Reconstructing the *academic* in academic language: Radically listening to hidden worlds of knowledge building [Preprint Copy]

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Abstract

This conceptual essay discusses the benefits of the practice of 'radical listening' to help developing teachers explore and understand the ways in which their students engage in knowledge building. Critical literacy scholars have long noted the invisibility of student knowledge through a variety of white supremacist, English-dominant practices that include color-neutral curricula and assessments as well as privileged notions of academic language (Flores & Rosa, 2015). Radical listening is an active counter-position to such dominant notions of knowledge, hence enabling educators to see into the 'discursive void' (Arya, 2022) of multilingual educational contexts in order to trace and more effectively integrate students' linguistic, cultural, and experiential funds of knowledge. We apply this radical listening approach to two 'hidden worlds' of knowledge building. First, we provide examples of language produced by professional, formally trained scientists in the field engaging in disciplinary practices and ideas that debunk rigid, hegemonic expectations of what 'academic language' looks like. Second, we guide readers through an artifactual tour of a community-based literacy (CBL) initiative wherein elementary school students from a Latinx/Chicanx community are positioned as knowledgeable co-researchers as they work alongside undergraduate education minors in a place-based, critical literacy program. As part of this tour, we will share examples of the creative entrepreneurship and complex literacies students engage in and teachers can learn from when they adopt a stance of radical listening.

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Introduction

Who We Are

As instructors of teacher candidates, we have consistently encouraged our students to acknowledge and draw on youth's linguistic and cultural expertise via culturally sustaining pedagogies (Paris & Alim, 2017) and Funds of Knowledge (FoK) (Moll, et. al, 1992) frameworks. However, we've found through our course interactions and collaborative project work that the interpretative filters formed from prior educational experiences and various layers of school-based practices and norms often lead teacher candidates back to tokenizing understandings of culture, deficit perspectives, and appropriateness-based ideologies of language (Flores & Rosa, 2015). Such unfortunate setbacks represent one of the greatest challenges for teacher educators–how can we effectively foster teachers' capacity to recognize the knowledge-building and scientific ingenuity that racialized and linguistically minoritized students are already engaging in to move beyond 1) 'holidays and heroes' notions of cultural relevance and 2) preconceived notions of 'what a scientist sounds like'? This chapter highlights the ways we have used 'radical listening' in our own practices and to help developing teachers explore and understand student engagement in knowledge building.

We begin with some personal narrative and reflection on how our experiences have informed our approach to language and learning. Our identities, backgrounds, and histories may broadly differ, but we were brought together by a mutual interest in learner identities and language in use. It is perhaps from experiences as multilingual and, for Diana and Samantha, multiracial beings, that our interest in 'silence' and 'listening' emerged. For instance, when teachers and classmates ask, *what are you*? and *where are you from?* we attuned from a young age to what is unsaid in these questions and are prepared for disbelief or disregard to our responses. Reflecting on these inquisitions across our lifetimes we know that the question comes from a gaze of the interlocutor, one that senses the 'other' in us. As women, we're accustomed to societal pressure to be silent and for our intellectual contributions to be ignored to then only be picked up when rephrased by a man. And yet we are cognizant of the privilege afforded to us (albeit partly as an outcome of assimilation) because we speak what is *heard* as 'standard' varieties of English and can approximate forms of reading and writing that the academy has recognized as sufficiently 'academic.'

The impact of our experiences is evident in our trajectories as researchers and educators. We each have taught courses about language and literacy, courses for multilingual learners, and courses for future instructors of multilingual learners. Though we identify some critical issues in these spaces and provide recommendations for improvement, our own teaching records are by no means faultless, and it is our past failures that inspire us to push our teacher candidate students to be better than us and continuously improve on their own practice. For instance, we (Valerie and Samantha) have written about the value of reflexivity in teaching through reflections of our missteps and missed opportunities in the classroom to be used as a model for others (Lee, et. al, 2020). In our developmental journey as teachers and scholars, we continue to learn from our successes as much as our mistakes. The recommendations in this chapter emerge from both.

