

Digitized Collections as a Means to Deepen Informal Science Learning: An Argument and Early Findings

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This presentation explores the potential for leveraging digitized natural history collections to advance and deepen informal science learning. It does so through three means: 1) a research-based argument for why and how digitized collections could support informal science learning; 2) a description of a pilot study investigating a museum-based digital interactive that engages learners with digitized collections, and 3) a summary of our initial design principles, constraints, and opportunities around creating learning experiences that feature digitized collections. First, we present a research-based argument via literature synthesis to show why and how digitized collections could advance and deepen informal science learning. Drawing on extant research from the fields of science education and learning sciences, this argument advances the view that digitized collections could be not only useful for learning but potentially transformative. We argue that digitized collections can mediate the cognitively demanding sensemaking processes that have been identified as critical to effective science learning and, therefore, have potential to deepen the intellectual rigor of museum-based learning experiences, helping to expand the way that learners think. Second, we describe a pilot study of a digital interactive that features digitized collections. We will share our design process, which involved adapting parts of a fully developed inquiry-based learning sequence intended for formal science classrooms into a museum-based experience. Specifically, the design of this digital interactive was oriented towards creating an activity that could strengthen learners' data practices—or the selection, analysis, and interpretation of quantitative data—something with which the public is known to struggle. We share initial findings from the pilot study of this interactive, implemented with visitors at a natural history museum in the western US. In particular, we highlight how certain design features were associated with particular forms of engagement by learners. Finally, we consider how these findings might inform future iterations of informal learning experiences that leverage other digitized collections. We expand upon these ideas by identifying initial design principles, constraints, and opportunities for creating learning experiences that use digitized collections in informal spaces. We identify the collaborators, resources, and further research needed, and we suggest multiple paths forward.

