

Excellent summary of available data and well thought out questions

Diversity and Service Learning in the Geosciences: Opportunities for Exploration

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The Situation

Service learning and community-based learning have been incorporated in courses across the curriculum and multiple studies demonstrate that it benefits students beyond the classroom (e.g. Batchelder and Root, 1994, Vogelgesang and Astin, 2000, Astin et al., 2000, Celio et al., 2011, Matthews et al., 2015). “Qualitative findings suggest that service learning is effective in part because it facilitates four types of outcomes: an increased sense of personal efficacy, an increased awareness of the world, an increased awareness of one’s personal values, and increased engagement in the classroom experience.” (Astin et al. 2000). This approach to education allows students to develop skills that are not part of many lecture-style or even laboratory class format, such as **problem solving**, **scientific communication**, **group work** and **reflection**. Service learning requires students to move to the upper level Bloom’s taxonomy of cognitive skills: **analyzing, evaluating, and creating**. (Bloom et al., 1956, Anderson and Krathwohl, 2001). It also provides students an opportunity to interact with an aspect of the discipline that is relevant to their **lives and the people in their community**. Geoscience has a tremendous opportunity to incorporate service learning into the curriculum because so much of our discipline involves finding **solutions to societal problems** such as coastal erosion due to rising sea level and more intense storms to the expense and the quality of the water we drink (e.g. Tedesco and Salazar, 2006, Balazs and Morello-Frosch, 2013). Students can contribute to data collection, problem solving and understanding these issues with out advanced degrees making them ideal for undergraduate projects. Reflecting on this activity, an integral part of service learning has been documented as a powerful component of the experience (Astin et al. 2000).

#1 for Native Students

We have a PR Problem (Value, Respect, Community Empowerment)
Particularly with youth

#2 for Minorities is often associated to STEM requirements Math (63% developmental)

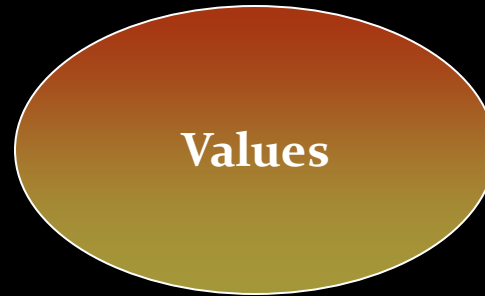
As part of the effort to diversify the geosciences, considerable research focused on why students from underrepresented groups were not pursuing geoscience degrees (e.g. Whitney et al., 2005, Huntoon and Lane, 2007, Levine et al., 2007, Hoisch and Bowie, 2010, Velasco and Velasco, 2010, Stokes et al., 2015). Multiple reasons were identified and include that URM students (and/or their parents)

- lack of exposure to geoscience and especially the employment opportunities,
- where not attracted by the out-of-doors emphasis that was a draw for many white students,
- wanted to pursue a career with more prestige and name recognition, and
- didn't think geoscience was relevant to their lives.

These are generalization and quite possibly different URM groups would rate the reasons differently for lack of participation differently, which may require different interventions to increase their representation.

- Why do URM's take Service classes more frequently than non URM's?





Value Driven Learning

Ethnic Group	Axiology Highest value	Epistemology One knows through-	Logic	Process All sets are
European	HUMAN-OBJECT <i>Acquisition of Object</i>	COGNITIVE <i>Counting and Measuring</i>	DICHOTOMOUS <i>Either/or</i>	TECHNOLOGY <i>repeatable and reproducible</i>
African	HUMAN-HUMAN <i>Interpersonal relationships between humans</i>	AFFECTIVE Symbolic imagery and rhythm	DIUNITAL The union of opposites	NTUOLOGY interrelated through human and spiritual networks
Asian	HUMAN-GROUP <i>Cohesiveness of the group above the individual</i>	COGNATIVE Striving towards the transcendence	NYAYA Objective world is conceived independent of thought and mind	COSMOLOGY Independently interrelated in the harmony of the universe
Native American	HUMAN-MULTIVERSE <i>The balance of relations between humans, spirits (past, present, & future)</i>	AFFECTIVE- ACTIVE <i>Activity, symbolic rhythm, & imagery</i>	CONCATENATE <i>All elements and beings are linked together</i>	PANTHEISM <i>Dependently interrelated in the harmony and balance of the multiverse</i>

From Gregory Cajete's "Igniting the Sparkle" adapted from work done by Edwin J. Nichols, PhD., of the US National Institute of Mental Health 1976

- **1990s Montana Campus Compact**

1,100 college and university presidents-
representing over 6 million students-
dedicated to promoting community
service, civic engagement, and service-
learning in higher education.

[https://dornsife.usc.edu/history-of-
service-learning/](https://dornsife.usc.edu/history-of-service-learning/)

- **SKC Definitions of Citizenship**

SKC defines citizenship as informed and committed participation in the life of one's community at the local, national, and global level. We believe citizens recognize and address community issues, respect the rights of others, and work toward community improvement through service.

- 2003 - 4Cs (Student Learning Outcomes)

Critical Thinking
Communication
Culture
Citizenship



All academic programs incorporated these and began determining how to measure student learning outcomes (4Cs)

- **2005 General Education Requirements in the Catalog**

4Cs became focus and SKC required each graduate of a degree program to complete a service-learning component. Each department embeds a service-learning component in a course designated by the department. The service-learning component requires students to participate in a **minimum of 30 hours of service** outside of regular course time with objectives tied to course content within the discipline.

- **2016 SKC Vision**

Salish Kootenai College aspires to be the pre-eminent educational center of excellence for American Indian Students, grounded in the cultures of the Séliš, Ksanka and Q́ispé people of the Flathead Nation. The college will empower students to improve the lives of their families and communities through research, leadership and service.