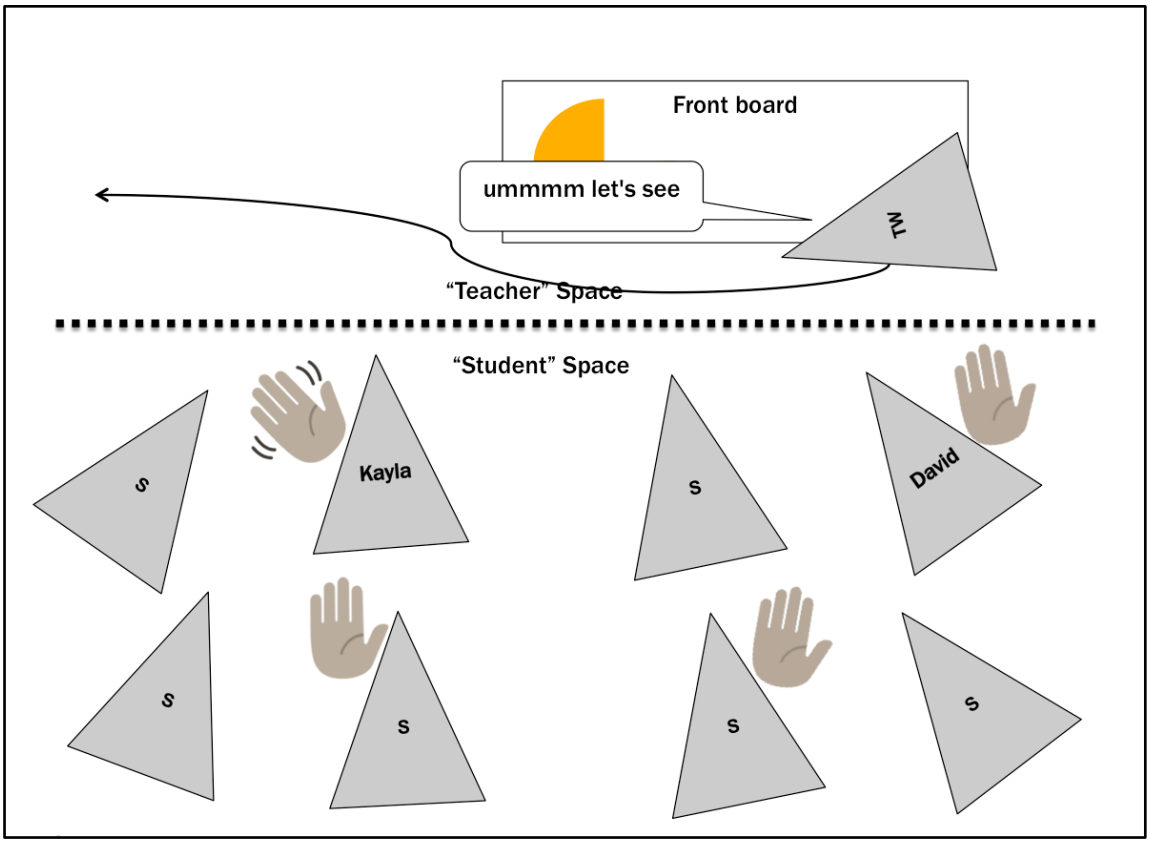


Figure 25. Mr. W moves across the front of the room, re-asserting an imaginary boundary between "Teacher" Space and "Student" Space.

These bodies move and shift, with arrows representing their path through the physical spaces of the classroom (Wohlwend, 2014). And students also express themselves through the use of their hands. Not just raising or lowering them but waving them to show that excitement that Mr. W alluded to in his own teacher-researcher data about the value of his approval and the desire to demonstrate knowledge to each other, as well. We can see that Kayla's first successful claim for discursive authority happens through her hand waving and Mr. W's calling on her to respond, a typical interaction in this classroom. She immediately begins to negotiate and introduce or take up new practices, though, by standing up and moving into the established teacher space. There is another student who keeps his hand raised in spite of Mr. W's selection

of Kayla to respond that may also be attempting some kind of negotiation here, but it goes largely unnoticed, and appears to be rejected by both Mr. W and the other students.

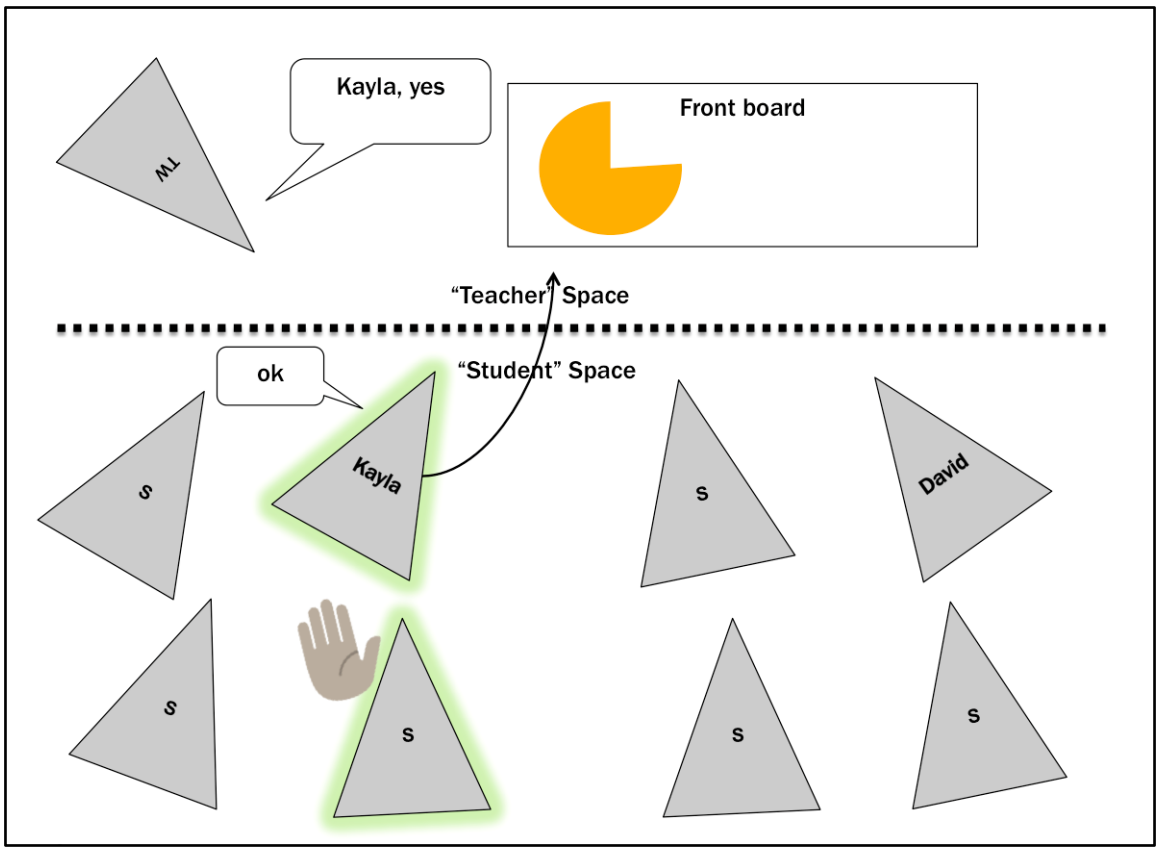


Figure 26. Kayla crosses the boundary between "Student" and "Teacher" Space.

After Kayla physically steps into the teacher space, positioning herself with some degree of discursive authority that she has partially been given by Mr. W (since he allowed her to continue) and partially claimed for herself, she uses her hand in a different way to interact with the pie chart projected on the board, pointing to the segment she believes to be the next biggest source of brownfield contamination.

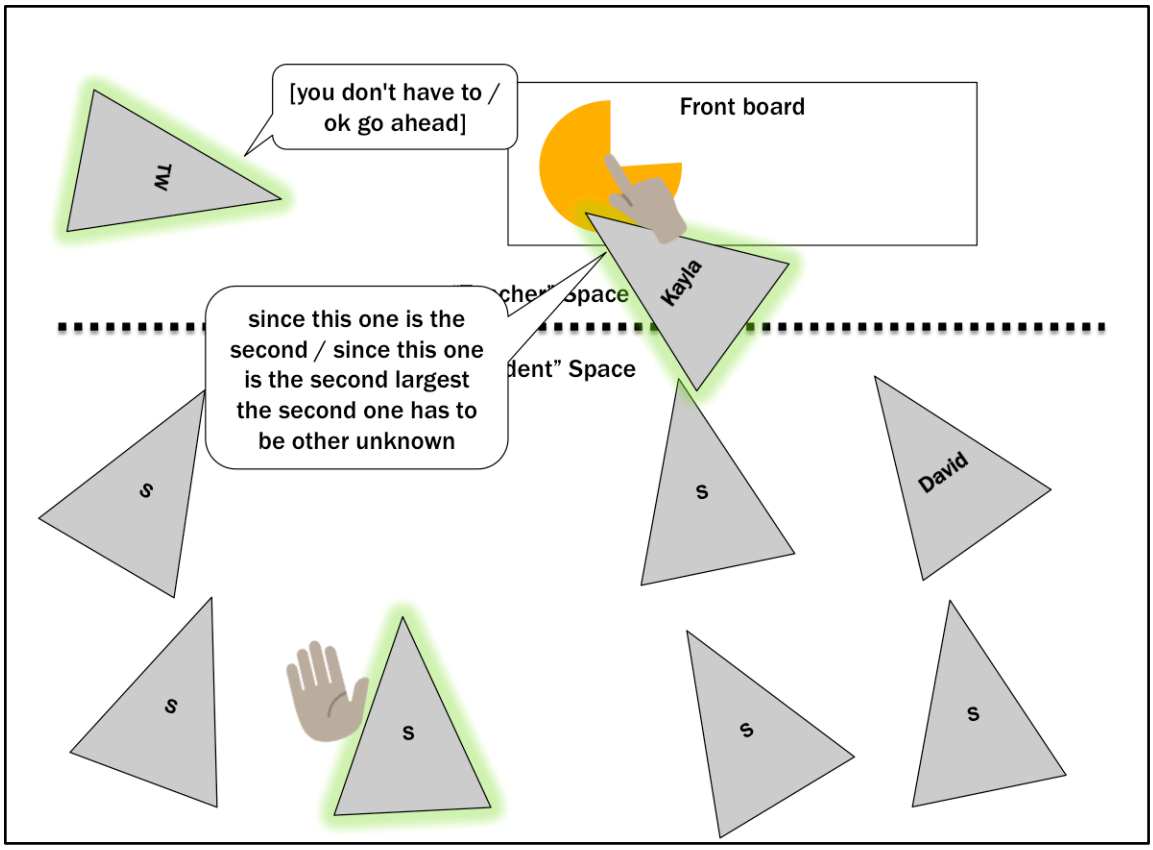


Figure 27. Kayla reasserts her discursive authority by maintaining her position and offering her response.

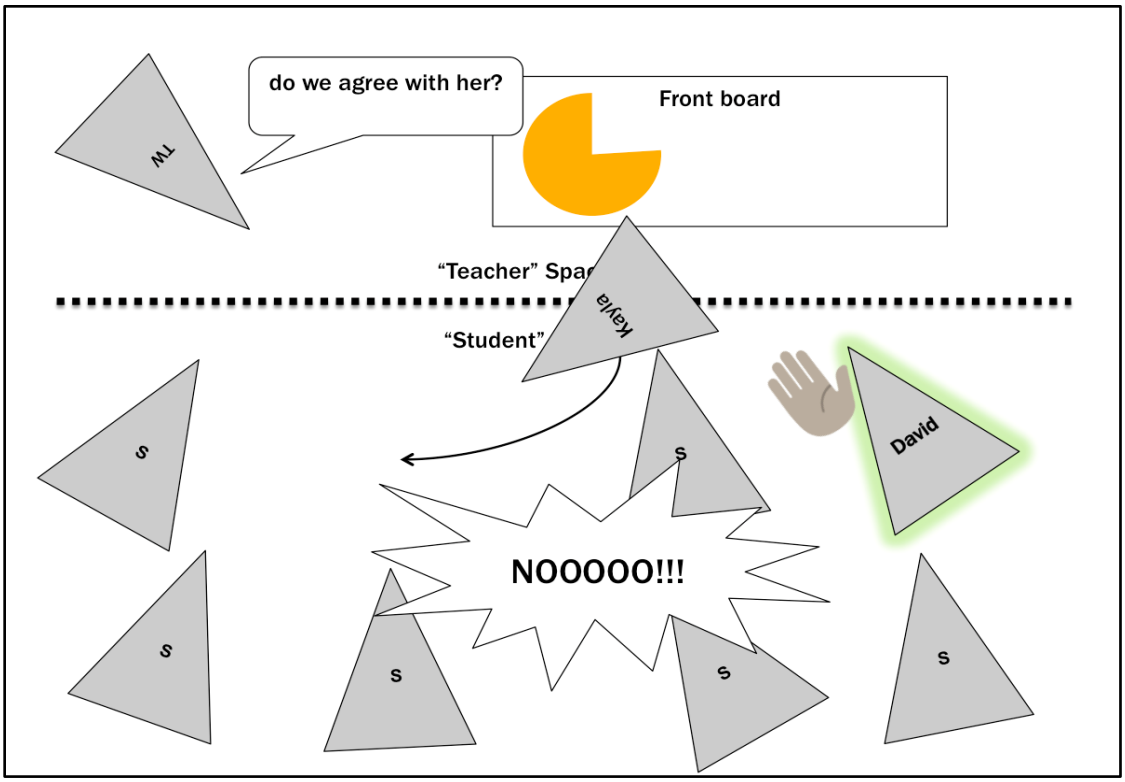


Figure 28. Mr. W asks the class to evaluate Kayla's response as she moves back to her seat.

Although Kayla's response is evaluated as incorrect by her classmates' collective "NOOOOO!" and David's anticipatory hand-raising to provide the correct response, David still utilizes the same discursive practices of raising his hand, moving into the teacher space, and pointing at the section of the pie chart he believes represents the second largest source of contamination in order to provide what the class deems as the correct response. Kayla's novel manipulation of time and space to claim discursive authority has now been taken up by David and ratified by the other students, who are themselves now negotiating with the classroom norms and practices by providing their feedback without an explicit invitation from Mr. W.