Theoretical Framework

'Academic language' is viewed by many traditional educators as an objective set of linguistic forms that operate as the explicit index for citing knowledge deemed 'appropriate' for school and for engaging in the knowledge-building practice of an academic discipline. However, the forms that make up so-called 'academic language' have been derived from *written* texts produced for formal presentations and publication and do not necessarily reflect linguistic practices of negotiation for meaning and construction of new knowledge in the sciences; examples of interactions between scientists in the business of constructing new knowledge are also rare, contributing to the elusiveness of academic language models. So, if a teacher waits for students to *use their science words* (for example) they may be overlooking the disciplinary-language-in-action that students are already engaging in. This is particularly important for instructors of racially and linguistically minoritized students whose experiential knowledge is often discounted when their language practices are evaluated as deficient or inappropriate for schooling based on their positioning as racial/linguistic minorities rather than on any objective measure of the content or language of their utterance (Flores & Rosa, 2015).

Privileged notions of academic language and white supremacist, English-dominant practices thus render student knowledge invisible to the instructor in the classroom. From our experience in teacher education programs (TEP) we have observed recent efforts to address these issues with a greater focus on affirming students' linguistic practices but teaching teachers to 'celebrate' linguistic differences is not enough. For instance, Valerie took part in a study that investigated pre-service teachers' understanding of how to teach multilingual learners and found that although pre-service teachers did emphasize validating existing languages and dialects, they ultimately would still prioritize the acquisition and use of 'academic language' when discussing the needs of their multilingual students (Spina, et al., 2020) (see also González-Howard, et al., this volume).

We contend that students bring in far more than the obvious, tangible, visible cultural and linguistic FoK and that current pedagogical practices that emphasize academic language work obscure resources and knowledge that students have about the world, themselves, and others. Taking up the scientific notion of the void as the known unknown, Diana has built on the work of James Baldwin (1965) to imagine a 'discursive void' as dialogic, full of potential meaning, and unheard experiences (Arya, 2022). Such a notion of void does not refer to emptiness or lack; we take up the scientific meaning of this construct, which connotes an invisible space full of potential meaning. Thus, to explore the void of knowledge building means to let go of our rigid preexisting notions of 'legitimate' disciplinary practice in preference for unpredictable or perhaps uncomfortable uncertainty.

In practice, exploration would begin with waiting and listening. This silent space provides an opening for students to express and contribute experiences and ideas about what it means to discover something new. A step of this journey involves welcoming and acknowledging contributions and modeling what it looks like to build shared understandings; the teacher serves as a scribe and illustrator as students revise and negotiate their intended messages. Rather than moving swiftly to evaluation and judgment, we would do well to seek understanding from students and create connections. In this practice of radical listening, silence is intentional and symbolic of social meaning. Hence, silence allows for the incorporation of every form and mode of participation as a star in the constellation of ways to communicate about the topic in question.

It is important to recognize that students are already engaging in these practices and that ideologies of appropriateness obscure rather than eliminate the Funds of Knowledge that they possess. Such a shift also requires iterative questioning to unpack the 'hidden worlds' of language and learning and inviting students to contribute valuable expertise through community- and justice-based pathways. We rely on this framework of the discursive void to explore the hidden world of sociocultural phenomena masked by institutionalized, systemically enforced inequities. Specifically, we interrogate the void of scientific knowledge building and communication and how we may better prepare teachers to engage in equitable practices in the classroom.

Two Hidden Worlds of Knowledge Building

What Scientists Actually Sound Like

Our first 'hidden world' of language and learning involves the discourse of professional scientists engaged in research. The scientific laboratory is somewhat of a mysterious and certainly inaccessible space for the average person. Our only exposure is often what we see in films or television. Purely by chance, Diana happened to meet the chief executive officer (CEO) of a successful neutron generator company at a dinner party within the Bay Area. He told her about their weekly *reading group*. This five-member group consisted of three electrical engineers, one optics physicist, and an optics engineer; all had Ph.D. degrees associated with their respective specializations. As a reading specialist, she was immediately curious to learn more. She was able to arrange observations of this reading group, which had invented the first neutron generator with an optic lens, an innovation that had garnered them great renown, financial support, and disciplinary prestige. In their meetings, they would discuss the results of previous or simulated experiments and establish the next steps of their research and development. They would also review the contents of a memorandum or series of memoranda that were largely produced by a consultant (one of the electrical engineers) who was a professor emeritus from a top-ranked research university nearby. As a participant-observer of these reading group sessions, Diana began to realize that the language used during these reading group sessions reflected various levels of formality.

