An Analytic Perspective Expanding the Construct of Practice-Linked Identities for Undergraduate Mathematics Students

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Mathematical identity is broadly defined as the dynamically negotiated self-understandings students develop in the context of mathematics (Martin, 2006). With growing interest in mathematical identity among researchers and emerging conceptualizations continuing to appear, Darragh (2016) critiqued that mathematical identity has been thought of inconsistently, in terms of studies not clearly aligning choices such as the definition employed, theories, or methods. As distinct studies have different purposes that will inform their choices, authors using varying conceptualizations would be less problematic if there was more "theoretical coherence" in individual studies, avoiding "defining identity in a contradictory manner to the methods used and conclusions drawn" (pp. 24, 28). In this poster, we will propose a clarified analytic expansion of Nasir's (2011) "practice-linked identities", which has been used in cultural community settings such as high school basketball, mathematics, and track (Nasir & Hand, 2008; Nasir & Cooks, 2009) but not yet explored further in terms of analytic considerations or undergraduate settings. We offer ways to explicitly analyze practice-linked identities of undergraduate students as they develop a personal perspective towards themselves linked to practices they engage with in mathematics classrooms. We will also outline empirical examples from our work with Calculus I students to illustrate the analytic perspective. We are guided by the research question, "How can analyzing undergraduate students' development of practice-linked identities be clarified?"

Expansion of Practice-Linked Identities

Our perspective meets Nasir's practice-linked identities that individuals develop as they build a connection to local practices with Ernest's (2009) social constructivist view towards learning in that there is a reflexive relationship between individuals' understandings and the social world they encounter. This reflexive relationship includes students' understandings towards who they see themselves as within contextual classroom practices. In that realm, we emphasize the weight of the student perspective in developing their sense of self and how that perspective impacts how they define and take on practices. We expand Nasir and Hand's (2008) insights that practices become salient when students achieve access to the domain (the discipline of the community, i.e., undergraduate mathematics), access to self-expression (the ability to enact personal meanings), or integral roles (making valued contributions) for the purposes of analytic considerations in two ways. First, we clarify that this access occurs from the student point of view, and next, we introduce that there also must be evidence of personal importance. That is, it is not enough to consider a student to have developed a practice-linked identity by one of the three access criteria alone; students should express personal connections by either citing why the practice personally matters, such as aligning with their values (Seah & Andersson, 2015), using first-person active voice (Morgan, 2006), or expressing emotion (Kaasila, 2007; Tannen, 1979).

In the poster presentation, we will detail our analysis from a study of six Calculus I students' accounts via interview data to illustrate considerations for what evidence should exist to classify units of analysis as part of a student's developing practice-linked identities. We will provide several examples and non-examples while connecting to the perspective discussed above.

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