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## GSA Connects 2021 in Portland, Oregon

Paper No. 3-8

Presentation Time: 10:10 AM

### AUGMENTED REALITY IN NATURAL HISTORY MUSEUMS: IMPACT ON VISITOR ENGAGEMENT AND SCIENCE LEARNING

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Natural History Museums are increasingly leveraging immersive technologies (e.g., virtual reality, augmented reality, projection mapping) to provide visitors with novel experiences and augment scientific content in existing exhibits. However, little data currently exists as to how effective these technologies are at teaching scientific concepts, or even how enthusiastic museum visitors are to interface with these experiences. We designed and field-tested two mobile augmented reality (AR) experiences at La Brea Tar Pits (Rancho La Brea, California, USA) and studied how different degrees of immersion and interactivity impacted visitors' engagement and understanding of science. We also studied how engagement and learning were related to visitors' epistemic emotions about science and AR. Key scientific concepts we sought to teach through these experiences included: 1) the mechanics and frequency of entrapment in Rancho La Brea's asphalt seeps; 2) the range of fossils preserved at Rancho La Brea; 3) what the environment at Rancho La Brea was like during the Pleistocene; and 4) how the scientific process works by revision of hypotheses based on new evidence. We found that participant knowledge of these scientific concepts increased significantly from pre-test to post-test across all conditions, including a baseline condition. In addition, participants expressed greater interest in science than in AR, and curiosity and surprise were strong predictors of knowledge revision, suggesting that exhibits that stimulate these emotions may be particularly successful at countering scientific misconceptions.

Session No. 3

[D40. Recent Advances in Geoscience Education](#)

Sunday, 10 October 2021: 8:00 AM-12:00 PM

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