The following excerpt (Figure 1) is an interaction that the reading group members identified as typical for their discussions[1]. In the first panel, each participant's name is listed to indicate where they were seated around a conference room table. In this interaction, Pantell[2] wanted to clarify the nature of the object featured in the image as they collectively work to determine whether this featured shape is the actual parabolic lens or the hollow mold. This

[1] Diana assumed a particular kind of participant-observer role during these reading group sessions; she recorded audio and video and took notes for the group and posed post-meeting clarifying questions about the content discussed during the meetings. The data included transcription of a sample of over 150 hours of recorded weekly discussions following Murphy's (2005) multimodal approach for transcribing interactions to capture mimetic gestures and interactions with visual and spontaneous texts. General notation conventions and other more subtle indications of talk, such as overlapping commentary by more than one member, emphasis in voice, and gaze, were included in the transcript. For this chapter, the transcript was used with stills from the video recording to create the storyboard visualization in Figure 1.

[2] All participants other than Diana were given pseudonyms

interaction of highly credentialed professionals engaged in economically and scientifically valued activities by its nature is a model of what we often think of when we imagine knowledge-building in a scientific discipline and therefore academic language.

Figure 1. *Storyboard Transcript of Applied Physicists' Reading Group Discussion.*

The conversation represented in Figure 1 illustrates how everyday language was used by these established academics as an anchor for shared understanding. The interaction opens with a disciplinary, technical term for an object (e.g., convex lens) that is soon discarded in favor of 'everyday' words to describe/illustrate the shape (e.g., bumps, mountains, tips). The turn to more concrete terms (e.g., hole, mountain) occurs in the proceeding panels once it's clear to the members, first Pantell and subsequently Mel and Monte, that there is confusion about what exactly they are viewing in the report. Similarly, Ted transitions from using the technical descriptor for the tool *mandrel* to simply describing its shape as *tip* or *bump*. These findings suggest that working scientists do not always use the domain-specific, technical language that is part of their professional lexicon.

Furthermore, concreteness comes in the form of language that is both verbal and non-verbal (mimetic). As the exchange proceeds the scholars draw on gestures (see panels 4, 8, 9). In the third and final panels, Mel and Monte rely on visual cues to convey their meaning more clearly. Specifically, they point to a printed photo of the item they are discussing. Here we see that even the experts who lead their profession rely on multiple linguistic and non-linguistic modes of communication to accomplish disciplinary tasks. In fact, research in science education has documented the multimodal nature of scientific communication and encouraged it in classrooms (Kress et al., 2001; Lemke, 2004). In scholarship on language development, however, visual aids are often narrowly conceived as 'scaffolds' meant to hoist students up to the 'appropriate' standards of language required for disciplinary interactions. Our example reinforces the recent call to reimagine visuals and other non-linguistic modes of communication as meaning-making resources fundamental to the enterprise of scientific knowledge construction rather than compensatory strategies (Grapin et al., 2021). In these instances, precision shifts from authoritative words to words and gestures that ground meaning in the concrete. Thus, the discourse of learning (arguably the main purpose of the weekly reading group) requires the time and space to use everyday words for a group to build a consensus understanding of concepts and processes. The fact that everyday descriptions and words were significantly more prominent during the reading group discussions confirms that the use of domain-specific, academic language varies according to the context and purpose of discourse.

