

Chapter 7

Art + Science Knowledge Building: ASKXXI Pilot – Personalized Learning Through an Ecology of Practices

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ABSTRACT

ASKXXI, Arts and Science Knowledge Building and Sharing in the XXI Century, was an inter-hemispheric, post-secondary diploma program pilot aimed at fostering collaboration in art, emerging digital/virtual technologies, and the ecological sciences. New approaches to narrative creation were introduced through innovative technology workshops in visualization, 3D imaging, 3D printing, virtual, mixed reality, and data visualization. The authors share their dimensional approach that delivered cross-cultural insights, technical training, professional development, mentorship, and network development opportunities. Expanding definitions of CBE and personalized learning support, the new career opportunities in a rapidly changing landscape, the relational, place-based, collaborative, and inquiry-driven learning developed through this pilot program is what the authors identify as a frontier ecosystem in education. They reflect on and share their findings and offer new perspectives on expanded models of competency-based education for academic and workplace credentials.

INTRODUCTION

How can a post-secondary, competency-based education support career ready professionals working at the intersections of disciplines in art, design and the environmental sciences?

This question is a key one that the ASKXXI program addressed. In this chapter, the authors will walk you through this one-year cross-cultural program in which artists and scientists focused on current

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environmental and conservation challenges. It began with developing lines of inquiry promoting collaboration between the visual arts, ecological sciences and emerging technologies. It also spanned two hemispheres: U.S. Pacific Northwest and South/Central Chile.

The curriculum included research, fieldwork, lab, classroom and studio-based study that introduced marine and terrestrial ecologies of Southern Chile and the Pacific Northwest of the United States. The Chile-U.S. faculty facilitated the connection of relevant lines of research in both regions that address salmon sustainability, invasive species, red tide, ocean acidification, conservation, land use, wildfires, and global change. The program delivered cross-cultural insights, perspectives, and connections with scientists, artists, educators and technologists at the forefront of their fields. The travel and residential aspects of the program provided the opportunity to explore the land and culture while reflecting on looming bioregional threats. It nurtured creative conversation around environmental issues and to develop creative work addressing these challenges.

This post-secondary certification program, integrating a unified disciplinary framework, forged a first generation of Chilean leaders who acquired XXI century art + science methods and tools while gaining an expanded understanding of pressing environmental issues. The importance of breadth in learning is emphasized by Epstein as being paramount to knowledge application in novel situations:

breadth of training predicts breadth of transfer. That is, the more contexts in which something is learned, the more the learner creates abstract models, and the less they rely on any particular example. Learners become better at applying their knowledge to a situation they've never seen before, which is the essence of creativity. (Epstein, 2019, pp. 76-77)

In this chapter, a broad overview of the program will be presented, starting with how a new experiential model was created. As co-founders and as faculty leaders of the U.S. Program, Brice and Tremblay share a comprehensive view of that phase of the overall ASKXXI program and the ideas and influences that inspired their approach.

In Section I, the authors walk you through the program overview, questions asked about developing a new program, and the background assumptions of the program. Section II will discuss the program history including foundational team and consortium building as well as the cohort creation. Section III discusses the theoretical foundations of an ecology of practices, the importance of placed based knowledge, futures literacy, and entrepreneurial perspectives applied to academia. Section IV explains the 4 phases of ASKXXI: program preparation, U.S. and Chile expeditions and the culminating exhibition. Section V outlines the deliverable of this experiential learning-based program as cultural production reflecting the qualitative and transformative nature of the program. The Final section summarizes the impact of the program on both the cohort of students and the faculty, concluding with lessons learned through working across cultures, through an ecology of practices.

“ASKXXI-ing” Questions

Central to the methodology of ASKXXI was the development of questions, which are the central core of scientific research as well as to a research-based artistic practice. Examples of our questions include:

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