Introduction and Background

There is a growing concern in the geoscience community about student recruitment, retention and transition into the workforce because geoscience degree production rates remain relatively low compared to the anticipated future demand of the discipline (AGI, 2013). Increased understanding of students’ career aspirations and trajectories is essential for the student-to-professional transition in the geosciences. Previous geoscience educational studies show how critical incident influence student decision-making versus major and occupational pursuit (Levine et al., 2007; Houlton, 2010). A pathway model was developed to elucidate the relationship between students’ interests, critical incidents, goals and career choices, which explains what led them into the geoscience major. The pathway model contains 6 pathway steps that is comprised of different components explaining students’ interests, experiences and decisions (Houlton, 2010). A post-survey was administered to the same participants in Houlton’s 2010 study to understand how students’ pathways have changed or stayed the same and why.

Methods

Our research questions specifically ask:

1. Why did students decide to major in the geoscience?
2. How are students’ pathways that led them into the geoscience similar or different?
3. How have students’ pathways changed from original study (2002-2003) to now (data collected 2013)?
4. What implications do these pathways have for the geoscience discipline?

Houlton’s 2010 study developed a semi-structured interview protocol based off of the critical incident technique (Flanagan, 1954). This protocol, short follow-up survey questions developed based off the interview protocol and results to understand changes in students’ pathways. Out of the original 17 students, 13 of them responded to the survey: 5 Natives, 6 are Immigrants, 1 is an Emmigrant, and is already a geoscience professional (who’s pathway is not shown here).

Discussion - Differences between Populations

These figures illuminate the differences between Natives and Immigrants, emphasizing the change in the Pre and Post studies.

Discussion - Reasons for Attrition

There was one student from the original study who dropped the geoscientist major. He decided to pursue a degree in psychology and neuroscience. Below describes two pathways: the base science pathway from beginning to his original plans, which are now in grey. His new pathway for psychology is illuminated in color.

Interest Sources initially present, yet had no Pre-College critical incidents: was not rooted in his experiences growing up.

The College critical incident for geoscience was only “Superstive” and didn’t act as a hook.

He had all “Behavioral Altering” critical incidents not pertaining to geoscience which then influenced his new Goals.

Specific reasons he cited for dropping the geoscience major and career pursuit were: perceived lack of job opportunities and perceived lack of flexibility of where a geoscientist can become gainfully employed.