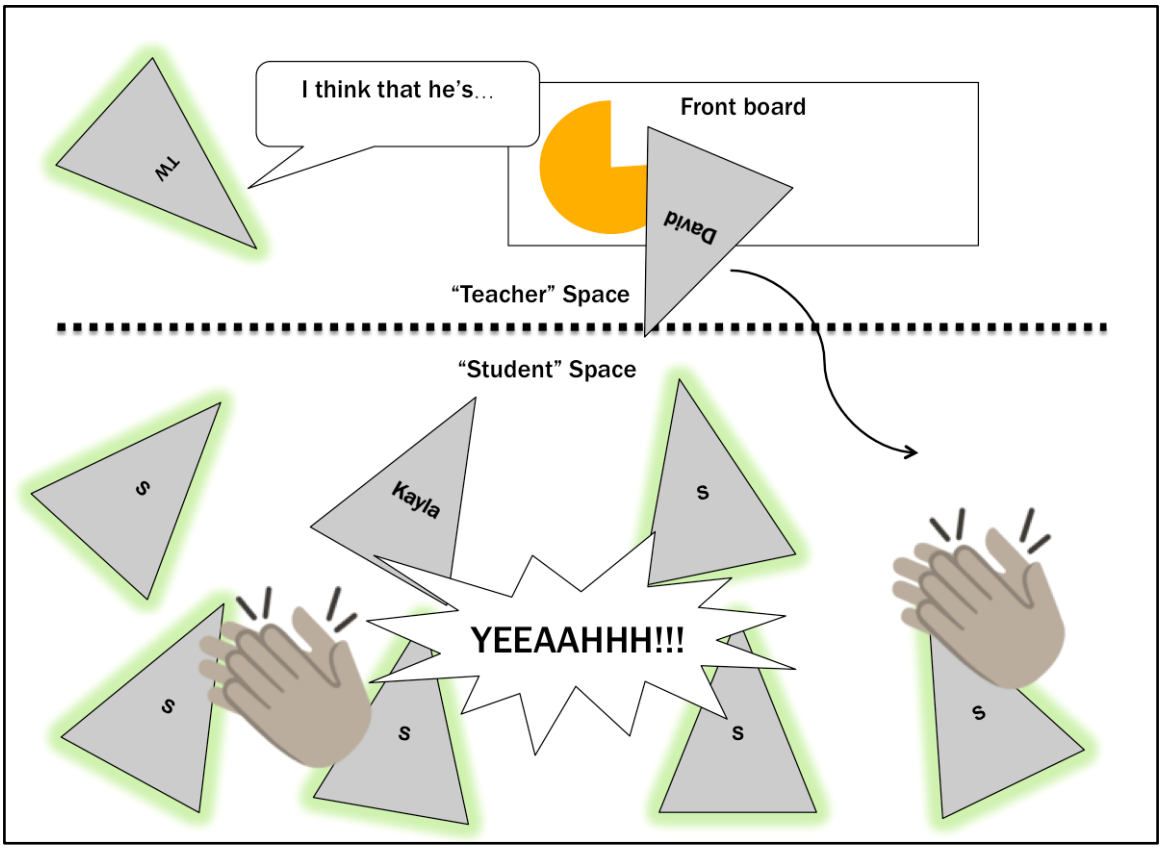


Figure 29. David concludes his counter-argument to the applause of his classmates and returns to his seat.

The words that are spoken are still included, in the form of speech bubbles, with conventions borrowed from comics and graphic novels, but I take a bird's eye view of the classroom space as I trace physical movement and interaction with different aspects of the material world therein as one of the primary modes of interaction. This provides a whole new way of understanding how Kayla, and her classmates, utilize space and time within the negotiation of classroom discourse, and more accurately captures what made this moment so compelling to me as both a teacher and researcher.

V. CONCLUSIONS

Returning to my original research questions, it's clear from the analyses above that students contribute in substantive ways to the negotiation of classroom discourse. In fact, they often find ways to resist and transform existing discourse rules, norms, and practices without even being fully noticed, and without any major conflict. Teachers really do have to pick their battles when they are meant to be in charge of 30 or more individuals, and limiting student's attempts at discourse negotiation seems to be one of the most futile battles they could try to fight as students employ a multitude of semiotic resources beyond language in complex, nuanced ways to shift discursive authority and transform the discourse and meaning-making of the classroom.

As students exercise their agency to shape classroom discourse in ways that often fly 'under the radar' of the official classroom script, because that is where there seems to be more room for them to maneuver, it's no wonder that their contributions often go unnoticed. Teachers are often positioned by institutional and larger social structures as the sole arbiters of knowledge and, increasingly, forced to try and structure and script every moment in their classrooms to ensure maximum efficiency and compliance with both behavioral and academic norms (which, for the sake of this work, aren't really all that different).

But changing the focus of our transcriptions from purely verbal language to other semiotic resources (interacting with objects, movement through time and space, and more!) in the classroom can reveal more of the influence students have on the process of discourse negotiation, and the ways that teachers, as humans, respond. Professional development should equip teachers (and ideally, students, too!) with the tools and mindsets to notice moments of

discourse transformation and see them as opportunities to involve students in the construction of new school discourses for making meaning, instead of challenges to overcome.

Discussion

My interest in discourse negotiation arose directly out of my experiences with the development of classroom discourse as a teacher in my own classroom. Things my students did, the *way* they said certain things, the ways we came to understand each other, and interacted with the objects and spaces of school all impacted the way we came to make meaning and learn together in the classroom and outside of it. When I began working with other teachers, I saw even more, as an outside observer, how unique the classroom discourse practices were in each and every classroom context. But as a graduate student, I was frustrated by the lack of attention given to what *students* can contribute to this process, finding a lot of research and discussion about what teachers did *to* students through discourse, but not a lot of nuanced explorations of the ways that students often resist, subvert, or transform the discursive practices and power structures embedded within the classroom setting. Classroom discourse is something teachers construct *with* students, through an ongoing process of discourse negotiation, and I wanted to find better ways to reveal and explore the *with*.

So I set out to understand how students attempted to claim discursive authority by focusing first on verbal interactions, but quickly found that my initial methods and analyses were limited in revealing the complexity and range of semiotic resources students employed (Jewitt, et al., 2016) as they actively negotiated for power with their teacher, with each other, and with existing discourse rules, norms, and practices. While teachers may have the authority, through institutionalized norms and expectations related to their role in their classrooms, to explicitly and verbally sanction and enforce certain discursive practices, students, because of *their* perceived

roles, are often less verbally explicit in the ways they choose to comply with, resist, and transform them (Rymes, 2015). Their contributions to the co-construction of classroom discourse are just as 'powerful,' and more often non-verbal (Schultz, 2009). Indeed, students may be forced by the pre-existing expectations and norms in classrooms to be more creative when it comes to their negotiation tactics, leveraging multiple semiotic resources in strategically-complex ways in order to achieve *their* goals in classroom interaction and discourse negotiation. In particular, students who are often silenced in the 'official' classroom script, which relies heavily on speaking (or, in students' cases, simply responding), often find other ways to resist this silencing and make themselves heard by their peers, and, hopefully, by their teachers and the schools they are in. Just like the power structures and institutional positioning that often seem to dominate the classroom when we focus on the authority of the teacher and what they are doing with language, conventional verbal transcripts tend to privilege narrow definitions of language and learning and background other kinds of meaning-making that are perhaps more immediately-useful and relevant to students.

Looking at the analyses in the previous chapter, we see that students *do* necessarily resist and transform classroom discourse. And they often do so through non-verbal means or in ways unanticipated by their teachers. Introducing new languages, or new uses of language, interacting with objects in novel ways, or utilizing different classroom spaces and moving through them and the roles and authority associated with them, students are expert negotiators when it comes to deciding how to be and do and mean things in school. Teachers may not be aware of many of these transformations, and, in fact, students may purposefully decide to conduct themselves 'below the radar' or under the 'official' script of classroom discourse. Teachers may choose to

encourage or discourage their students' efforts to negotiate, but they cannot 'control for' the fact that students will find ways to shape the discourse they are (sometimes unwilling) participants in.

In order to foreground students' contributions to the process of discourse negotiation, I realized I needed to radically shift my attention from classroom talk to some of the other ways people send messages to one another, how they create and interact with objects and artifacts, where and how participants were physically positioning themselves in time and space. In the multimodal transcriptions, we see that objects can be introduced by students or teachers, and the interaction with them can transform the way teachers and students alike do math or science. We also see, in both Ms. T's and Mr. W's classrooms, that moving from one's desk or seat to the front of the class seems to become the dominant semiotic maneuver for the students claiming discursive authority in these spaces versus the turn-taking that seems to dominate in the verbal transcript. The fact that neither Kayla nor Antonio have really provided the 'correct' spoken answer their teachers were looking for, or that Jeremy has done something to the moss ball that his teacher seems slightly annoyed about, and yet they *still* manage to negotiate a transformation in the classroom discourse practices, demonstrates just how powerful the manipulation of objects and time and space can be as a means of claiming and exercising discursive authority in the classroom.

This became a methodological journey, through multi-layered representations of just three micro-ethnographic snapshots. Through the use of multiple kinds of transcripts, and the treatment of each mediational layer (verbal language, objects, time/space) as an additional set of 'modes' with which students (and their teachers) are constantly negotiating transformations in classroom discourse, I have attempted to show the different depths which we sometimes need to dig into classroom discourse in order to reveal student agency. The transitions between modes

are fluid and overlapping, even when there might be some attempts to ‘officially’ divide and structure the use of them (such as Spanish and English usage in the dual-language classroom, the limit of time spent with the moss ball in Ms. Mdawg’s class, or the call-and-response structures in Mr. W’s classroom). The ways that the teachers and their students draw on all of their available meaning-making tools to negotiate a shared classroom discourse is much more in line with emerging understandings of how we make sense of things at all through language and social signs, and should be part of the extended metaphor of ‘languaging’ and ‘meaning-making.’ A narrower view of just one of the systems in use here would de-emphasize the continuous, dynamic, inter-relatedness of the other systems that are employed.

Recommendations

Since every classroom is a unique and evolving space where power and discourse are constantly being negotiated and re-negotiated, this methodological exploration can serve as a model for researchers and practitioners alike who are seeking to engage in this kind of critical multimodal discourse analysis in their own classrooms. Many in the field of teacher education have advocated for increased awareness by teachers of their own and their students' discourse practices (Rymes, 2015; Hicks, 1995), and it is important that our methods seek to reveal the multiple ways that students engage in this process. Educators must be able to study, recognize, and become more aware of the ways these things are happening in order to have a more complete picture of learning in classrooms.

I recommend that instead of starting from the lesson plans, the teacher scripts, the textbook, or the PowerPoint presentation (all important texts and artifacts, to be sure!), we take a moment to focus on the students instead of the teachers. Where is their focus? What are they doing? What messages are they trying to send and receive? How is it shaping what is going on in

the classroom overall? The teacher may be like a kind of conductor or facilitator in the 'best' classrooms, but what is the orchestra doing? Who is really setting the tempo, the volume? Orchestras tune and adjust to each other. The conductor just waves a stick around and hopes it means something to the people with the actual noise-making instruments in front of them!

Once we've started to notice what and how students contribute to classroom discourse negotiation, we are forced to find new ways to "re-present" their complex systems of meaning-making and the ways they interact, which results in new understandings about the learning that happens in these spaces. I do not believe that the various transcripts I've used to show important features of classroom discourse in these three moments capture everything. And I do not recommend imposing a strict framework for 'how to better transcribe classroom data,' since I think the conventions one uses should emerge from what they notice and are trying to draw attention to. Transcription, after all, is an act of theorizing, as Elinor Ochs reminds us (1979). The guiding principle here, that is, foreground what students are doing and how it impacts classroom discourse, can be applied without limiting the potential to see new systems of meaning-making as people develop their own conventions befitting the unique discourse practices that arise in each and every classroom.

I think everyone benefits when we explicitly try to understand how we understand each other. But I especially think teachers and students need time to reflect on the ways that they interact and learn from one another, considering the institutional constraints placed on those relationships and the imbalance of power and authority given to people occupying different roles in the classroom. Racial and socio-economic disparity between teachers and their students also, unfortunately, remains as a salient feature of urban education in this country. Many teachers do not come from the same communities as their students, and even when they do, they often

occupy very different roles within those communities. And in these situations, it is even more important that they take the time to reflect on how their discourse practices interact with, influence, and are influenced by the discourse practices of their students. Students, also, should be given the opportunity to reflect on the way they contribute to the construction of shared meanings. We are all 'doing discourse analysis' on some level, after all, as a part of being human and trying to communicate. Teachers, in my experience, expend a lot of energy trying to figure out how best to deliver information to their students, to design and implement learning experiences, and there's no reason students couldn't be involved in this process as well.

Limitations and Areas for Further Study

The findings of this study were not intended to provide a rule or prescribe an idealized process of discourse negotiation in the classroom, nor could they be generalizable to other classroom contexts. Instead, the intention has been to demonstrate the importance of reflection and awareness of classroom roles and positioning on the part of researchers, teachers, and, potentially, students, as they interact and develop shared communicative practices. While I have paid particular attention to the relationships between positioning, authority, and discourse negotiation tactics in the classroom, I acknowledge (from my own experiences) that the classroom is a space characterized by variety more than it is by static identities, meanings, and practices, and I have focused here on only a few illustrative examples.

I have shown how a multi-layered approach to analyzing classroom discourse brings forward the agency that students exercise as 'negotiators' of discourse. I collected this classroom data in partnership with teacher-researchers, who were already somewhat interested in investigating various aspects of the discourse in their classrooms. This often led us to look more

closely at some of the layers I have included here. But it is my ultimate goal to be able to include students in this kind of work as well.

I think back to the student mentioned in my introductory chapter, and the sorts of things he would categorize as disrespect from his teacher, or, in his words, talking to someone 'like a dog.' A verbal transcript of their interaction probably wouldn't have fully revealed these things, but perhaps attention to body language, gesture, objects, tone, facial expressions, or movement might begin to give us a glimpse at the discourse this student found so problematic. Another set of discursive maneuvers might constitute the perceived 'disrespect' the student showed his teacher to the point of being dismissed from the physical space of the classroom, as well. Both the teacher and the student would probably learn a lot about themselves and each other, and their positioning within the classroom, and the larger institution of the school, if they'd had a chance to engage in some kind of critical multimodal discourse analysis. But teachers do not feel free to explore different ideas of authority and power in most schools which emphasize rigid power structures and tight, hierarchical 'classroom management' models, even while espousing student-centered educational approaches such as 'culturally-relevant' or 'problem-based' curriculum.