Importantly, prior to the observation of the first meeting, three of the five award-winning scientists (including the CEO, the lead scientist, and the vice president of operations) communicated to Diana that they worried about not being the ideal models of reading and writing. The highly educated individuals expressed during side conversations at the lab that they were *not good at* or *have struggled with* reading or writing. Such admissions are intriguing mainly because they expose an unexpected vulnerability and expectations of linguistic appropriateness even at the highest levels. Diana was astounded by this group of highly skilled professionals who have a long list of approved patents and have won prestigious national and international awards for their work–at their core; they were vulnerable children who never recovered from their own sense of academic inadequacies. This realization shaped the way that Diana interacted with the group; questions about decisions and discussion points included supplemental explanations that indicated care and protection from ridicule. She began to see this small community for what it was–a group of people who are passionate about what they were learning and creating and used language in whichever ways would best fuel such passions. The trust that grew across the group led to an invitation to Diana to serve as an editor for one of their seminal works. If only our young students knew.

Knowledge-Building Practices of Elementary Students

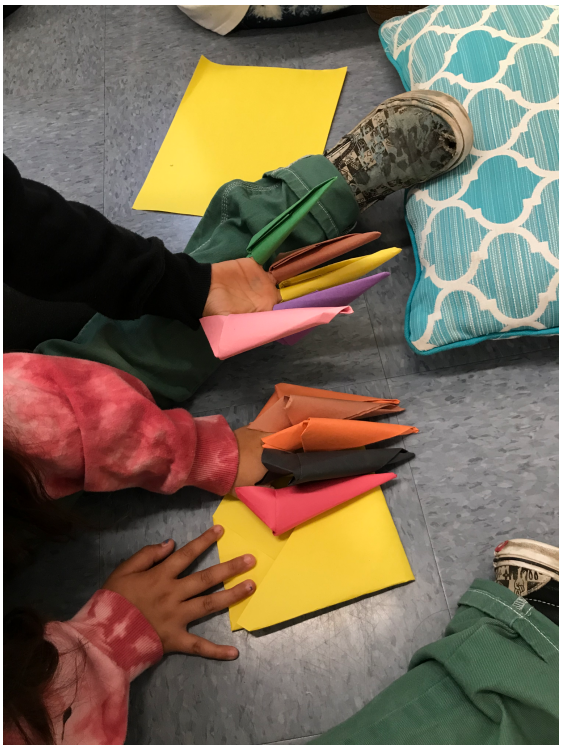
We agree with the suggestion posed by Bunch and Martin (2021) who argued "for shifting the question from "what is academic language?' to 'how do students use language to engage in academic work?'" (p. 541). Hence, we suggest that we shift the focus away from lists of linguistic characteristics of academic texts in order to lean toward (a) the disciplinary content, ideas, and sociolinguistic practices of discovery and innovation; (b) the participant structures and communicative tasks students are called upon to navigate to do academic work; and (c) the linguistic and cultural resources students bring to the table to engage in learning opportunities, including those that do not align with the norms of 'academic language as traditionally defined.

The brilliance of students is often obscured by a narrow focus on academic language and prescriptive approaches to language education. At the same time, schools serving ethnically/racially and linguistically minoritized students may attempt to be more culturally relevant simply by privileging visible markers of ethnicity/heritage practices without adequately considering students' evolving youth community practices (Paris & Alim, 2014). When students' funds of knowledge are relegated to cultural aesthetics–holidays, traditional clothing, rituals, food, they become fodder for stereotyping rather than resources for recognizing students as knowledgeable collaborators.

Our second example of language and learning in a 'hidden world' comes from two fourth-grade classrooms that Valerie and Diana work with as part of a place-based literacy program they have developed. The school has a majority Latinx population and a high percentage of students considered economically disadvantaged. Close to half of the 4th graders were officially classified as 'English language learners' and many more are growing up in homes where Spanish is spoken. Because we entered our work with the 4th graders by positioning ourselves as co-learners, we tried to be sensitive to students' multifaceted funds of knowledge, which drew on many sources: their heritage languages and cultures, globalized popular culture (e.g., the Korean supergroup BTS, the Japanese manga series Naruto, and the video game Minecraft), and local culture of creative entrepreneurship initiated and sustained by the students themselves.

