Using Multiple Perspectives to Study Identity Development in Digital Environments

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Abstract: Within the field of identity research, our understanding of the interplay between digital technology, identity, and learning has been impeded by differences in vocabulary. This paper reviews two main theories and proposes a new integrated model of identity development that uses measurable constructs in place of discrepant terminology for similar concepts. This model has the potential to further enrich our understanding of identity and the ways we can improve the designs of digital learning environments.

Divisions in the field of identity research

Digital technology impacts the process and outcome of identity development (Turkle, 1984) which in turn affects how people learn (Steele, 1997). However, scholarship around the construct of identity and the process of identity development is variant which has led some to argue that the construct of identity is too poorly defined to be useful. Additionally, there is a wealth of research that focus on specific domains or expressions of identities, e.g., racial identity (Sfard & Prusak, 2005; Nasir, McLaughlin & Jones, 2009) or gender identity, wherein some effort has been made towards integrating models. However, this work has yet to contribute to our understanding of composite identity development. Increasingly, scholars are calling for more integration of the various perspectives on identity to better support the advancement of identity research (McLean & Syed, 2015). Integrated approaches would also allow for more in-depth examinations of the relationship between identity, learning, and the use of technology enabling learning scientists to better design educational technologies that promote learning.

The modern-day conception of identity was developed by the first psychologists and sociologists to branch out from philosophy - the two most notable being George Herbert Mead and William James (Hammack, 2015). Mead's theory and its derivatives maintains that society and identity inform each other dialectically through interaction (Hammack, 2015). Identity then is a reflection of an individual's roles or positions within society. Eriksonian theories, which were inspired by William James, assert that identity development is a fluid and ongoing process of exploration, reflection, and commitment (Crocetti, Rubini & Meeus, 2008) and involves interaction between three levels of identity: ego, personal and social (McLean & Syed, 2015). Briefly, ego identity consists of basic, private beliefs and is concerned with consistency across time and space; personal identity goes beyond private beliefs to include goals and positions, and strives for congruity between beliefs, values, and roles; and social identity is the synthesis of an individual's memberships to and roles within various social groups.

By combining corresponding elements and replacing general constructs with identity-relevant conceptualizations, one possible working definition of identity development could read as such: *an iterative process wherein our values, conceptions of possible selves, and salient aspects of our self-concept influence the quality and quantity of our experiences and social interactions, which lead to new or revised commitments after a period of interpretation and reflection governed by our processing style.*

Integrating the psychological and sociological models of identity

The similarities between the Eriksonian and Mead perspective are obscured by disparate vocabulary. Also, vague definitions make it difficult to measure the process and outcome of identity development in systematic ways. The proposed definition attends to all of the main components of both perspectives and utilizes constructs for which scholars have already created reliable and valid measures. *Values* encompass both beliefs (Maio, et. al., 2003) and the internalizations of imposed positions (Hitlin, 2011). Similarly, Cheek, Smith and Tripp's (2002) *Aspects of Identity* attends to the importance of structures - which includes positions/roles and memberships - for identity development. They assert that people assign significance to their self-aspects differently and that these aspects are clustered into four levels: personal, relational, social or collective. The dialectic between structure and agency requires that the individual make sense of the structures within which they are operating so as to tailor their behavior to the situation. However, individuals process identity relevant information in three distinct and systematic ways: informational, normative, and diffuse-avoidant (Berzonsky, 2008). Individuals do not fall neatly into these categories but instead show preferences for at least two of these *Processing Styles* depending on the context (Kerpelman, Pittman & Baeder, 2008). The enactment of agency is easily observed, but to understand behavior we must have insight into motivation which is not as easily obtained/accessible. Understanding the primary style(s) with which an individual processes identity relevant information elucidates the germane aspects

of an experience for an individual and the degree to which they explore, reflect and commit which in turn determines the robustness of their resultant identity. Lastly, people call upon their experiences and understanding of the world when thinking about who they want to become (Oyserman & James, 2011). If behavior is identity in action, we can reconceptualize goals as *possible identities* which are circumscribed by an individual's perception of the world and their past experiences.

Advancing learning sciences research using the integrated model

In order for learning scientist to fully understand identity's impact on learning, we need to have a comprehensive understanding of the internal, external and interactional aspects of identity. A digital learning environment whose design employs the proposed model of identity development should aim to seamlessly evaluate the user's values, conceptions of possible selves, and salient aspects of their self-concept in order to effectively prompt exploration, reflection, interaction and commitment in relation to the learning objectives. Findings from research such as this would help design-based researchers make more informed decisions about the features they should include, mode(s) of delivery, and types of content to help foster positive identity development and promote learning. For instance, the culture of science often conflicts with that of marginalized people as evidenced by the field's lack of diversity. One possible way to address this issue is by designing and implementing an interest-based digital learning environment that aims to help participants develop positive science identities. This could be accomplished by providing users opportunities to explore the relationship between their interests and science, reflect on these new experiences (e.g., in a journal), and revise their commitments as evidenced through changes to their self-representations or career aspirations.

By embedding measures of the proposed constructs into the digital learning environment, researchers can simultaneously elucidate the unique impact that these environments have on the process and outcome of identity development and the ways in which we can improve our designs to amplify their efficacy. Additionally, these findings would allow researchers to time intervention aspects to coincide with other phases of development to enhance the final outcome.

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