In all of the cases described in the preceding chapters, I wonder what an analysis that tries to trace affect (Boldt, Lewis, & Leander, 2015) and/or the internal emotional states of the participants might look like or reveal, as there is definitely a lot to be taken into consideration when we are looking at these interactions. I also wonder how one might be able to capture external environmental factors in different ways, for instance, the room temperature, lighting, and the messages these things convey, their effects on the interactions and relationships therein. One of the teacher- researchers I worked with, who was studying the effects of 'stress' on the body with her students as part of a health unit, expressed a desire to enlist her students as co-

researchers (who were actually very excited about this) and monitor things like heart rate, temperature, even cortisol levels as they went through their day. She realized how invasive this might be, and also, how risky it could be to reveal in such compelling ways what a traumatic physiological effect school can have on kids. Which makes it all the more important that we find ways to pay attention to this in our research!

That has often been one of the first responses to this data from people outside of the project who are seeing it for the first time, curiosity about how the students in these examples might be affected internally by their teachers' or peers' responses, with some even going so far as to characterize some of the peer interactions, in particular, as bullying behavior (a concept I have admittedly done very little with in this analysis). It's interesting to note that it is rarely the teacher who gets labeled a ‘bully,' though, by default, they are much better positioned to be one! This has led me to question some of my own intuitions about what may really be going on in these ‘transformative' moments, what pre-existing relationships or patterns might have led up to them in the histories of each of these particular classrooms (Wortham, 2005). The students themselves probably have the best perspectives on this, and their interpretations of these events are noticeably missing.

Partially in response to this, and also because I think it is an ethical obligation when trying to explore student *agency* that we invite students to join us as co-researchers, it is a personal research goal of mine to find more ways to involve students in the deep analysis of classroom interactions. I worked quite extensively with teachers on this project, who were engaged in doing discourse analysis of their own, but so far, have yet to find a practical and timely way to engage students in a systematic analysis of classroom talk. Schools, with their tight schedules and regimented structuring and control of information and students’ bodies, are

not very conducive spaces for this, though I see some promise in the attention recently being paid to ‘restorative justice practices' (Chicago Public Schools, 2018). Unfortunately, that approach is still often relegated to the discipline (or ‘school culture' as many institutions now refer to it) part of school life, often separated from the academic endeavors of teachers and students making meaning in their classrooms.

But given the focus on student’s actions, words, and even intentions, theirs is a necessary perspective in any attempt to fairly represent the process of discourse negotiation. Teachers and students themselves could also learn a lot from engaging collaboratively in their own reflective analysis of classroom language practices, understanding what they say, how they say it, and what else they do to communicate with one another as strategies for learning from each other and developing together. With cell phones and other personal recording devices, students *can* make the videos, choosing what to include, who to record, and they can decide what questions to explore, and how to represent classroom interaction in ways that are meaningful to them. The more aware we can become of students’ roles and experiences in this process, the better equipped we are to leverage and appreciate the multi-faceted complex ways that our students are able to expertly navigate meaning and social interaction within the institutional constraints in these spaces.

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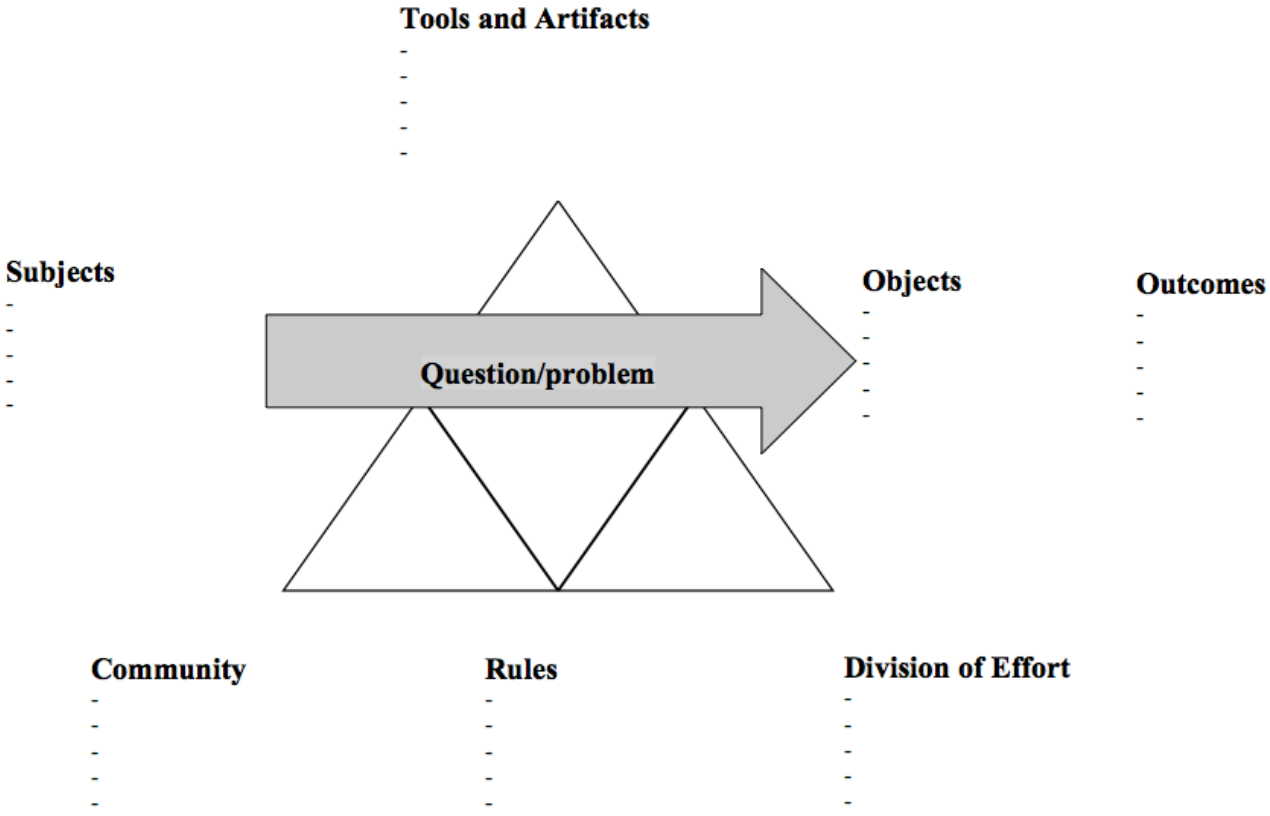
APPENDICES

Appendix A. Teacher-Researcher Activity Triangle Template

Use the activity triangle to design overall themes for your group's action research and more specific individual activity systems in your classroom. Keep in mind the inter-relatedness of all the parts of the activity system.



Appendix B. Teacher-Researcher Activity Protocol Template

PROTOCOL: Social Organization of Learning (Razfar, adapted from Gutierrez) Date: _____ Observer:_____ Site:_____ Began observation at: _____ Concluded observation at:_____

PART I: THE SOCIAL ORGANIZATION OF LEARNING:
1) Describe the activity:
2) Number of participants: _____ #male: _____ #female:_____ Describe any other salient identity markers that describe these students:
3) Spatial Arrangement (Diagram)

4) Instructional Arrangement a) small group b) whole class c) individualized work d) other:_____
5) Nature of activity a) teacher defined b) student defined c) negotiated Notes:

6) Nature of participation:

1 2 3 4 5

Teacher centered student centered community centered

7) Management

a. Explicit teacher established/enforced rewards/sanctions

Implicit teacher established/enforced rewards/sanctions

Community established/enforced rewards/sanctions

Other:

Notes:

PART II: LANGUAGE PRACTICES

1) Language(s) used for this activity:

a) English b) Spanish c) Other:_____

2) If more than one language was used, describe the language mixing: a. codeswitching native language used to clarify/extend preview/review speakers divide by language topics divided by language other: _____
3) Describe any salient dialect variations and how/if they were accommodated:

4) Speaker Designation:

a. Teacher designates

Student leader designates

Self-nomination

Mixed

Notes:

5) Extent of participation:

a. A few students dominate talk

Small core participates in talk

Most students participate in talk

No students participate in talk

Salient identity markers of most vocal participants:

6) Discourse Pattern:

a. IRE (initiate-respond-evaluate)

Instructional Conversation

Other: _____

Notes:

7) Expansion: a. Teacher expands on student thinking Students expand Missed opportunities for expansion. Examples:
8) Miscues (“errors”): a. Corrected by teacher Corrected by other students Re-voiced with “correct” modeling Emphasis on strategies Uncorrected Examples:

9) Narratives:

a) Authorship (1) Single Author (2) Multiple Authors

b) Tellability (1) High (2) Low

c) Embededness (1) Detached (2) Situated

d) Moral Stance (1) One (2) Multiple

e) Linearity/Temp. (1) Closed (2) Open

Appendix C. Teacher-Researcher Coding Template

Teacher-researchers used this to run initial individual and group analyses of their video-recorded classroom activities. They placed 1s (and sometimes initials of focus students) in each column, like tally marks, to keep track of when these shifts or discursive phenomena were happening during classroom interaction. Many customized their own coding sheets, adding and modifying certain categories, as the year went on and their action research projects and questions evolved.

Time	a. Mediational Tools	b. Assistance	c. Funds of Knowledge	d. Multiple Languaegs/Discourses	e1. IRE	e2. Conversational	e3. Modality		f. Questions	g. Tension	h. Third Space	i. Participation Shifts	j. Role Shift	k. Rule negotiation
							Uncertainty	Certainty						
0:02:00														
0:04:00														
0:06:00														
0:08:00														
0:10:00														
0:12:00														
0:14:00														
0:16:00														
0:18:00														
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1:02:00														
1:04:00														
1:06:00														
1:08:00														
1:10:00														
1:12:00														
1:14:00														
1:16:00														
1:18:00														

Appendix D. Semi-Structured Focus Group Interview Protocol

After the pilot study and each action-research unit, research assistants conducted a semi-structured, conversational focus group interview with each teacher-researcher cohort, for a total of four sessions throughout the school year. The protocol for these interviews has been copied below:

(To the teachers)

In preparation for the focus group follow up to this unit, we are asking you to think about how the experience with this unit has changed:

. your teaching

. your view of student learning and views of students

. planning

. analytic process (tally sheets, transcripts, reports)

You should be prepared to provide stories and examples of your own practice, particularly drawing on unit 3 experience. Unlike an interview, a focus group is meant to be more interactive and conversational.

(For the interviewers)

1. Language questions:
    i. How is your thinking of language changing?
    ii. How do you see students using language in your classroom?
    iii. How have your activities promoted multiple language use?
2. Teaching questions:
    i. Tell me about the planning process for unit 3?
    ii. Tell me about how you learned about your students' funds of knowledge?

iii. How did you draw on students' funds of knowledge while teaching unit 3?

iv. Have your views on teaching math and science changed?

3. Analysis questions:

Talk about the analytic process for unit 3:

i. What did you learn by using the tally sheets (excel spreadsheet)?

ii. What did you learn doing the transcription?

iii. How did you use the transcripts in your analysis?

iv. What modifications to the analysis process would you make?

v. How does discourse analysis impact how you see yourself?

4. Since you have done unit 3, what do you think about

i. developing curriculum?

ii. integrating science, math, and literacy?

iii. working with English language learners?

5. Action research questions:

i. What do you see as key issues or challenges in conducting action research?

ii. What are some of the challenges of implementing the units?

iii. Do you feel these units are bringing about change in the students?

iv. Have you noticed any changes in students (are they excited about the project?)

v. Do you feel empowered by this type of teaching?

vi. Are students taking ownership?

vii. What have been some of the challenges of trying to bring about change?

Appendix E. Transcriptions

Verbal Transcripts

Conventions

For the verbal transcriptions, I have used a modified version of Gail Jefferson's transcription conventions (2004). Actions, paralinguistic features, or contextualization cues are described in parentheses ( ). Other transcription conventions include: short micro-pauses marked by commas (,); longer pauses and their lengths in parentheses, i.e. (.) or (0.6); louder talk represented in capital letters (NO); certainty and excitement shown through the use of exclamation points (!); rising intonation and uncertainty shown through the use of question marks (?); elongation of syllables through the use of colons (no:::); restarts shown through a single forward slash (/); cut-off and continued talk marked by double forward slashes (//) at the point of cut-off or continuation; overlapping talk within square brackets ([…]) that I've attempted to align below the speech at the point where they overlap.

"T" is the classroom teacher (with the first letter of their chosen pseudonyms), and each individual student is represented by "S" and a letter if they've been given a pseudonym, or a number, determined by the order in which they first show up in the data. "Ss" refers to an indistinguishable group or majority of the students.

I have numbered each new turn, utterance, or complete thought, and used a dashed line to indicate a break in the transcription.

Moment #1: Re-mediating fractions

---

1 TT: ah we also talked about...(reaching for index card)...fractions and number line
2 [S1: (inaudible)]
3 TT: right? a fraction *in linea*...(lowered voice) ooh, I'm sorry I did this in Spanish, but you know Spanish and English is also so much the same / so similar...
4 (pointing to index card) fraction in line or line / it's fractions in lines...that's a cognate okay?
5 use your Spanish as a tool to help you understand English and vice versa, okay?

---

17 TT: for instance...what does that mean? part of a uh set? can you please talk to your partners?
18 S2: (to S3) what does THAT mean?
19 S3: I dunno
20 S2: you dunno?
21 R1: (to S2 and S3) what's a set?
22 S2: (to R1, turns toward camera) I don't know
23 R1: if I said I have a set of uhhh...a set of...I dunno, what do you have a set of?
24 [S2: it could be...a set...it could be...the whole]
25 R2: (from behind camera and R1) basketballs...
26 [R1: a set of basketballs? (laughing at R2)]
27 R2: yeah...(inaudible)
28 [R1: I'm gonna say a set of golf clubs, but (laughing)]
29 R1: if I have the full set of something...versus just part of it, right?
30 [TT: shh shh shshsh]
31 [Ss: shh shh shshsh]
32 [S2: (turning back to face front) oooooh!]

---

53 TT: okay...were deflated...okay?
54 [Ss: oh! (laugh)]
55 S3: (slaps hands together)

56 TT: yeah, the air came out...*desinfla*-...say um so then...

57 [S2: *desinflado*!]

58 TT: *desinflado*, very good...so then, how would I write my fraction here?

---

108 [TT: buh buh duh buh buh buh buh!]

109 [Ss: buh buh duh buh buh buh buh!]

110 [TT: buh buh duh buh buh buh buh!]

111 [Ss: buh buh duh buh buh buh buh!]

112 TT: much better

113 [S1: buh buh buh buh buh!]