Towards the end of the year, we noticed one student's arm striped with colored lines, each neatly numbered; wondered at the construction paper cones dangling off the ends of students' fingers; and overheard talk of dragons and something called 'Brain Bucks.' We discovered these were all elements of a marketplace of goods and services that the students had launched. Our student with striped arms was a would-be tattoo artist advertising the colors she could use in her designs; the construction paper cones were elaborate fake nails; the dragons were puppets constructed by a student who had taught herself how to make them from a YouTube video; Brain Bucks was an invented and perhaps theoretical currency since bartering or gifting seemed to be the main way goods were exchanged (see Figure 2).

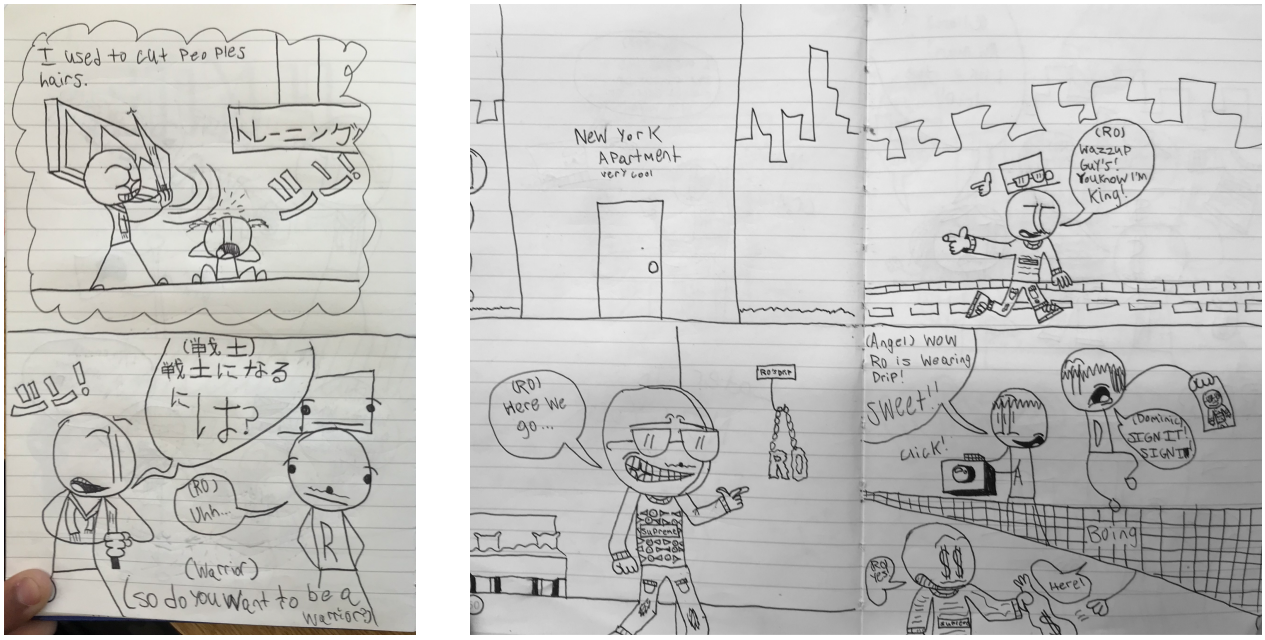
Figure 2. *Origami Nails and Dragon Puppets.*



Students engaged in a constellation of home-grown meaning-making that no adult was likely to anticipate, inspiring us to engage in radical listening as a way to learn what was being accomplished within this subverted world of classroom life. In practice, this meant paying close attention not just to students' responses to texts they read during the planned, small-group dialogic reading sessions, but also to the artifacts and conversations floating around the classroom, in order to build a more holistic understanding of students as cultural beings. It also meant knowing when to respect boundaries – children also need their own private worlds and inside jokes– and when to ask short, open-ended questions, stifling the urge to anticipate students' responses in our questions (e.g., *How did you learn to make the dragon?* not *Did you learn to make the dragon from a YouTube video?*).

As a second example, over the course of the year, one fourth grader created a lengthy comic featuring a robust cast of original characters led by 'RO' and his hat, 'Cappy,' who were regularly joined by the student's classmates and occasionally visited by characters from other story universes (Figure 3).

