

The Impact of Extraordinary Experiences on Teachers Science Identity





Experiential Science Education Research Collaborative

Experiential Science Learning



Experiential science learning is all about personal close encounters with the content, processes, and emotions of science.

It is a philosophy that emphasizes learning from direct first-person experience and a holistic perspective that includes the self-construction of knowledge as well as emotions, attitudes and beliefs that combine to form a learner's "science identity."



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Forms of Experiential Learning

- Science Field Studies
- Educator Internships
- Science Adventure Travel
- Professional Leadership
- Student Science Programs

All designed to enhance participants' science identities
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 University of Colorado Denver
 School of Education & Human Development

AFRICA

EXPERIENCE SCIENCE

- KILIMANJARO
- OLOUVAI GORGE
- NGORONGORO CRATER
- LAKE MANYARA
- NOTRONE
- OLDOIWO LENGAI
- SERENGETTI

Program Cost:
 \$ 661 per person
 double occupancy



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AUSTRALIA

SECE 5800-3 credits
 Jun 24 - Jul 12, 2011

SECE 5800-3 credits
 July 13-25, 2011

Dive the Outer the Great Barrier Reef and discover the Outback.

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HAWAII

Volcano Study

- Mauna Kea
- Waimea
- Na Pali Coast
- Pu'uakohala Mailekini
- Lapekahi State Park
- Moo Kini temple
- Kailua-Kona

Program Cost:
 \$ 2789 per person
 double occupancy



SECE 6910-3 credits
 July 26 - August 9, 2011

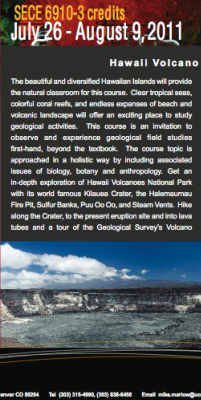
Hawaii Volcano Field study

The beautiful and diversified Hawaiian Islands provide the natural classroom for this course. Clear tropical seas, colorful coral reefs, and endless expanses of beach and volcanic landscape will offer an exciting place to study geological activities. This course is an invitation to observe and experience geological field studies first-hand, beyond the textbook. The course topic is approached in a holistic way by including associated issues of biology, botany and anthropology. Get an in-depth exploration of Hawaii Volcanoes National Park with its world famous Kilauea Crater, the Halemaumau Fire Pit, Sulfur Banks, Puu Oo Do, and Steam Vents. Hike along the Crater, to the present eruption site and into lava tubes and a tour of the Geological Survey's Volcano Observatory will originate from our base in the Park. Drive down the Chain of Craters Road to observe recent lava beach formation and shoreline erosion with sea arches, sea stacks and black, green and white sand beaches. Visit the Hawaii Tropical Botanical Garden and Lava Tree State Park, and hike to the top of Mauna Loa and Mauna Kea Observatory using 4 wheel drive jeeps. Teachers will enjoy the 400-foot Aiea Falls with a walk through the jungle, and snorkel/scuba diving to examine reef structure and wave action.

We will also visit to Waimea Canyon the "Grand Canyon of the Pacific" the Wet and Dry Caves, where they can hike and optional kayak the Hanalei River on Kauai.

The cost of the trip includes: airfare, land costs for lodging, automobile, rental entrance fees for park and Hawaii Botanical Gardens, and all taxes* except a Hawaii road tax is collected at rental pickup

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Science Identity

“Give them opportunities to live incredible experiences, generate incredible stories, build incredible identities”



Science identity describes personal ownership and integration of STEM into an individual's sense of self through processes of interpretation and personal meaning making.

This sense of self plays out in the stories we tell and the stories that make us who we are.



- Example of an extraordinary professional development experience we conduct for science teachers
- Trailer of upcoming documentary film in the “Inspire Me” series
- 2009 group, climbed Kilimanjaro, went on safari, visited schools, orphanages, Maasai villages

Movie

“Teachers are, as a class, more excited about an experience” - Story Musgrave



- Extraordinary experiences are in the “mind of the beholder”
- Not in the itinerary
- Therefore, may occur almost anywhere, anytime
- Our most significant stories are based on our most extraordinary experiences