114 TT: (to S1) I'm gonna give you a warning

115 S1: oh

116 TT: okay...can you tell me, what are equivalent fractions?

117 [Ss: (raise hands)]

118 TT: (points to SA) Antonio?

119 SA: um...in Spanish they're *fracciones equivalentes*...and...I even drew this on my folder (holding folder up to show TT)

120 TT: ohhh...could you come to the front, yeah! and share that (TT sits back behind chart paper)

121 SA: (stands up next to TT) uhh...equivalent fractions are / uh for example if you have a square divided into four…

122 um and you color two it would be two-fourths, but you can also do that um if you have a rectangle and divided it into two parts, you color one

123 it would be the same thing but bigger…

124 S?: (whispering) cool(inaudible)

125 TT: (grabs a piece of orange construction paper)

126 mmhmm (nodding) would you wanna come and show me this in the /on the board for everyone? (holds construction paper over chart paper)

127 (to class) so equivalent fractions, pretty much they have the same value, okay?

128 [(TTputs hand on SA's shoulder)]

129 [(SA starts to move in front of chart paper, but stops)]

130 TT: they're just divided into different, pieces (hands paper to SA and motions for him to move in front of the chart paper, and he does)

131 TT: oh! you wanna do that in the front here? (reaching behind chart paper)
132 [(SA begins drawing with pencil on orange paper, placed on chart paper)]
133 TT: you um, why don't you use this Antonio (hands SA a black marker)
134 so that everyone can see it so it's nice and...um, visible (reaches behind chart paper for tape)
135 SA: is it...sorry (puts pencil down and begins drawing on paper with marker)
136 TT: here (tapes construction paper to chart paper)
137 (to class) I love that he went out of his way to do it on his folder
138 TT: (very quietly) okay, explain to the class (TT motions towards other Ss)
139 SA: (facing TT) umm, so if you cut (inaudible, holding and twisting marker) this into fourths (inaudible) (drops marker, picks it up)
140 and if you color two, it'd be two-fourths and it equals the same thing as… um… as…
141 um…two rectangles colored one it would be umm…
142 or four rectangles if you colored that'd be two

---

170 TT: they're still the same pieces, but now,
instead of having one piece, how many
pieces does he have on this side?
171 Ss: two
172 [TT: two]
173 TT: mmhmm...so it's two out of four because this thing is divided into four entire pieces and this is divided into two…pieces (nodding to class)
[00:07:51.16]
174 TT: Carmela?
175 S4: um, it's like...like if you have four and they were pieces of a cake...and then someone ate the half of the cake
176 [TT: yeah!]
177 [R1: mmhmm]
178 TT: that's right! right!

Moment #2: The moss ball

---

16 SI: (smells moss ball and sets it back in front of SJ on his desk)
17 SJ: (is spreading the water he squeezed out of the moss ball around on his desk) now my desk is contaminated
18 TM: (picks up moss ball) alright! (takes it back across the room)
19 clap once if you can hear me!
20 Ss: (clap once…a few clap more than once)
21 TM: let me /
22 [TN:Jordan's table didn't…]
23 TM: Jacob just squeezed it so let's see if he'll float now
24 (walks over and places moss ball back into the glass vase it had been floating in prior to being passed around the classroom)

Moment #3: Standing up

---

1 TW: (0.6) so! (leaning over the projector) (1.0) u::mm who can tell us what our project is: (0.2) for our GRC?
2 (standing back and walking away from the projector, turning towards Ss)
3 Ss: (hands go up) (3.2)
4 TW: yes S1 (uses her name)
5 S1: brownfields (lowers her hand as she answers)
6 TW: okay! so we're studying brownfields
7 what I:S a brownfield?
8 Ss: (hands go up)
9 (S2's hand goes up last) (3.0)
10 TW: S2 (uses his name)
11 S2: abandoned or unused place?
12 TW: abandoned, (some Ss raise hands) OR, unused places
13 ((s raise hands again)
14 TW: let me take three and then we'll move on
15 S5 (uses name) (points to S5 in back of room)

S5: um, another reason is that the soil is polluted too (0.2)
(SK keeps her hand raised)
when the / when / cuz of the, like, different things /
like sometimes it will be there cuz of how lo::ng these people have not been in there
which collects chemicals from different things
like when people are drunk *unclear* throwing then go in there
and people who / people who will go past it are the ones that mostly are sitting in
and we don't want brownfields to be like
we don't want to keep brownfields
we want to make things out of them
(TW has moved back to camera and is turning it to include S5 in the shot)
(Ss turn to face TW)
so that / because if we don't, a lot of people will get sick and, hurt and die
TW: okay, very good (off-camera)
TW: Kayla
SK: okay ((owers hand) (0.2) so another reason why:: / why we can't / why we can't / well why it can kill people is that / another reason is that it has the toxic chemicals and all the different kinds of gases
and everything can be polluted around the world (maintains eye contact with TW))
(turns whole body with TW as he moves back to front center of room)
and some people / what some people do, is that they live in the home,
and then / they / and they try / they live in the home and they do all the things that they need to / that what / that they need to do
the number one thing that they need to do is test the / test the / test the building to make sure all the toxic chemicals and everything is finished
TW: [great]
SK: (shifting in her seat without pausing) and then two what they do / two what they do is see what kind of person wants to buy the house
and three what they do is that the people who buy the house sometimes they just /
they just buy the house and they just waste all their money (waving hands dismissively)
and / and just leave the home alone so it can become a brownfield
and that's why people / people die, because of / because of people, and also

brownfields

43 TW: okay! (TW nods, hands behind his back) thank you so much, very good, and::

44 S7 (uses his name)

---

49 TW: raise your hand if you know the answer please

50 more Ss: (raise hands)

51 TW: yes S9 (uses name)

(1.8)

52 TW: yes S10 (uses name)

53 S10: yes

54 TW: okay! do you all agree with S10?

55 Ss: YE::::SS!

56 Ss(unkown): [NO:::!]

57 TW: (to Ss saying no, in a quieter tone) I think we already spoke about that

---

59 TW: ok so manufacturing is where most of the contamination comes from

60 (TW walks up to the chart and touches the 'manufacturing' section) now we've been able to tell that (.) what clue did we use in figuring out that manufacturing is the greatest source of contamination?

61 what clue did we use?

62 Ss: (raise hands)

63 TW: (0.8) S13

64 S13: the clue we used is that the color (.) by man / manufactory is the color that's on the board that's the largest

65 TW: very good! so (.) since you used that clue let's try one more how about the SECOND largest?

66 what do you think is (.) the second largest source of (.) contamination?

67 (TW walks over to dim the lights so Ss can see it better)

68 TW: (2.0) u:::mm let's see (1.2) Kayla yes

69 SK: ok (stands up from her desk and approaches the board)

70 TW: [you don't have to / ok]

71 SK: (pointing to the pie chart) so since this one is the second / since this one is the second largest the second one has to be other unknown

72 TW: do we agree with her?
73 Ss: NO::::!
74 TW: why not? David
75 SD: because the colors don't match so the actual real one
76 (stands up and approaches the board) is (.)
77 (knocks on the segment of the pie graph he's discussing)
78 utility
79 (swings his arms around and sits back down)
80 TW: I think that he's //
81 Ss: YE:::A:::HHH! (some Ss applaud, others give unclear praise)
82 TW: [// alright may I speak?]
83 Ss: YE::BO!
84 TW: so yes (.) utility (.) is going to be the second largest
85 Ss: [utility?]
86 TW: utility simply means things like like you know the heat we use in our homes (.) the gas (.)
87 u::m all that stuff ok? is utility

Multimodal Transcripts

Moment #1: Re-mediating fractions

Conventions

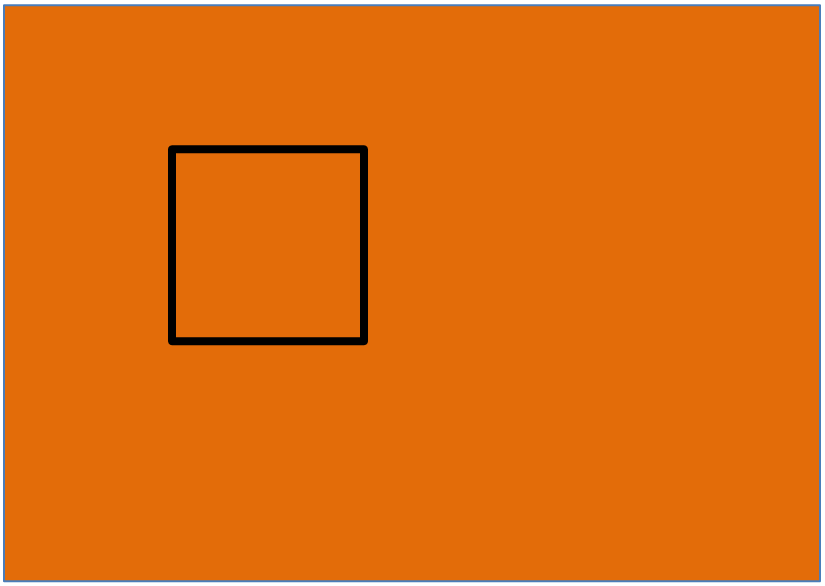
The first set of conventions I used for this multimodal transcript had to do with representing the diagram the student drew, one of the most salient pieces of the multimodal discourse in this interaction, and the ways that the teacher (TT) interacted with it. I began, in Figure 9, by simply reconstructing the diagram as accurately as possible. The black shapes and writing represent what the student (SA) drew on the paper (the orange box) that the teacher posted up on the chart paper for him to recreate the drawing he had already done on his folder.

In Figure 10, I have used hand icons and arrows to show how TT interacted with the diagram as she took up its use as a mediational tool for understanding the math concept. Her hand(s) were either used to point (the index finger out) or open, as indicated by the different icons, and when she used both, I have included two icons. It is worth noting that in all three multimodal transcripts, hands become an important semiotic resource, but are used for different purposes, so they are represented in different colors.

I have used the dashed lines again to show breaks in the transcript, and provided time stamps.

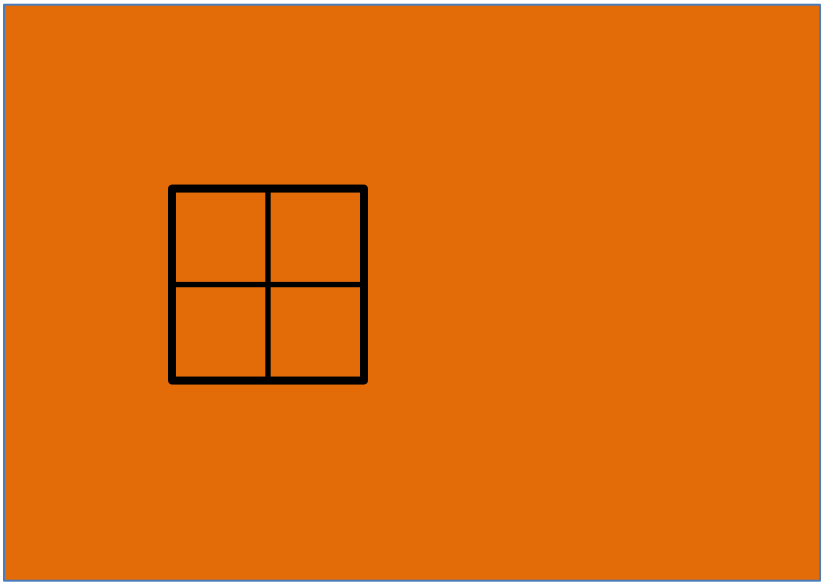
Figure 9. SA illustrates equivalent fractions.

[00:06:13.17]



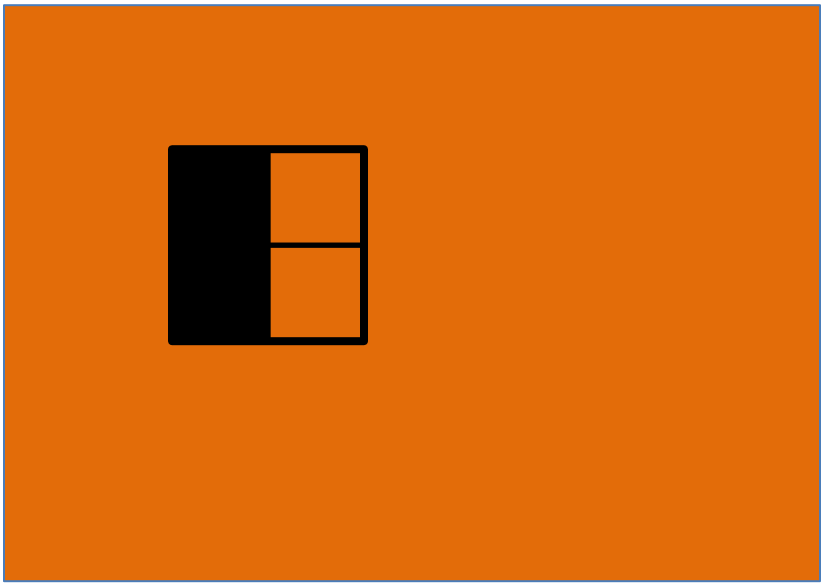
a. First, SA drew a box.

[00:06:18.20]



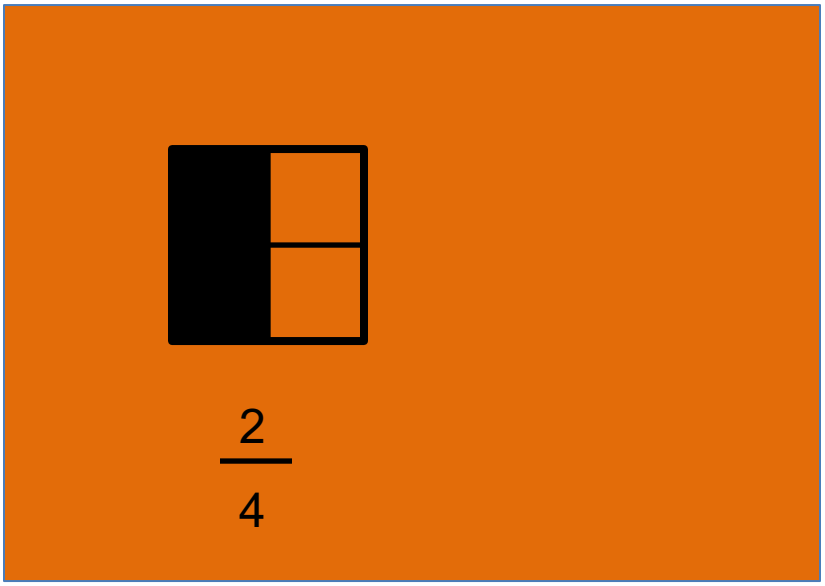
b. Next, he divided the box into four equal parts.