Figure 3. *Adventures of RO and Cappy.*



This student evidenced sophisticated command of multimodal storytelling, deploying multiple languages (English, Spanish, Japanese; though he did not independently speak or write Japanese, he was able to find and copy what he wanted the 'Warrior' character to say); visual conventions (e.g., notice how Cappy mirrors RO's facial expressions and gestures); and intertextual references (e.g., the graphic novel series "The Bad Guys" and the Internet meme "Rickrolling"). Fortunately, this student's creativity was celebrated by both his classmates and his teacher; his classmates eagerly showed Valerie their favorite pages in his book, pointing out details she would have missed, and examples of his comics were prominently displayed on a shelf with other students' creative output.

All too often, children are not recognized as knowledge-builders until they use language forms officially sanctioned as 'academic:' We have heard teachers peremptorily tell students to *use their academic words* rather than listening for the ways students are already making meaning in complex and unexpected ways. When teachers attune themselves to students' intellectual and linguistic resources, they open up a generative space for learning; conversely, when teachers listen primarily for privileged linguistic forms rather than the substance of their students' ideas, they can misjudge the sophistication of these ideas and respond in ways (e.g., primarily giving corrective feedback, or asking questions intended to redirect students to the *right* form or answer as efficiently as possible) that push students away from participating in classroom talk that feels inaccessible or uncomfortable (Warren et al., 2000). For students from racially and linguistically minoritized communities, these false dichotomies between everyday and academic language undermine equity (Bunch & Martin, 2021).

Unlearning Ways of Listening

The two examples we have presented highlight the artifice of 'academic language.' They each illustrate destabilizing events–destabilizing in that they disrupt traditional expectations of what scientific or academic language looks like, what linguistically/racially minoritized children already know and can do without assimilating to expectations of appropriateness, and what the current K-12 Common Core Standards for scientific literacy outline. They demonstrate how, when privileged academically successful white men engaged in knowledge building, they hardly ever used the esteemed and elusive 'big science words.' Instead, they relied on concrete, everyday communicative language as a tool for learning. They show how students whose knowledge has been historically discounted and language framed as in need of remediation in actually demonstrate their expertise as knowledgeable practitioners of disciplinary activities and complex literacies and highlight the need for instructors to attune to these practices.

These findings speak to larger efforts of promoting diversity, equity, inclusion, and anti-racism (DEIA) within the contexts of language education, multilingualism research, and linguistic justice. The occurrence of the COVID19 pandemic has reshaped school practices and caused us to reimagine our prevailing education paradigms; this moment is one that Ladson-Billings has deemed opportune for an educational "hard reset" (p. 68). Culturally sustaining pedagogy (Paris & Alim, 2017) and abolitionist (Love, 2019) approaches to teaching demonstrate how we can shut down or unlearn our traditional, teacher-led appropriateness-based blueprints of the past and start anew by centering youth knowledge and cultural/communicative practices (Ladson-Billings, 2021). We wish to contribute to this praxis within multilingual educational contexts by proposing radical listening and observing within the discursive void (Arya, 2022) of knowledge building. Radical listening is a practical exercise whereby teachers may reorient and attune to students' linguistic and cultural funds of knowledge in practice. If the problem is that classroom teachers are not listening to what and how racially and linguistically minoritized students are understanding, thinking, and communicating when focusing too narrowly on whether or not their expression measures up to features of 'academic language,' then what does it mean to truly listen and how can we teach teachers to listen?

The first step is to unlearn our problematic ways of listening. As Smalls (2020) has pointed out, in the same way that we have been socialized into speaking through "culturally mediated ideologies that frame 'ways of speaking,'" we have also been socialized through such ideologies into our "ways of listening" (p. 20). Unlearning requires an awareness of appropriateness and raciolinguistic ideologies, as hegemony and racism are a part of our institutions and work as a filter when we listen to or communicate with others (Baker-Bell, 2021). The second step is then to move beyond hearing and observing what students say or do towards a more active role in seeking to understand and make meaning with our students. In critical education studies, this type of listening–which involves taking the time to understand meaning as closely as possible to the way the speaker intended, unadulterated by our own agendas and ideologies–is referred to as 'radical listening' (Kinchloe, 2008; Winchell, et al., 2016). Applied to the void, radically listening means attuning to 'hidden worlds' of the dynamic language and cultural practices that are masked by institutionalized, systemically enforced inequities.

