Research suggests that because of its historical nature, the learning of evolutionary biology is problematic compared to that of other science disciplines. While explanations used in historical sciences often employ historical narratives, which are distinct from narratives in other contexts, such as stories, the two types of narratives have structural similarities that suggest the potential role of stories based in the history of science for the teaching of evolutionary biology. Stephen Klassen, a prominent science educator, has studied how stories from the history of physics can promote the learning of and attitudes towards science. Klassen’s pioneering work identifies structural components of stories (narrative elements) that give them explanatory power.

To test Klassen’s approach empirically, the present study employed an intervention (The Mystery Phenomenon (MP)) with reference to the history of research on industrial melanism (IM). The episode was chosen for study because it incorporates past scientists’ theories and investigations on IM as a strategy to mitigate misconceptions. The efficacy of the unit was studied by means of a mixed-method approach that compared the learning outcomes and experiences of participants using two versions of the MP (one that employs a story that incorporates Klassen’s structural components and another that did not). To determine if the story approach impacted the learning of science content goals, participants in both groups took the Concept Inventory of Natural Selection (CINS) as a
pre- and post-test. A subset of participants also took part in semi-structured interviews to further clarify the analysis of the CINS results and to assess the impact of Klassen’s structural components and student attitudes.

This study’s results demonstrate that the story version of the MP lesson yielded significant learning gains, and that some of the misconceptions explicitly discussed in the MP lesson displayed significant decreases. In addition, participants expressed positive attitudes to this lesson’s format as a mystery in reference to it as a teaching strategy. Finally, by employing two versions of the MP lesson, this study provides a systemic way for empirically testing the efficacy of stories.