[00:06:23.25]



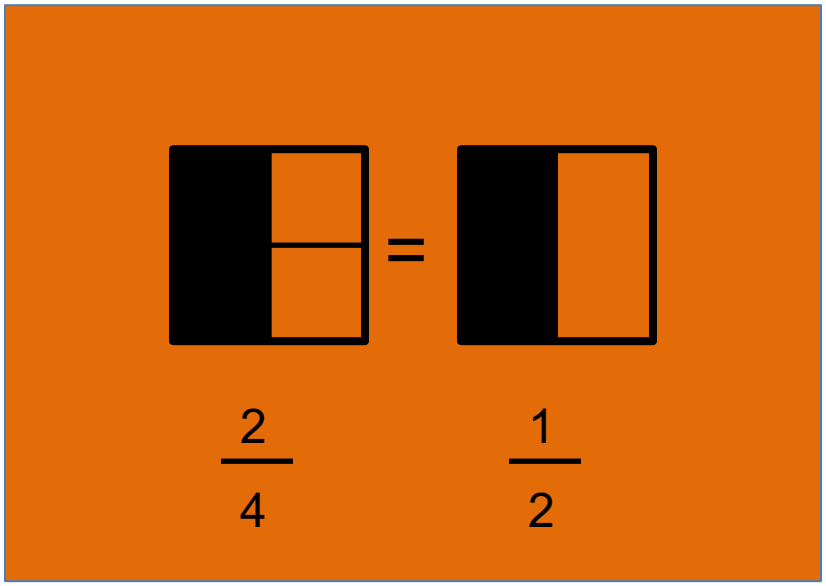
c. Then, he shaded two parts, or half of the box.

[00:06:27.04]



d. Finally, he wrote the fraction that represented this two-fourths shaded box.

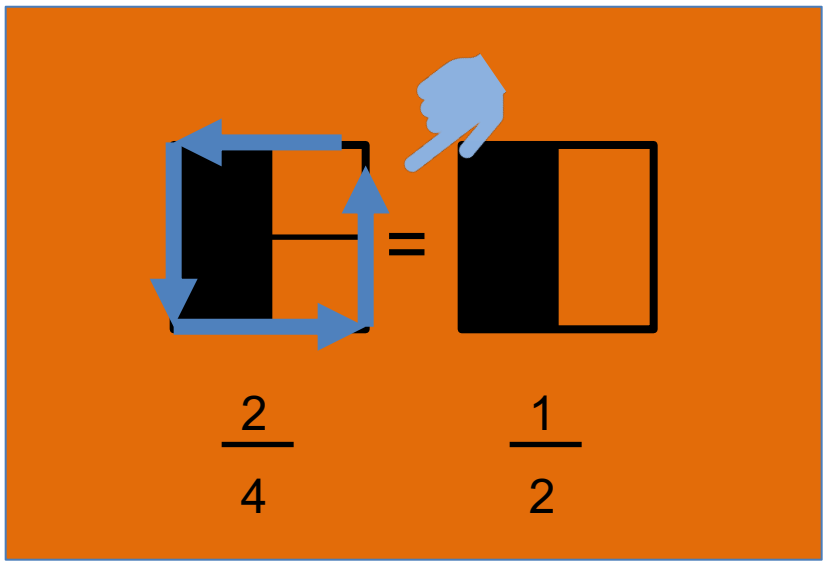
[00:06:40.07]



e. …To show the equivalent fraction, one-half, he followed the same sequence (finished product above).

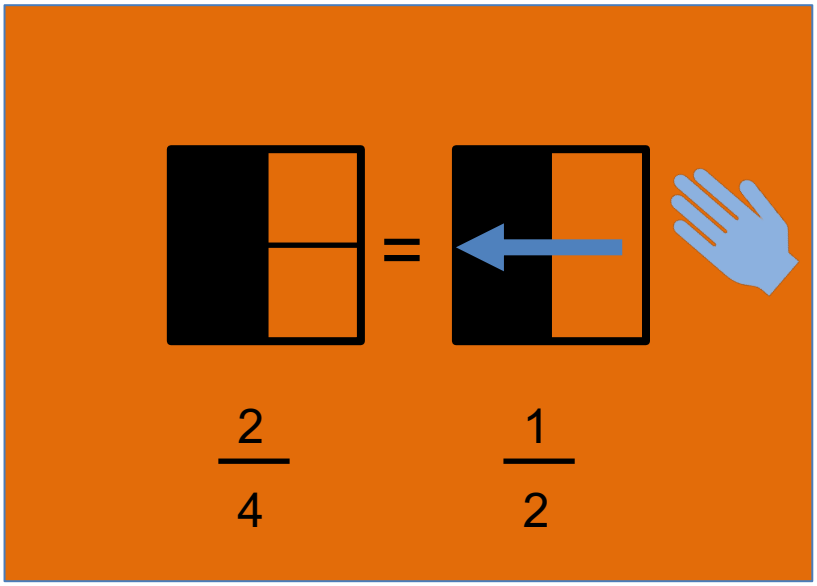
Figure 10. T begins interacting with SA's diagram through hand gestures to illustrate.

[00:07:15.28]



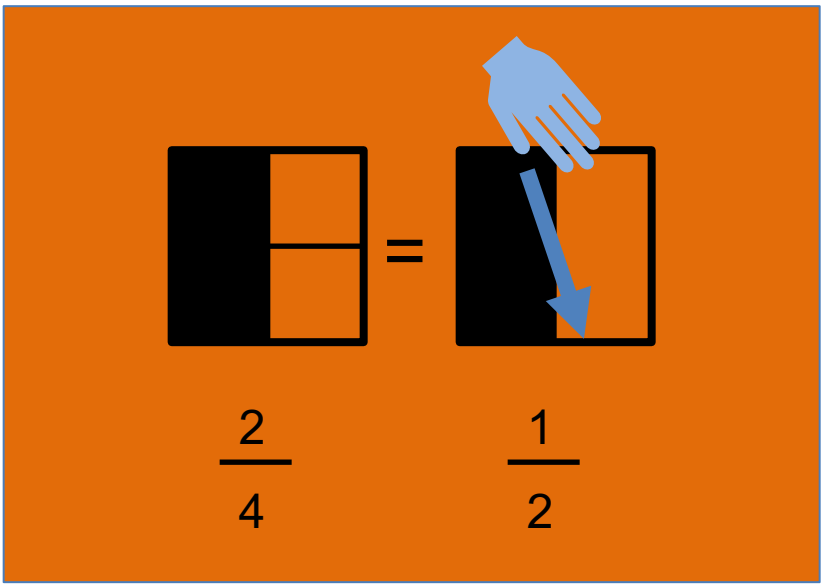
a. "…one whole piece here, right?"

[00:07:22.03]



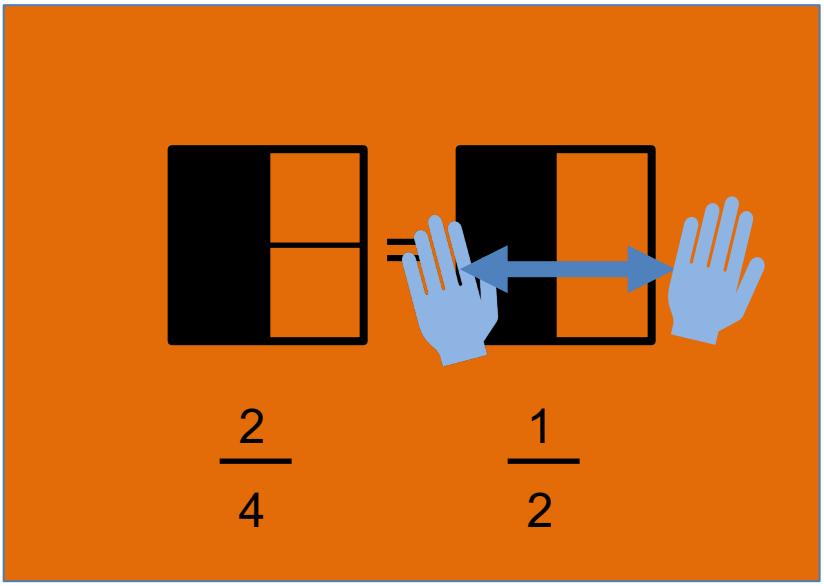
b. “he folds”

[00:07:23.04]



c. “he cuts”

[00:07:24.09]



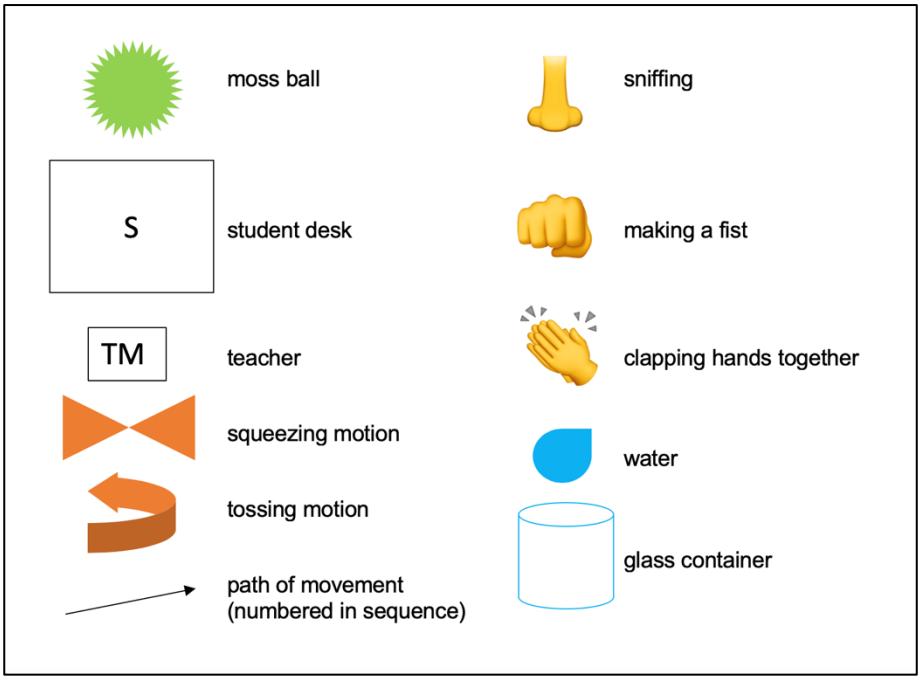
d. “divides”

Moment #2: The moss ball

Conventions

The focus of this multimodal transcript was to capture the movement and interaction of the moss ball as it was passed from student to student. Instead of focusing on the teacher (TM) or the students, we see what happens to the object and how it involves different students, many who don't contribute much, if anything, to the verbal transcript, in the scientific discourse of the classroom.

Numbered arrows show the order of these movements so that a sort of path emerges, and the key below explains what the different symbols, icons, and shapes are meant to represent. This is a top-down view of the classroom, and the verbal transcript is embedded via speech bubbles. Once again, hands represent one particularly meaningful semiotic resource, which the students employ as part of this classroom discourse to communicate with each other.



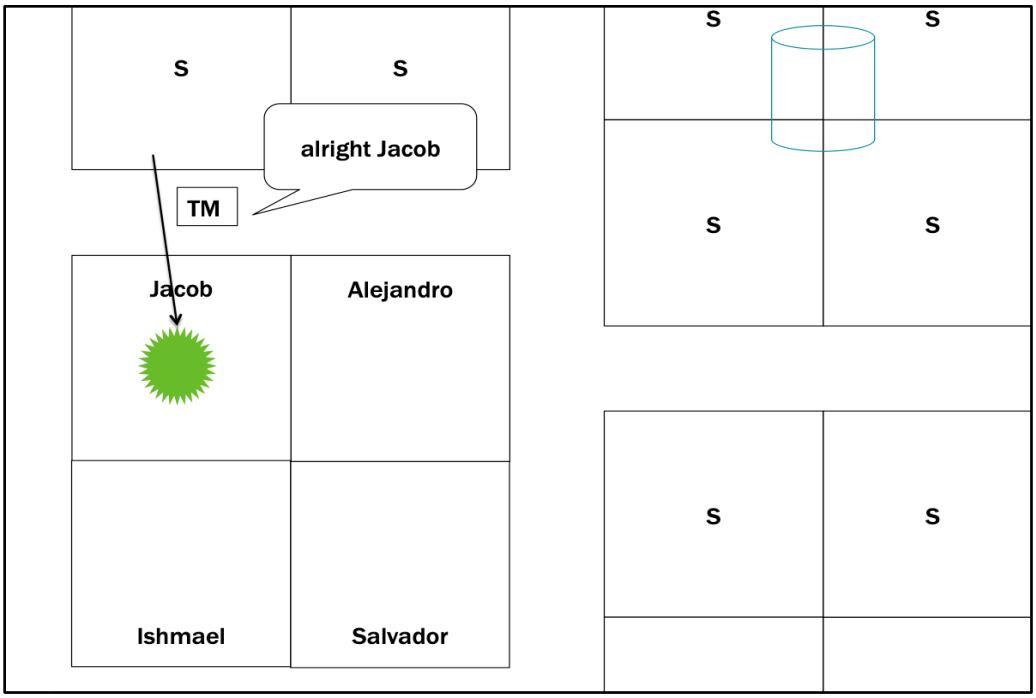


Figure 11. Ms. Mdawg passes the moss ball to Jacob.

