

Multi-Scale Virtual Field Experience: Sedimentology and stratigraphy of Grand Ledge, Michigan, USA

Madeline S. Marshall¹, Melinda C. Higley²

¹Department of Earth & Environment, Albion College, Albion, Michigan, 49224, USA

²Geology, Geography, and Environment Department, Calvin University, Grand Rapids, Michigan, 49546, USA

Correspondence to: Madeline S. Marshall (mmarshall@albion.edu)

Revisions and Edits

Line numbers refer to review preprint; our revisions address comments from reviewers RC1 and RC2.

Line 1: We revised the title to: Multi-Scale Virtual Field Experience, Sedimentology and stratigraphy of Grand Ledge, Michigan, USA

Line 43: To address wordiness, we replaced the phrase “(2) creating a structure that would be expandable and ongoing in its scope, with our future goals being to incorporate subsurface data and samples from the Michigan Core Repository; ” with “(2) creating an expandable structure, with future goals to incorporate subsurface data and samples from the Michigan Core Repository;”

Line 44: We replaced the phrase “inflexible scope” with “limited scales of data, and inflexible implementation.”

Line 40-47: We fixed the parallel construction for last item in the list of this paragraph by replacing “(4) a broader goal of this Grand Ledge VFT was to thoroughly document and encourage the preservation of a suite of historically and geologically important Pennsylvanian outcrops in Grand Ledge, Michigan (e.g., Milstein, 1987a).” with “(4) thoroughly documenting to encourage the preservation of a suite of historically and geologically important Pennsylvanian outcrops in Grand Ledge, Michigan (e.g., Milstein, 1987a).”

Line 67: To address wordiness, we replaced the phrase “First, they submitted a copy of their field notes,” with “first they submitted field notes”.

Line 90: We added a sentence to explain that the panorama incurred distortion during the photomerging process. We chose to mention this in section 1.3 VFT Development to account for all panoramas in the project, not just the one shown in Figure 1.

Line 150: We rephrased this sentence to clarify it was comparing in-person to virtual fieldwork during this stage of the experience.

Line 151: Deleted an unnecessary “that.”

Line 172: Deleted an unnecessary “that.”

Line 341: This sentence was ambiguous and was deleted: “This was the most crucial part of the VFT for having developed functional group dynamics with initial partners.”

Line 340-345: We rephrased this section to clarify our meaning.

Line 364: We fixed the parallel construction by replacing “The class used the live-annotate functions of the Jamboard to virtually draft correlations between sections, debated lateral relationships, and drew upon their knowledge of similar sedimentary records from readings and class to generate a cohesive set of hypotheses about the depositional system (Fig. 7).” with “The class used the live-annotate functions of the Jamboard to virtually draft correlations between sections, **debate** lateral relationships, and **draw** upon their knowledge of similar sedimentary records from readings and class to generate a cohesive set of hypotheses about the depositional system (Fig. 7).”

Line 398: We clarified how student responses were coded and processed by including the following at this point: “In reading student reflections, we selected representative student responses about their learning outcomes that corresponded to each SLO, and coded these responses by SLO and school to ensure an even distribution of comments from Albion and Calvin students. Student experiences and outcomes were markedly similar between the two schools, and comments from reflections were aggregated. We excluded student reflection responses that were not related to an SLO, or were focused on specifics they learned about their particular outcrop. Student reflections were intended to be open-ended, as opposed to a structured survey; thus, further qualitative data analysis is beyond the scope of this project.”

Line 399-400: We moved the following sentence to be placed appropriately within the newly added explanation of how we used student responses: “We focused on feedback related to why students did or did not like the VFT, what was challenging and how challenges were overcome, and achievement of the project SLOs.”