

# Identity Work and Science Learning at the Classroom Margins

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**Abstract:** We investigate the relationship between identity work and science learning of 5<sup>th</sup> grade students, as they traversed various settings and practices within liminal spaces of the classroom (e.g., recess) and beyond (e.g., home). By training our attention on identity work at the fringes of formal classroom instruction, we highlight heretofore little studied identity-related phenomena and their relationship to disciplinary (science) learning.

## Introduction

As the ICLS 2020 call for submission states, “the importance of identity for learning is increasingly recognized, and the ways we conceptualize, investigate, and support both are constantly evolving.” In this poster, we contribute to these efforts by investigating the relationship between *identity work* and *science learning* of 5<sup>th</sup> grade students in a public school in Austin, TX. By *identity work* we mean the moment-by-moment and long-term processes by which a person actively attempts to position him/herself as a particular kind of individual (Gee, 2000) and, reflexively, how participants in the setting actively position the person in particular ways (Van Horne & Bell, 2017; Nasir & Saxe, 2003). Specifically, we focus on students’ identity work performed within the liminal spaces of the classroom (e.g., the multi-party, informal conversations during recess or class breaks), as well as beyond the classroom boundaries (e.g., at home).

Much research on student identity and learning has been carried out within the confines of the classroom and has focused on the development of disciplinary identities, such as science/math identities (cf., Calabrese Barton et al., 2012). While such work helps us to understand the intricacies of classroom learning and directly inform teaching practice, it fails to capture the full complexity of how identity and learning processes unfold across the multifaceted practices that students engage and the multiple settings they routinely inhabit. By training our attention on identity work at the fringes of formal classroom instruction, we highlight heretofore little studied identity-related phenomena and their relationship to disciplinary learning, and consider what this means for research and practice.

## Theoretical framework

We draw broadly from various socio-cultural theories of learning and their specific, yet interrelated conceptions and treatment of identity. Beginning with Lave and Wenger (1991), we take it that identities take shape and develop in relation to the practices of groups and communities, and they are constantly negotiated in the transactions between the individual and the practices that they enact. In this perspective, identity is seen in how one positions him/herself in the ongoing, shared work of a group/community, as well as how he/she is positioned by those in the group (Nasir & Saxe, 2003). Furthermore, identity construction is performed over time and across the various settings in which the person encounters/enacts the practice (Van Horne & Bell, 2017). An individuals’ changing roles and changing identities in any given practice reflect his/her learning and shifting relations of accountability within the practice (Lave & Wenger, 1991).

## Empirical methods and context

We collected data at Manuel Martinez Elementary (a pseudonym) between October 2016 and May 2018. At the beginning of the research period, there were 44 fifth graders attending this Title 1 urban elementary school: 63% Hispanic, 20% White, 10% African American, 3% multi-racial, and 2% Asian. The fifth-grade science teacher, Mrs. Peacock, was a white female in her late twenties who had been teaching at Martinez since she graduated from college with an Elementary Education certificate. She determined all the science curriculum and pedagogy following the Texas state standards and district guidelines.

Within this empirical context, in ethnographic manner (Atkinson & Hammersley, 1998) we mapped out the practices of Mrs. Peacock’s classroom and, crucially, the student enacted practices outside of classroom (e.g., recess and play) and within liminal spaces of the classroom. Data were collected through a variety of methods and media, including video records of classroom activities (dozens of hours), field notes (~200 pages), and (informal and formal, semi-structured) interviews with students, parents and teacher, all logged and selectively transcribed.

## Analysis

We consider a single case of identity work that developed around a theme/practice over the relatively long haul,

but which itself illustrates several episodes of identity work. As with many 5<sup>th</sup> grade classrooms in the USA, Ms. Peacock's class had an animal pet—a lizard (leopard gecko) by the name of Ringo. Throughout the study period, Ringo was never a formal part of the curriculum nor was he ever included or mentioned in the ongoing learning activities. Yet Ringo had many “followers” among students, and several would pet him on various occasions, take him out at recess or home for the weekend (parent consent required), or otherwise involve him in myriad other activities. Among these students, a certain hierarchy had emerged in which a group of 5 students (Luna, Tim, Inge, Austin, and Lindsay) were formally granted (by the teacher) permission to care for Ringo (e.g., feeding and cage cleaning); we call them Ringo Keepers.

We do not know when and how the Ringo Keepers formed, but by the time our empirical work began the group seemed consolidated and they appeared to be friends as well. Throughout the research, then, we observed several instances of identity work relative to the maintenance and development of the group, as well as the learning that resulted in the process. For example, although the Keepers had no official organization, as it happened Luna had clearly become the leader of the group. In asserting her position, Luna would routinely check on Ringo's cage, change his water and, if needed, inform Mrs. Peacock of his needs—all exemplars of identity work.

Reflexively, other classroom members also engaged in routines that reified Luna's position as Keepers' leader, such as on the occasions (FN 10/09/2016, 11/01/2016) in which Mrs. Peacock asked Luna whether Ringo had been fed, thus granting her public authority over his caring. Or, similarly, when Isaac (then a new member of the Keepers) asked Luna whether he could take Ringo out to recess and was denied it, on Luna's explanation that “it was too cold for Ringo today” (FN 10/25/2016). Isaac's concurring with Luna's assessment and aligning with her authority as oldtimer (Lave & Wenger, 1991) again reified her (competent) leadership in keeping for Ringo.

Importantly, Luna's identity work as Ringo Keeper leader is accompanied by displays of science (content and practice-related) knowledge that hint at how much she has learned about lizards on her own. When explaining to us why Isaac could not take Ringo out at recess, for instance, Luna stated: “... since Ringo is cold-blooded, he doesn't do well when it's cold,” and further added “... that's why he has a heat lamp.” Such knowledge was concomitantly developed at home, where she and her brother kept a similar pet lizard—which demonstrates how identity work and its inherent learning processes stretch across space and time.

## Discussion and conclusion

In sum, the Ringo Keepers and Luna's case—and specifically their location outside the formal space of (elementary science) classroom instruction—surface students' identity work whose motive is the maintenance of affinity groups and their structure, and *not* instructional/classroom goals. At the same time, because of Ringo's central position within students' activities and its existence (ontology) as an object of scientific (biology) study, students in the Ringo Keepers group *did* learn about the contents of the activity (i.e., lizards and their behavior), and engaged in such science-based practices of observation, hypothesizing, and data collection (Calabrese Barton et al., 2013). In other words, we find identity work unrelated to formal science instruction, but which engenders learning of science-related content and practices, all of which may be highly consequential for classroom science learning. We have found additional similar cases in our data, such as when two students' pretend play at recess drew from the book series *Warrior Cats* to enact *friendship*-based identity work, while also engaging in substantive science-related learning. We will have more such cases elaborated by conference's time.

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