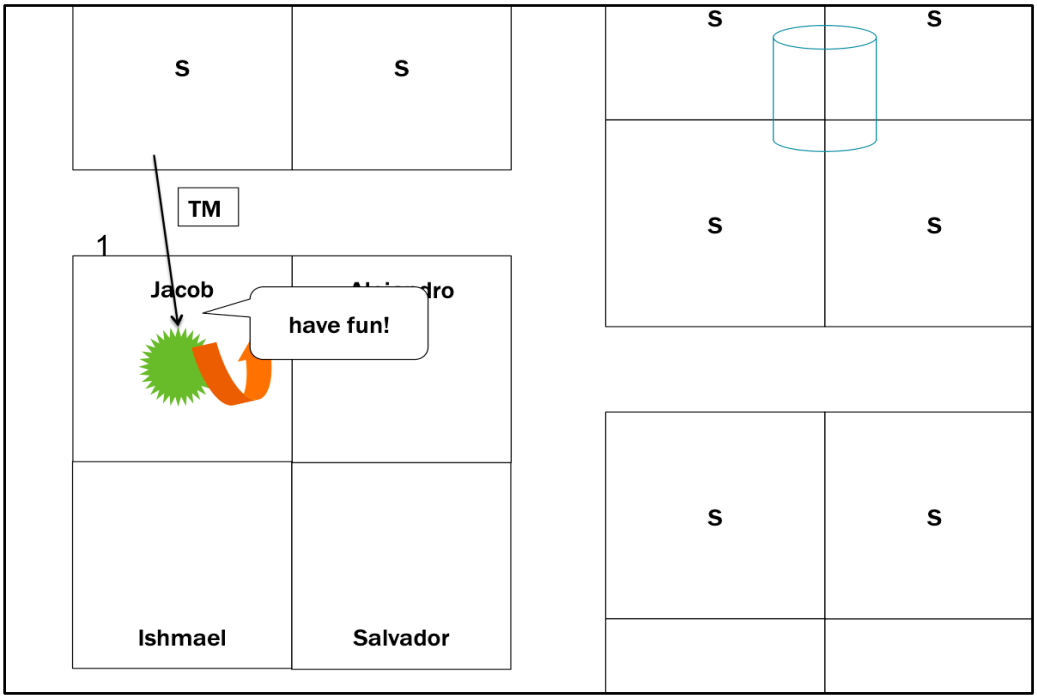


Figure 12. Jacob tosses it into the air and tells it to “have fun!”

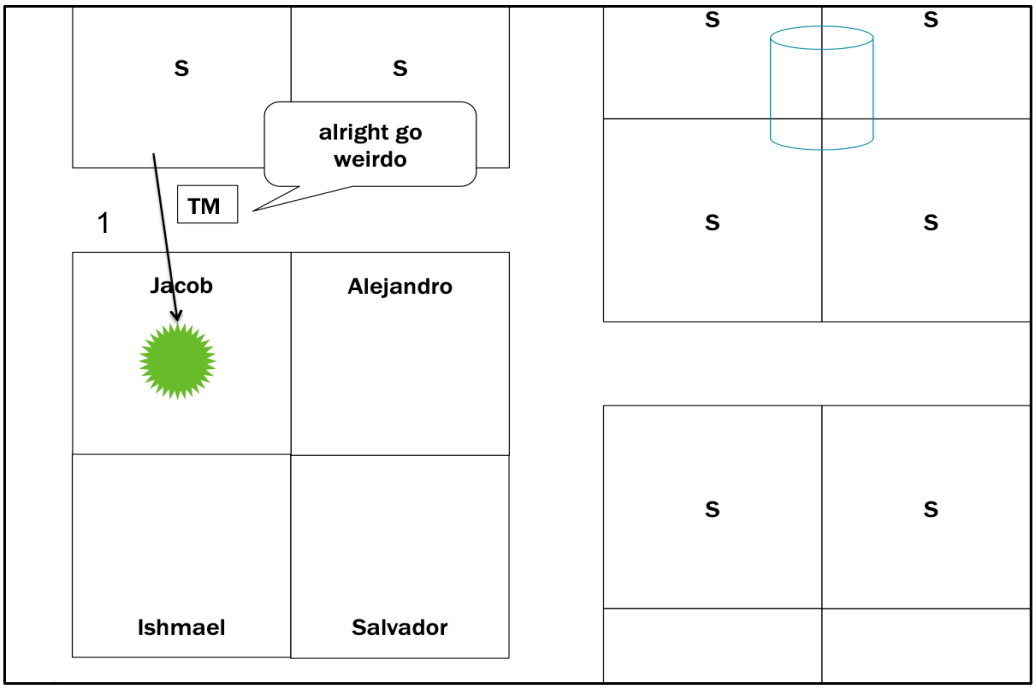


Figure 13. Ms. Mdawg urges Jacob to pass it on to the next student and calls him a "weirdo."

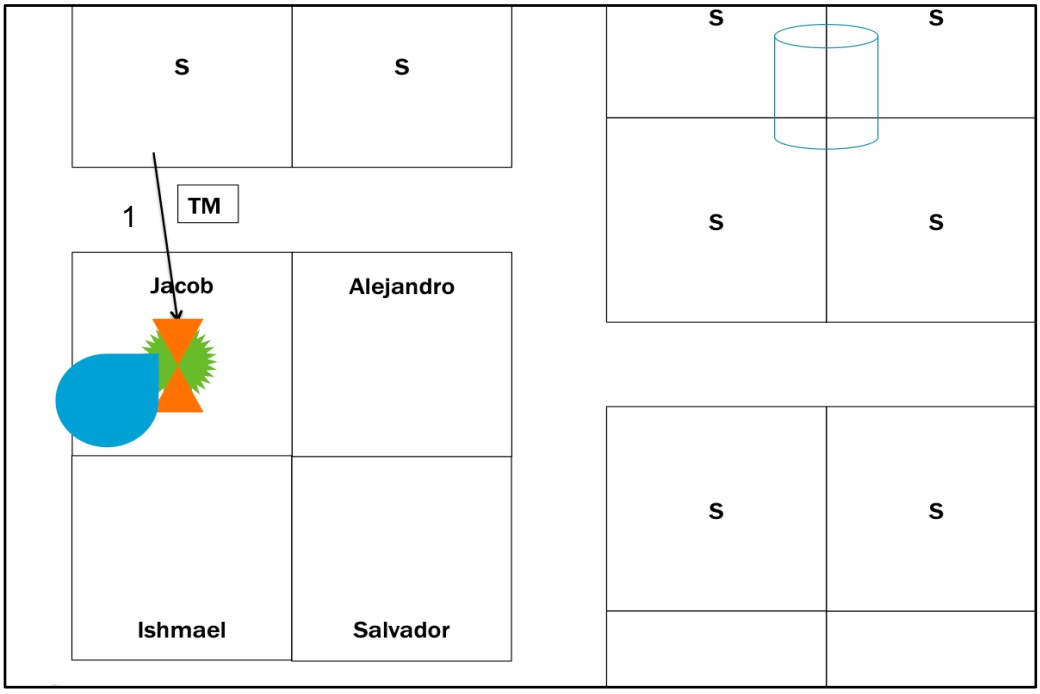


Figure 14. Jacob squeezes the water out of the moss ball onto his desk.

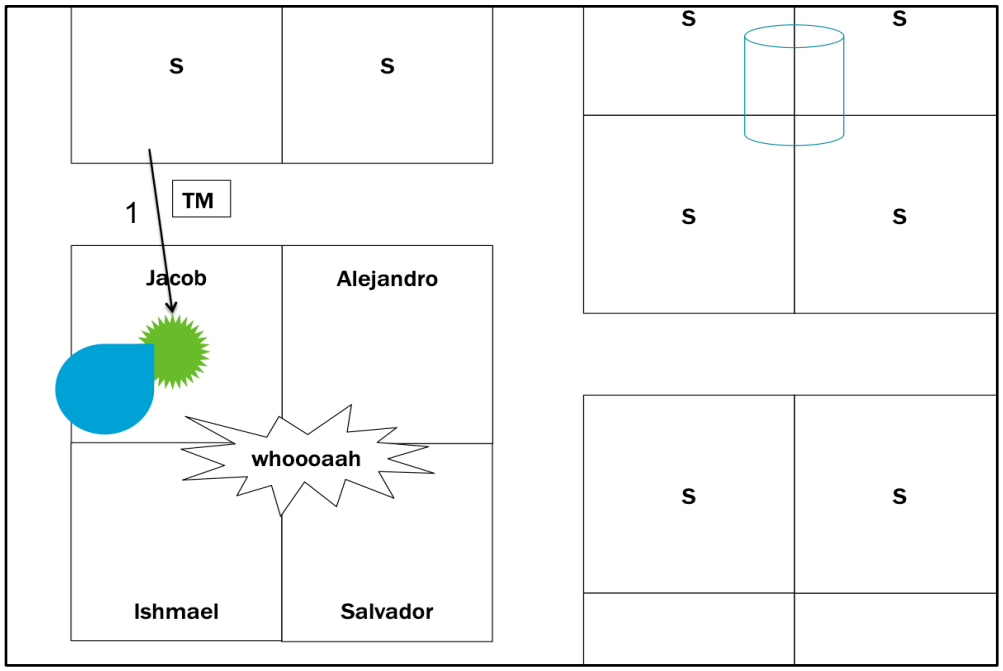


Figure 15. The students at Jacob's table react.

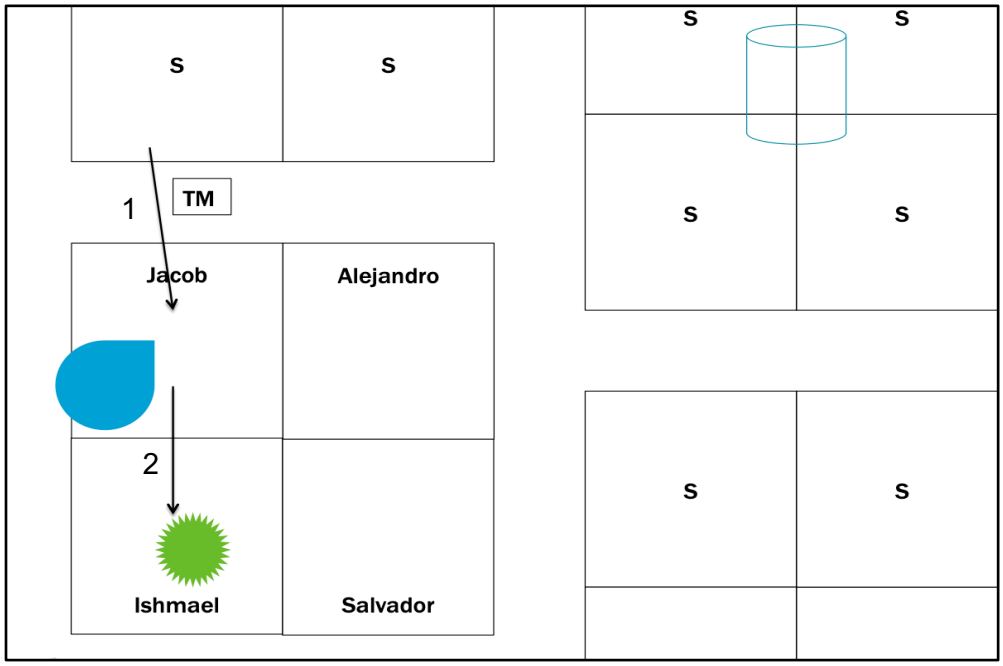


Figure 16. Jacob finally passes the moss ball to Ishmael and begins spreading water around on his desk.

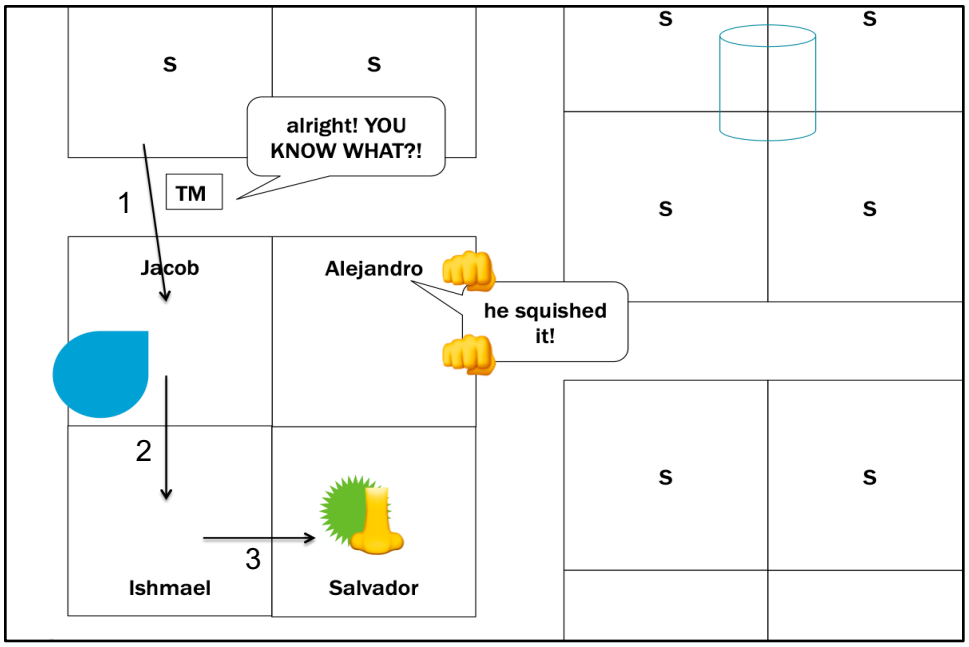


Figure 17. Ishmael passes the moss ball to Salvador without interacting much with it. Alejandro is laughing and telling the other students what Jacob did, and re-enacting it. Ms. Mdawg is speaking loudly with students across the room, out of view of the camera.

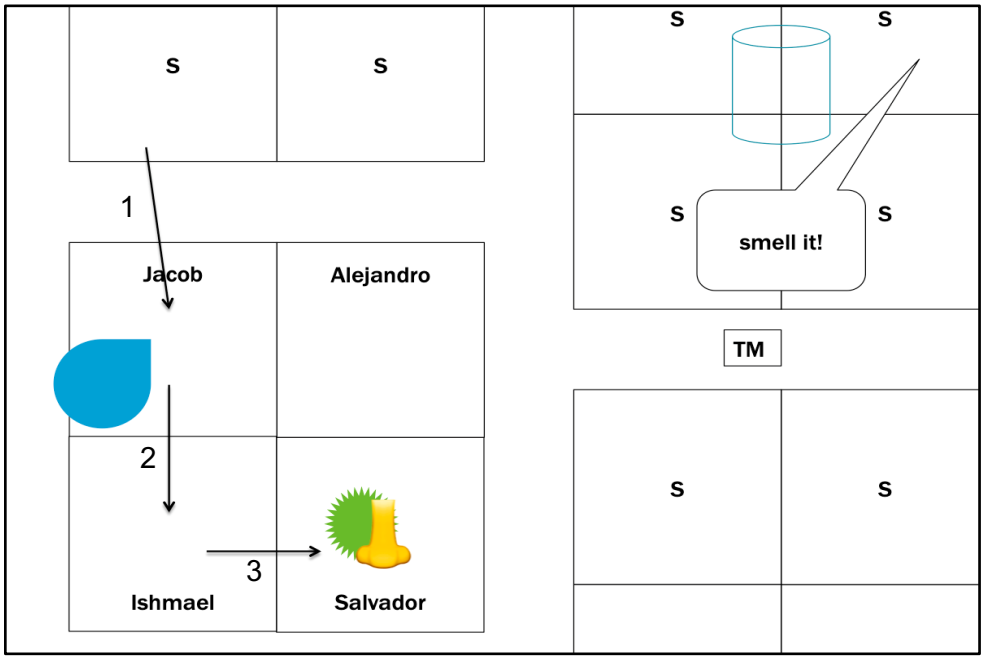


Figure 18. Another student yells “smell it!” while Ms. Mdawg moves toward the other students.