In practice this would look like asking exploratory questions–questions that allow students to demonstrate what they know, think, and believe and provide opportunities to connect concepts to their lives and their communities. When we listen to their answers, we can also make

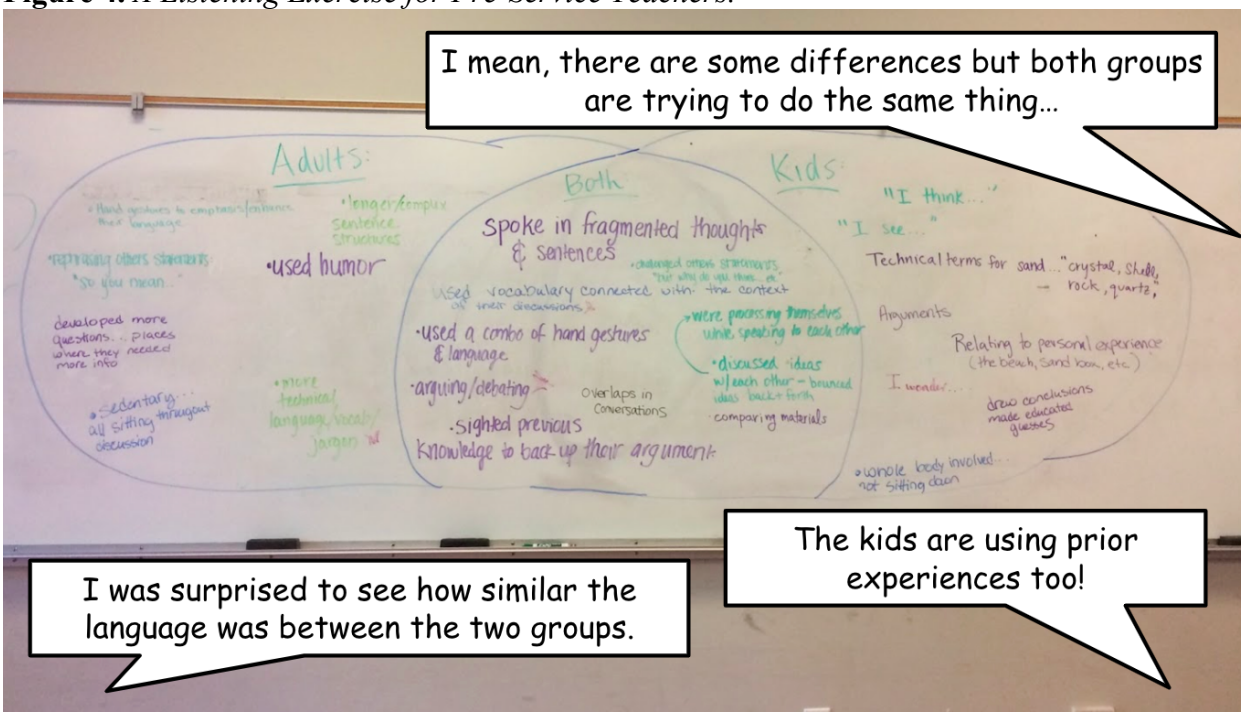
connections to *our* lives and communities and model for students what it is like to collectively build shared knowledge. It involves making space for alternative and multimodal forms of participation, which could include introducing new technologies for participation that we have become more accustomed to in the wake of remote learning conditions. However, we can also start to imagine ways to incorporate art and creative writing as valid forms of scientific expression. For an example of this, check out the LEAFY project[3] Diana founded in Santa Barbara. In this program, students engage in creative arts science projects on that are informed by and benefit the surrounding community. By creating original digital media, short films, and poetry students gain a deeper understanding of local environmental issues and feel empowered to share ideas in multilingual, multimodal ways.