Science Learning Journey

Science Learning Journey Design Process



1. Program selection - identify the central activity/theme based on need and opportunity
 - a. What are the activities around that experience?
 - b. Map the potential activities for what they bring to the experience in terms of the 3 science identity construction zones: intellectual, emotional, and physical.
2. Participant Selection - Recruitment/ Self-selection/Application process.
3. Cohort Cohesion includes activities that support Initial Cohort formation as a "Community of Practice" (kick-off meeting, video workshops, skill activities, training, online interactions)
4. Central Activity Engagement - the actual journey and associated activities with embedded reflections and assessments
5. Post-Journey Reflections include video editing, journal completion, group sharing, film festival, course product delivery, curricular development)
6. Dissemination
 - a. Classroom implementation - resource sharing, classroom collaborations, networking with partners, sharing videos of discussing the experience with their class, etc.
 - b. Professional / Collegial Outreach - Conference presentations, research papers and articles, collaborative curricula creation, website distribution of resources, short films, documentaries, etc.
7. Extended Cohort Involvement includes alumni activities, involvement in other projects, further curricula development, involvement with other alums -- a continuing menu of opportunities to interact

“We give the highest value to those things that demand the highest risk – our freedom, our lives, our souls” - Robert McKee



- “Mind of the Beholder” notion again
- Risk & Reward
 - Physical
 - Emotional
 - Intellectual
 - Risk... Value... Meaning.... Key to transformative potential (positive or negative science identity impacts)



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Inspire Me Africa: Sara

“It is through stories that we define who we are. Stories provide us with our identities”

- Dan McAdams



- Sara’s interview 2 years post experience
 - Sustained impacts
 - Continued transformation
 - Identity construction occurs at variable rates

Case

X Sci

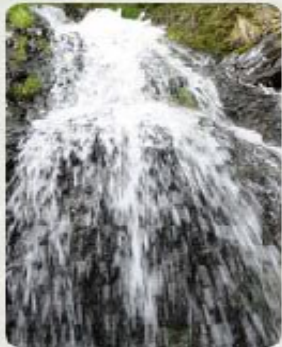
Park Service Teacher Education



Special Places Virtual Trips

Views of the National Parks

Go exploring! Teachers' lounge Information



State Falls - VPS

Where to visit riparian corridors

Where can you go in Whiskeytown to explore riparian communities? You have many options as there are a number of accessible streams in the park.

Explore white alder riparian forests in deep, steep-sided canyon bottoms above about 2,000 feet (610 m). Discover Pacific yew-wild

Along the Brandy Creek Douglas-fir, canyon live along this mossy track.

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Search results

Whiskey creek

- Whiskeytown: Knobcone pine
- Whiskeytown: Mixed oak woodlands

Whiskeytown

- Aquatic inventory (Whiskeytown)
- Aspect (Whiskeytown)
- Bryophyte inventory (Whiskeytown)
- Elevation (Whiskeytown)

Close button

Results scrollbar

Search button

Search term

Search field

Using the program: search

Search is a powerful new feature of *Views*. To initiate a search you must be in the browser view mode (Flash's internal security prevents full-screen mode text input).

Select the search field and type in the word, partial word, or phrase you want to search. Click the search word to the right of the field or press the enter/return key to conduct the search. The results will appear above the search field. A scroll bar appears if more results are available than will fit on a page.

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Information

Using the program

Contact us

2010 news and events

Archived news

Controls

Subjects

Search

Partnership in the Virtual World

- Good/accurate information
- Create virtual trips and hikes
- Integrate info from the National Park Service, other national and international locations with historical/science connections
- Engage Youth: Multimedia including 360 degree panos, 3D, interactive graphics, videos, movies, interviews



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About XSci and Experiential Learning

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At XSci, we recognize the importance of students and teachers co-constructing positive science identities through experiential learning as a critical pathway towards confident teacher practice and student science literacy.

Our purpose is to uncover the ways educators and students construct extraordinary science learning experiences for themselves and their peers. To do this, we design, conduct, and research the impacts of several types of teacher and/or student experiences, including the following programs:

- **Research in the Raw: Science Field Studies**
- **Get-Into-It: Science Educator Internships**
- **Passport to Science: Science Adventure Travel**
- **iLead: Professional Leadership Program**
- **SciIdentity: Student Science Programs**

XSci's work to answer these questions and support the practice of science teachers and student learning is dedicated to the formation of a more curious, informed, and science literate world.

2010/2011 Courses

- [Marine Science for Teachers, Fall 2010](#)
- [Space Exploration Educators Conference, \(SEEC\) Spring 2011](#)
- [NSTA Workshop Leadership Spring 2011](#)
- [Africa! Kilimanjaro Climb and Safari Expedition, Summer 2011](#)
- [Grand Canyon Raft Trip, \(geology, biology\) Summer 2011](#)
- [Australia! Great Barrier Reef Ecology & Outback Ecology and Culture](#)
- [Hawaii Volcanoes, "Newest Land," Summer 2011](#)