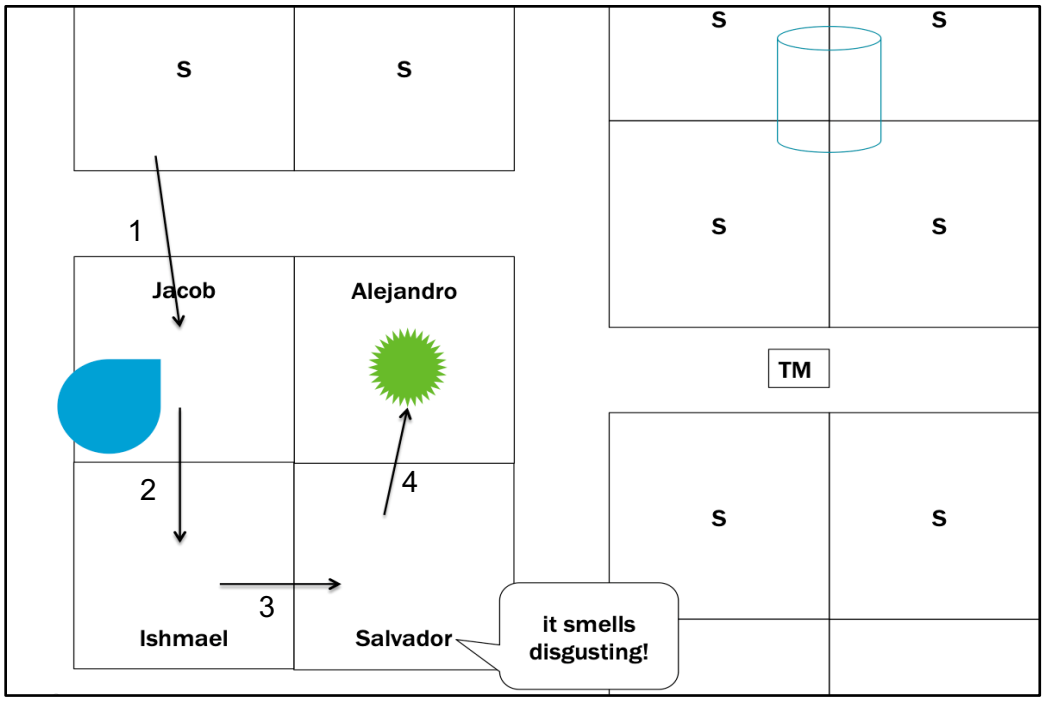


Figure 19. Salvador yells "it smells disgusting!" after passing the moss ball to Alejandro.

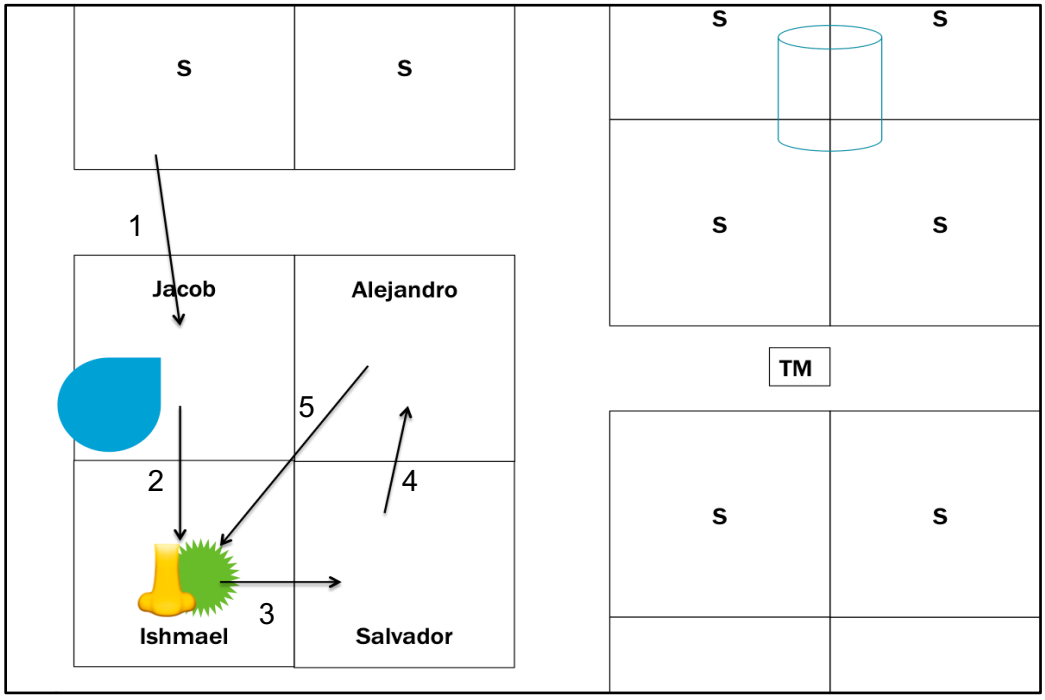


Figure 20. Alejandro passes the moss ball back to Ishmael, who smells it this time.

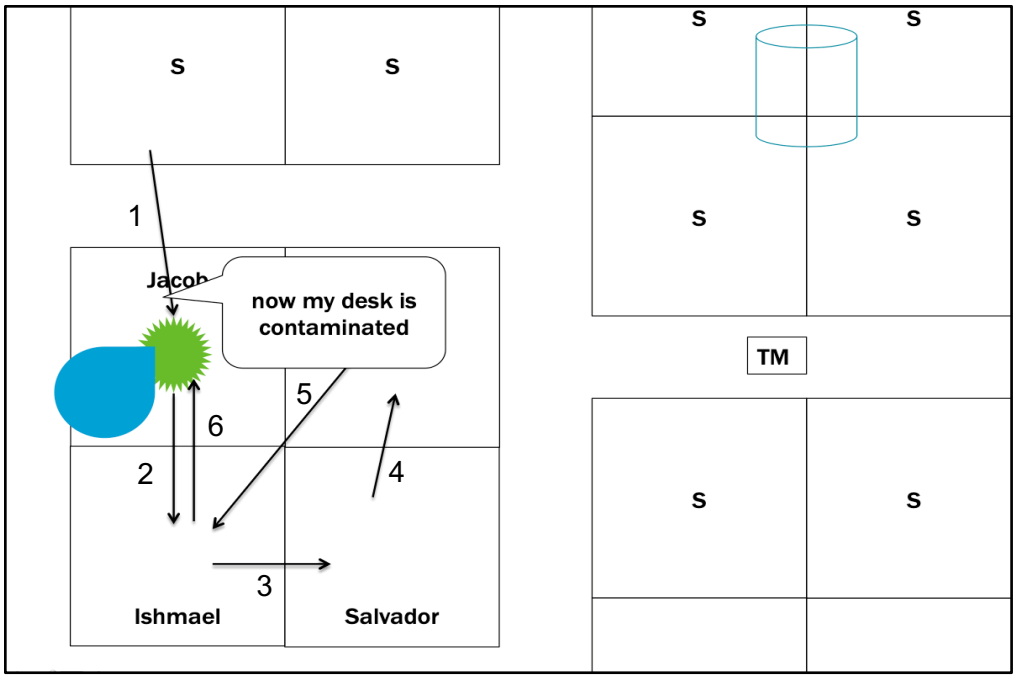


Figure 21. Ishmael passes the moss ball back to Jacob, who says "now my desk is contaminated."

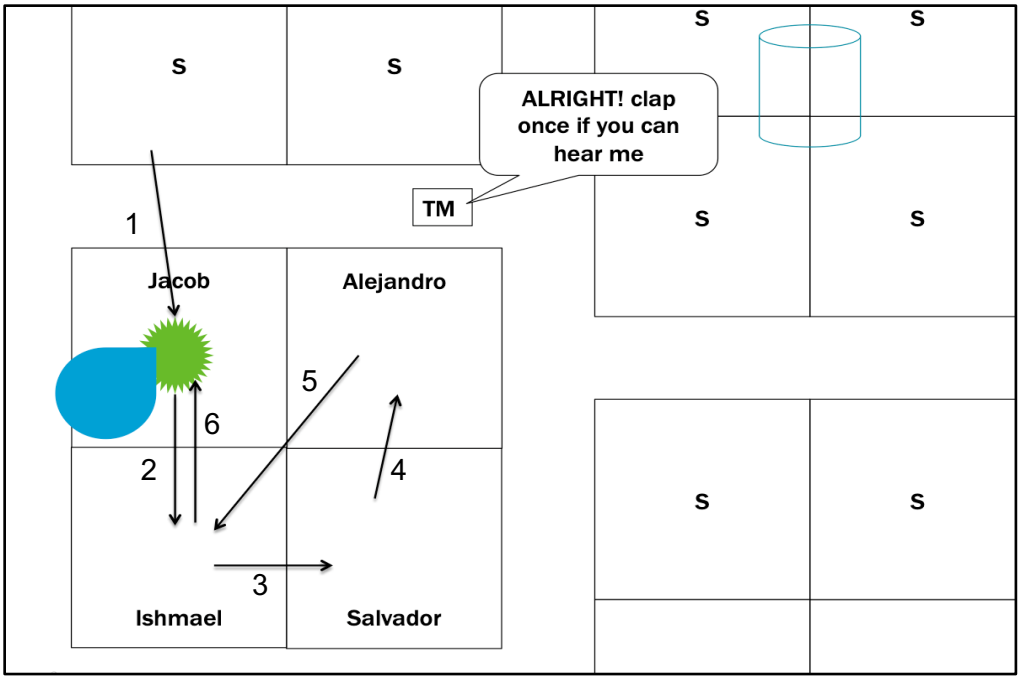


Figure 22. Ms. Mdawg initiates a call-and-response sequence to get the students' attention.

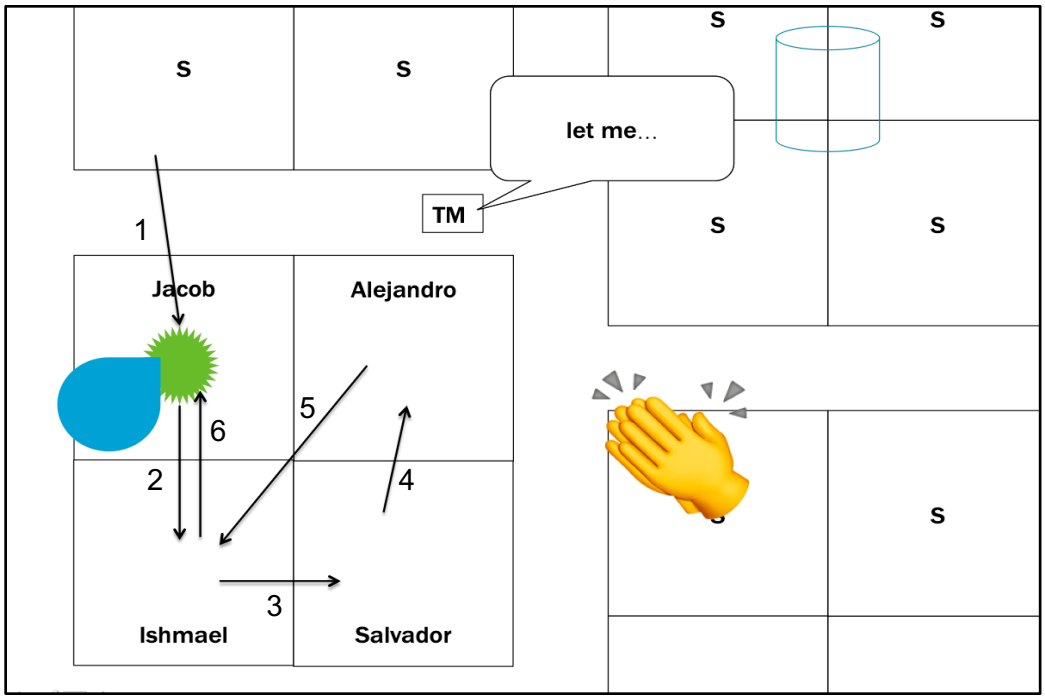


Figure 23. Most students respond by clapping and turning to face Ms. Mdawg.

