

Incorporating a Voyaging Curriculum Into Mainstream Curriculum
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I have been teaching Polynesian voyaging courses for about 14 years. Over the course of 14 years, we have found it is quite easy to incorporate various disciplines (science, math, humanities, language arts, history) into one course. I usually approach the course from a science and culture perspective. Voyaging makes a perfect ethnosience course. During the course of a 2 semester program, I usually teach the physical sciences (astronomy, oceanography, meteorology, geology) in the fall semester, and the biological sciences (marine biology and ethnobotany) in the spring semester, all from a cultural perspective while blending modern techniques and technology.

The first semester is spent learning primarily the following:

- How to identify stars and constellations.
- How to find cardinal directions using the stars.
- Using the moon as a calendar and clock.
- Understanding how celestial objects “move through the sky.”
- Understanding where the wind comes from.
- How waves are generated and how they change when they impact land masses.
- Understanding weather systems (high pressure and low pressure systems).
- How to research the weather and look for weather information on the internet.
- Learn the different types of clouds and what they mean.
- Understand what causes seasons and what kinds of seasonal changes there are with respect to the observer’s latitude.
- How the Hawaiian islands and other south Pacific islands were formed.
- How do you prepare for a short or long voyage? What would you need to take with you? Who would you take with you and why?
- How canoes were built. What was used in building canoes? Parts of the canoe.
- Sail planning techniques using western tools and maps.
- Sailing dynamics and canoe performance and capabilities. The physics of sailing.
- Geography of the Pacific.
- Global weather patterns.

The second semester is spent learning primarily the following:

- Once you have made landfall, now what?
- How do you create a sustainable living?
- How do humans impact the land? The ocean?
- How could you lessen human impact on the natural environment?
- What kinds of plants and animals can you find in the area you decide to live in?
- Is the area you landed or decided to live in a suitable place to plant and propagate the plants you brought with you? What plants did you bring with you and why (plant identification)?
- What kinds of natural resources exist in your area?
- How would you manage those resources?
- What kinds of marine organisms can you find in your area if any?
- Are any of the marine organisms you found dangerous?
- If you got hurt by any of those dangerous marine organisms, how would you treat the injury?
- How did the Hawaiians, Polynesians and other Pacific Islanders keep their bodies healthy?
- What did their diet and nutrition consist of?

- What forms of exercise did/do the Pacific Islanders engage in to keep fit and healthy?
- Song, music, dance, stories, myths and legends.

While the above topics of study have been used extensively at the community college level, I have also incorporated the above topics into my Hawaiian studies curriculum at Lanikai Elementary Public Charter School, Oahu, Hawaii for grades JK-6. It was quite the challenge, but fun, to figure out how to adapt a higher level curriculum with lower grade levels. The elementary students pleasantly surprised me with what they were able to learn and retain, along with their critical thinking skills. Their favorite topic was star and constellation identification, and being able to go home and share what they learned with their parents and families.

- Star map curriculum was used with the 3rd through 6th graders.
- Song, music, dance, stories, myths and legends were used primarily with the JK-2nd graders.
- How Hawaiians made musical instruments and what they used to make them (grades JK-6).
- Polynesian plant samples of some significant food/medicinal plants were brought in for show and tell (JK-6).
- Building a model canoe using natural materials for the 5th graders.
- Planting a Polynesian garden for 1st through 2nd graders.
- Hawaiian (makahiki) games for grades JK-6.
- Mathematical concepts and applications in sail planning exercises for grades 4-6.
- A sailing canoe camp out for the 6th graders and their parents (families) to do real sky (night time) observations (stargazing) and actual canoe sailing to practice and incorporate what the students have been learning in class all year long (a year-end culminating activity).

Polynesian voyaging is the perfect vehicle for teaching. You can easily adapt the curriculum for elementary education, high school education or college/university education. The curriculum provides connection and a relationship between what the students know, have seen, or experienced with further learning. The curriculum is meaningful to the students. The curriculum is also multi/inter-disciplinary, adding value to the curriculum. I also found it easy to relate the voyaging curriculum to the Hawaii State Standards as well as the National Core Standards. I made it a point to work with the Lanikai Elementary core teachers so that I was able to supplement my curriculum to the core teacher's curriculum making the students' learning more meaningful. Furthermore, there are numerous opportunities for field experiences and hands on activities that can further engage and excite the students such as a star gazing lab, sailing excursions, hiking, lo'i (taro patch) work, loko i'a (fishpond) work, snorkeling and conducting fish and limu (seaweed) identifications and surveys. The voyaging curriculum is primarily place and culture based, which is a perfect springboard for learning as you build upon what students know and have experienced. It builds the student's knowledge base in the core areas of study while developing their self-esteem, confidence and self-efficacy. Students also have fun while learning.

A community

Actual Field Experience

In February 2010, about 10 6th grade Lanikai Elementary PCS students and their teachers and parents participated in a voyaging camp at Kualoa. We were able to put to use the knowledge we learned into real practice.

- Students learned how to tie various important knots important to a voyager. These knots are also useful in other real life situations such as camping with family, loading a truck and tying down whatever it is you are hauling. Being able to tie knots effectively are very useful life skills.
- Students were able to identify the winter stars and constellations in the real sky by applying what they learned in the classroom.
- Students were able to find their cardinal directions using nature's clues.
- Students improved their water safety skills by participating in a swim "test" prior to participating in water activities.
- Students understood the importance of protocol when visiting a community, how to behave when you are a guest in someone else's community.
- Students learned the significance of Hawaiian mo'olelo (stories) in the Hawaiian culture and how it connects to and explains some of life's and nature's mysteries. Students also learned the science behind the stories and learned how to connect science with literature.
- Students learned about various significant cultural and historical sites in the Ko'olaupoko area (windward district of Oahu), where we live, go to school and play. What makes the area we are from so special?
- Students learned Hawaiian history of the Ko'olaupoko region (windward district).
- Students learned about fishponds and fishpond technology.
- Students learned healthy habits such as diet and exercise.
- Students learned how to plan and prepare healthy, balanced meals.
- Students learned how to plan and prepare for a voyage (trip).
- Students brainstormed ways they can help preserve their community's natural resources and environment.
- Students learned how to sail an outrigger sailing canoe and a double hull, single masted sailing canoe.
 - Students learned how to manage the canoe, steer the canoe, paddle and control the speed of the canoe by controlling the shape of the sail.
 - Students learned how moving their weight on the canoe affects the performance of the canoe.
 - Students learned about the physics of sailing, how canoes can sail and how airplanes can fly by learning about Bernoulli's principle.