Creating Journeys:
NGSS-Aligned Interactive Reading Passages for Secondary Science Classrooms that Integrate Current Science and Engineering Research

Welcome to my Journey…

To meet the demand to create current resources for the instruction of the Next Generation Science Standards (NGSS) released in 2013, I invented a concept of interactive reading passages called Journeys, developed a pilot Journey: Researching Dolphins, implemented a nationwide teacher feedback system, and produced a final Journey online.

What is a Journey?

Journeys are easy-to-read interactive reading passages. They are designed to allow middle school and high school students to elaborate on current scientific and engineering topics through real-world scenarios. By integrating multiple scientific concepts, they let students practice data analysis as well as experience citizen science. Journeys also promote scientific literacy by using multiple literacy strategies, graphing opportunities, and other multimedia NGSS-aligned resources through interactive Waypoints.

Research Questions

• How will secondary science teachers of all experience levels find NGSS aligned interactive reading passages, or Journeys, relevant?
• How can secondary science teachers use Journeys to incorporate relevant and current science topics with NGSSs in their classrooms?
• How will teachers find these resources useful, and in what ways?

Methodology

Meet scientists/engineers in the field, produce Journeys
• Research and interview researchers in the field starting 2015.
• Complete a pilot Journey: Researching Dolphins.

Survey, interview, and ask teachers nationwide for feedback
• Preliminary Survey, 33 teachers, April, 2015. Snapshot of what teachers know and need regarding NGSS, as well as their access and preferences to technology.
• Interviews, 16 teachers, December 2015 - February 2016. In-depth review of teachers’ perspectives of literacy in science, NGSS-implementation, and data analysis practice.
• Teacher feedback instrument, 11 teachers, March 2016. Distributed pilot Journey passage to interviewed teachers.

Improve Journeys based on teacher feedback
• Update pilot and structure of Journey passage with teacher and specialist feedback, April 2016.
• Commence final feedback instrument with available teachers.
• Publish Journey on an interactive blog-like platform for future resources development, now and beyond.
• Continue nationwide teacher feedback system for future Journey development.

“These Journey projects are quite good and an excellent conceptual way to tie so many things together!”

- Dr. Gerald Nelson, Montana State University

Interpretation & Conclusion

Based on interviews and feedback, Journeys must be relevant for students in order to solve problems, make predictions, practice current science and engage in citizen science.

Based on surveys and interviews, teachers have highly varied access to technology. Journeys will be versatile in delivery and not entirely dependent on technology or hard copy, yet still contain the quality multimedia materials essential for today.

Based on continual feedback on both drafts of the pilot Journey: Researching Dolphins, teachers find Journeys useful as they “allow students to participate in finding solutions to real-world environmental issues and observe first-hand the approaches, assumptions, and analytical methods used by scientists currently doing this work.” (Specialist Review, 2016). Journeys give access to real data for analysis practice and various formative assessments through interactive Waypoints.

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