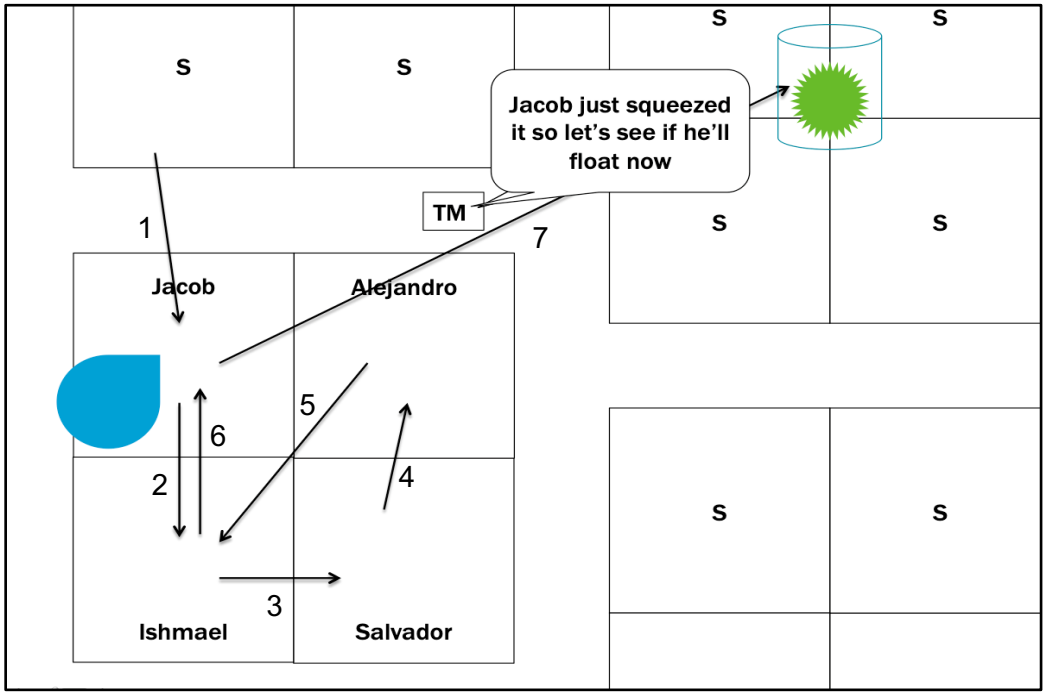
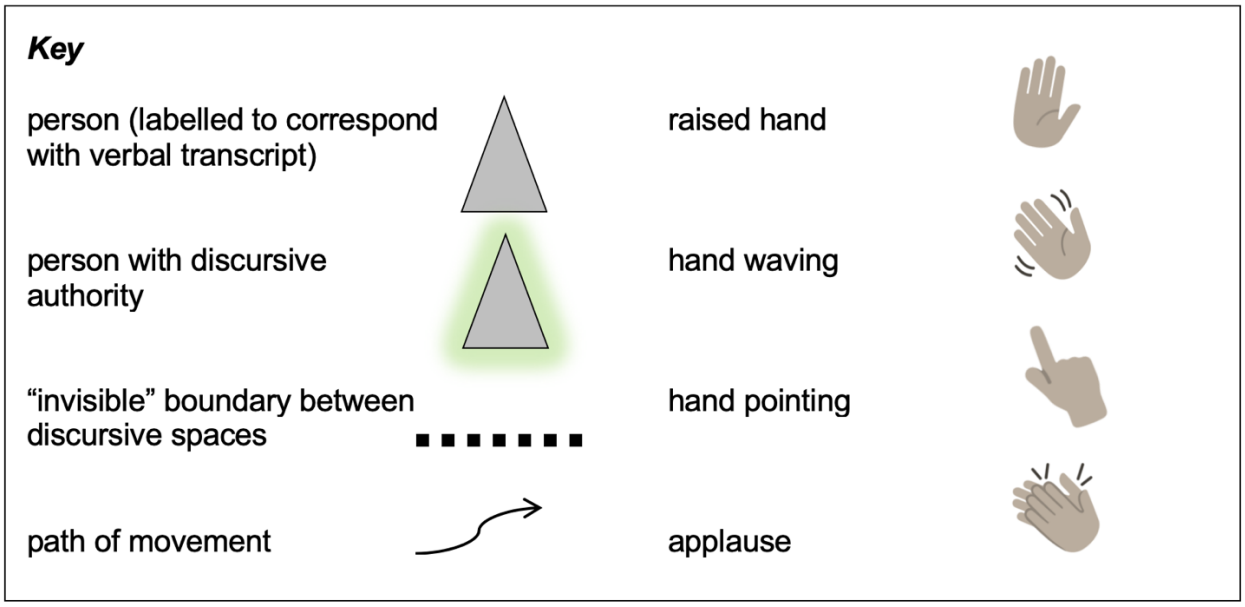


Figure 24. Ms. Mdawg takes the moss ball from Jacob and places it back in the glass container.

Moment #3: Standing Up

Conventions

This final multimodal transcript, another graphical and symbolic representation of the physical classroom, is meant to emphasize movement of bodies through time and space, in particular how one student (Kayla/SK) utilizes the space of the classroom in a novel way by crossing into the 'teacher space' to claim discursive authority. Just like in the previous transcript, this is a top-down view of the classroom, and I have embedded the verbal transcript via speech bubbles. The triangles which represent people, 'point' in the direction the person is facing, and the hands represent one particularly meaningful semiotic resource which the students employ as part of this classroom discourse.



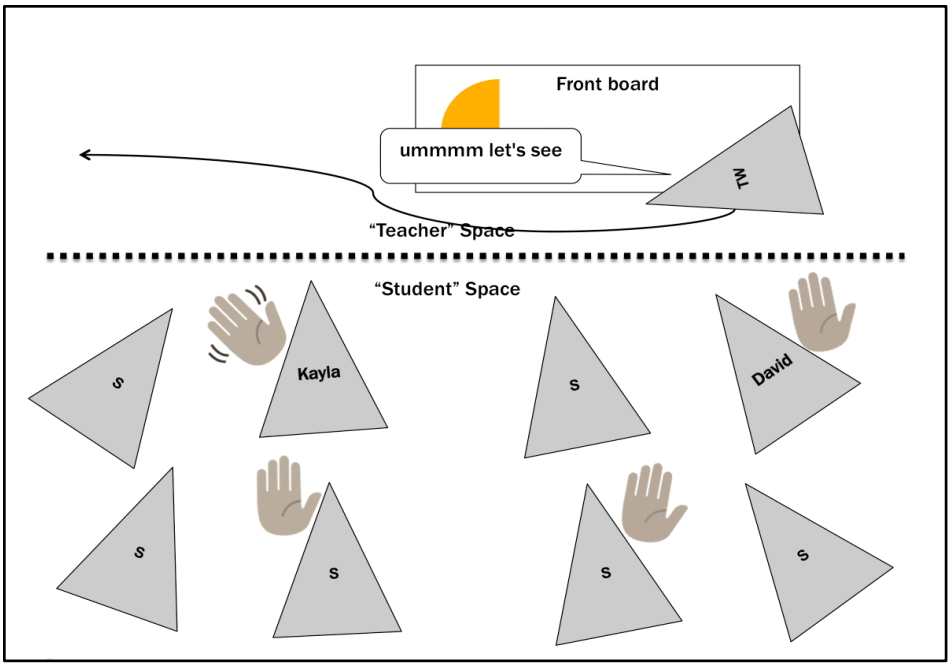


Figure 25. Mr. W moves across the front of the room, re-asserting an imaginary boundary between "Teacher" Space and "Student" Space.

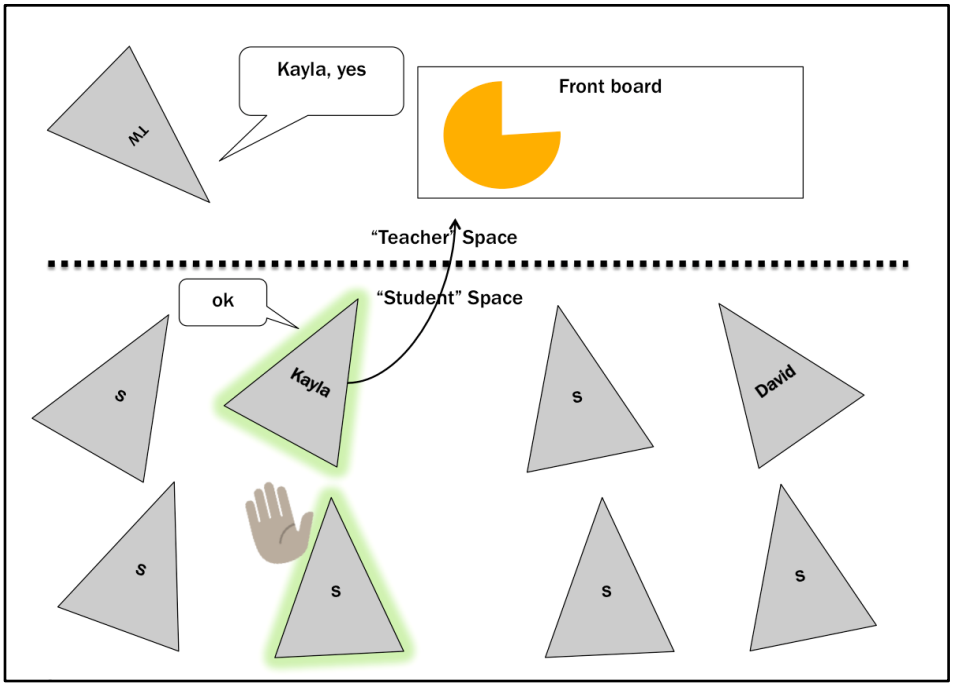


Figure 26. Kayla crosses the boundary between "Student" and "Teacher" Space.

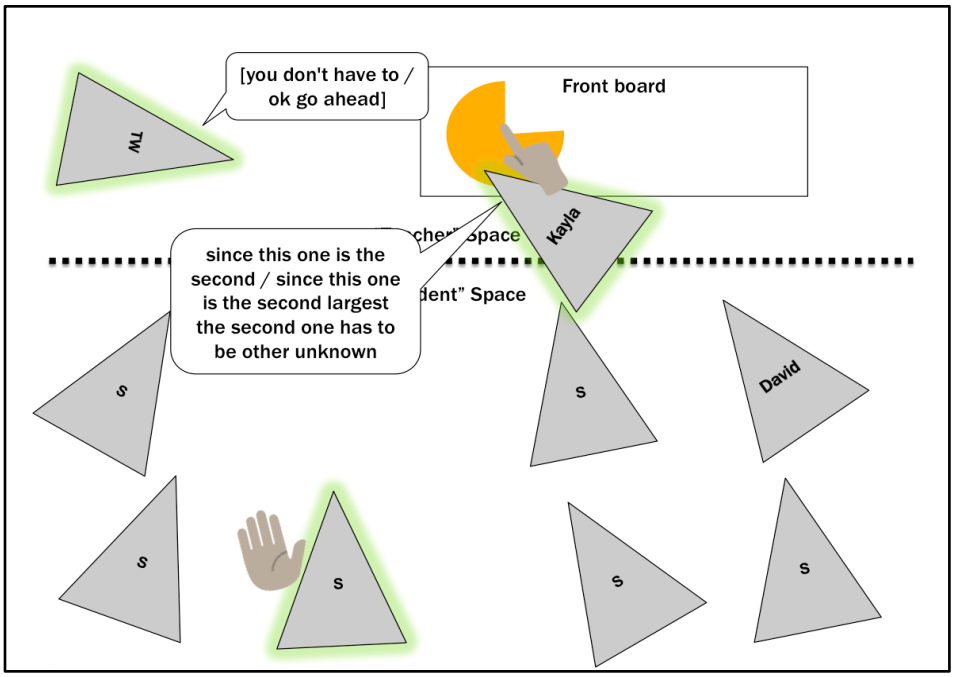


Figure 27. Kayla reasserts her discursive authority by maintaining her position and offering her response.

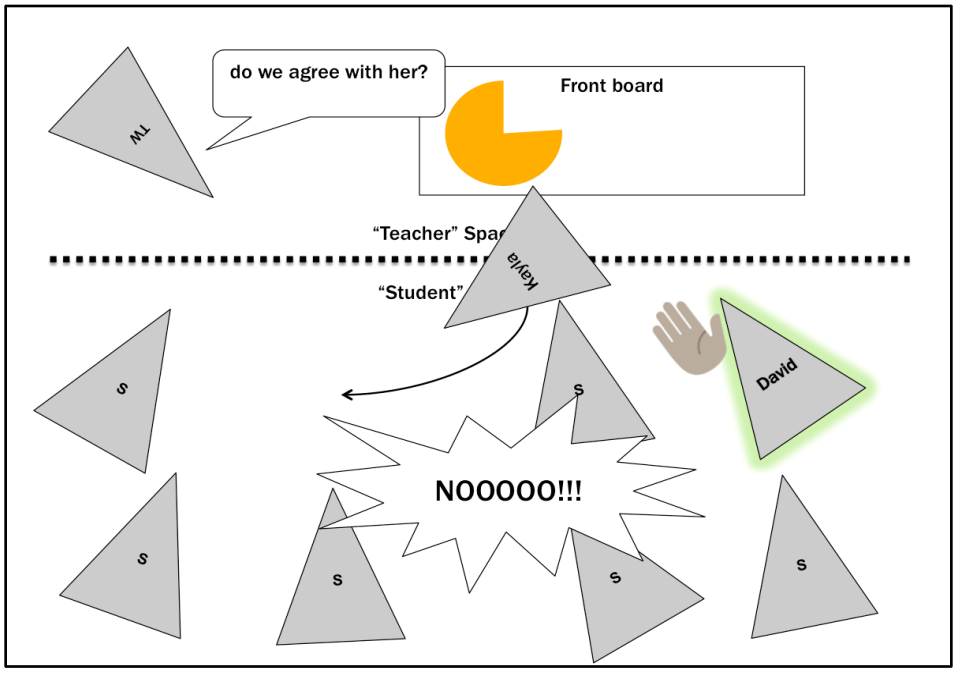


Figure 28. Mr. W asks the class to evaluate Kayla's response as she moves back to her seat.

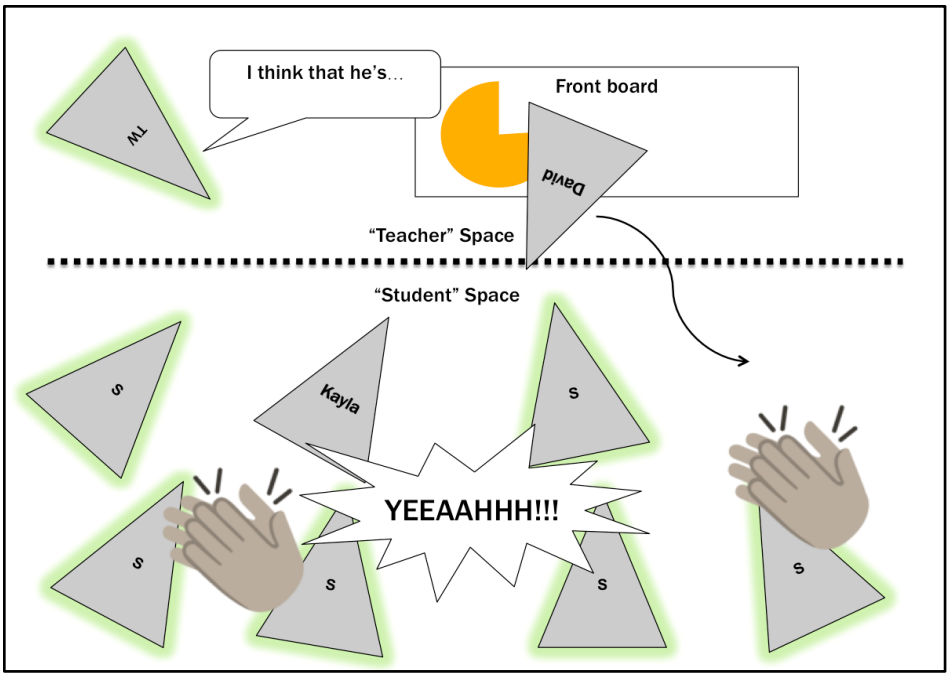


Figure 29. David concludes his counter-argument to the applause of his classmates and returns to his seat.

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