The Computer Science Professionals Hatchery

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The Computer Science Professionals (CSP) Hatchery will create a revolutionary learning environment by modeling the best practices of a software company work experience, layering nurturing aspects that promote ethical questioning, value diversity, and a focus on professional skills such as increased collaboration, communication, and teamwork.

Abstract
The Computer Science Professionals Hatchery seeks to transform undergraduate education by replicating the best elements of a software company environment, layering in moral, ethical, and social threads with entrepreneurship and professional skills. The Computer Science Professionals Hatchery focuses on three curricular innovations: (1) VERTICAL INTEGRATION. Instead of being siloed, students at all grade levels will work with and learn from each other in industry-sponsored projects, fostering a strong sense of community amongst students, faculty, and industry. (2) Short, narrowly focused HATCHERY UNITS will complement regular course work by presenting aspects of specific, foundational concepts or skills that cut across the curriculum, using a unique approach that overlays agile Hatchery Units with regular courses. (3) ETHICS AND SOCIAL JUSTICE will be incorporated across the curriculum to encourage students’ development as professionals and empower them to be agents of change in reshaping computer science to be a more just and inclusive profession.

Theoretical Framework
- Rogers’ (2003) theory of diffusion of innovation guides our approach to creating lasting change in our department.
- Designing a vertically integrated curriculum that builds connections across grade levels is informed by Wenger’s (1999) Communities of Practice and Weller’s work on building community through establishing norms and developed shared understanding.
- Our approach to incorporating ethics and social justice in the computer science curriculum is grounded in Rawls’ (1999) theory of social justice.

Guiding Questions
1. How can ethics and social justice be incorporated into an undergraduate computer science curriculum?  
2. How does the transformed curriculum influence students’ undergraduate experience?  
3. What are the barriers and supports to curricular change and beyond?

Next Steps
- Threading HU content in CS courses
- Capstone Integration
- Add additional HU as necessary
- Establish an “Entrepreneurial Emphasis”
- Examine students’ social/emotional levels
- Monitor HU content implementation
- Research, Validation, and Publication
- Final assessment of program impact

Foundational Values HU
- Introduces freshmen/sophomore students to ethics and social justice and their relationship to computer science and software development
- Provides rubrics and frameworks for assessing team conduct in courses and in professional practice
- Students learn these topics via case examples grounded in contemporary examples of bias and discrimination in both software systems and the software development industry
- Major deliverables for the course include successive development of analytic and synthesizing skills necessary to produce drafts of social contracts designed to actualize Rawls’ (1999) theories of social justice and address specific issues of injustice both in the cases presented and in their own classroom experiences.

References