When students are engaging in knowledge-making in the classroom, we should be attentive to their different language(s), expertise, and ways of communicating, even if they are unfamiliar to us. This means actively listening: confirming meaning, asking for clarification, and seeking to know more. This could also be assisted by encouraging conversations about language in the classroom. Finally, the qualifier 'radical' requires acknowledging that the voluntary action of listening entails issues of power– in other words, the listener is listening for evidence of power and inequality in interaction, including the meaning of discursive silences. Radical listening requires an environment of trust where participation *and* silence feel safe; the creation of such an environment depends largely on how much we listen to students. By paying attention both to what is said and unsaid and creating relationships with students, we can come to understand the ways that their identities and experiences, and intersections of power and privilege contribute to discursive silences in learning spaces.

Based on the findings from these two examples of hidden worlds, we strategize ways to reorient future teachers from listening for academic language to radically listening. One such idea has been replicating the analyses presented here in the classroom with pre-service teachers. In an exercise for pre-service teachers, Diana asks students to watch two videos–one involving a discussion among members of the reading group of the applied physicists and the other involving a discussion among third graders engaged in observing the properties of various packets of sand. Diana assigned these viewings as homework and provided transcripts for clarity and a note catcher for gathering thoughts, surprises, wonderings, and questions about each video. The following week, the pre-service teachers were asked to compare the ways that the third graders and professionals talked during respective scientific work and note differences and similarities on a collaborative Venn Diagram (Figure 4). The goal of this exercise was to help Diana's students gain a deeper understanding about what it means to engage in scientific discourse. Did such talk necessarily mean that certain words or terms are used? Are there particular ways of engaging in scientific thinking and doing? What funds of knowledge are important in such discussions? Diana led their class in a discussion about such questions.

[3] https://www.cbleducation.org/leafy

Figure 4. *A Listening Exercise for Pre-Service Teachers.*



The pre-service teachers found a few logistical differences. For instance, the children were talking about sand while adults were discussing a lens or a mold for a lens to be made. Both groups were seated around a table, but members of the third-grade group would move periodically, standing or walking around the classroom. Otherwise, the two interactions were largely the same; both groups expressed thoughts in fragmented statements with overlapping between speakers. They used vocabulary associated with the respective context. They relied on gestures and prior experiences. They processed and questioned new information while speaking to one another.

By contrasting these two examples, the pre-service teachers were able to confront the fallacy of 'academic language,' and the language that scientists and youth used to engage in scientific practices and concluded that these ways of communicating were not so different after all. Diana then led the class discussion toward reflection on previous and current practicum experiences. Could they now identify moments of knowledge sharing and building? Could they recognize disciplinary expertise in development? In what ways did prescribed definitions of academic language hinder their ability to listen to what their students were saying?

The cultivation of more equitable practices in our science classrooms and beyond requires a critical reevaluation of how we listen to students and what we are listening for, particularly when it comes to our culturally minoritized multilingual learners. With the examples outlined in this chapter, we invite the reader to consider new ways of destabilizing the rigid linguistic expectations we hold for young students–our future scientists– by engaging in the practice of radical listening. Such listening can begin even outside of classroom spaces, in everyday interactions.

An important step in radical listening practice is the demonstrable willingness to move the target elsewhere; instead of implicitly adhering to the othering gaze of difference and nonconformity, be willing to see the dominant context as lacking in knowledge and (hence)

understanding. Instead of hearing technological and academic precision in the language of applied physicists, Diana heard the vulnerable, linguistically variable core of knowledge building and the professionals who, after trust was built, invited them into their world of bumps and holes. Valerie acknowledged and embraced the creative, translanguaging practices of young innovators and entrepreneurs within what could be characterized as a kind of academic 'black market' that runs silently in parallel with the school-wide focus on a narrow set of linguistic forms accepted as academic language. Radical listening is an aural flashlight that allows us to peer into the deep space of learning and creating. The more that we engage in this practice, the more we can understand what our students know and can do, and the more prepared we are to fulfill our promise to prepare our students for the world beyond our classrooms.

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