Nurturing the Next Generation of Computer Science Professionals

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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.

Knowledge, Skills & Abilities

Through several meetings with industry representatives, we iteratively developed the KSA categories and desired outcomes shown below.

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<tr>
<th>KSA Category</th>
<th>Desired Outcomes</th>
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<tbody>
<tr>
<td>Business</td>
<td>An understanding of how a company makes money and executes its strategy</td>
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<tr>
<td>Collaboration &amp; Teams</td>
<td>Working with people and groups to achieve a goal</td>
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<tr>
<td>Entrepreneurship</td>
<td>Organizes, manages, and assumes the risks of a business or enterprise</td>
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<tr>
<td>Professional</td>
<td>A person engaged and qualified in the computing profession</td>
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Hatchery* Change Process

Hatchery Units (HUs) are one credit courses focused on skills relevant to computer science professionals and designed to rapidly adapt to the changing needs of industry. HUs are also a vehicle to diffuse social justice and equity through the curriculum.

Challenges

- Ingrained biases and comfort zones
- Building student and faculty buy-in and participation
- Logistics: scheduling, integration and threading, advising, communication
- New course development
- Modifying existing courses to utilize Hatchery concepts – "Threading"
- Increasing future survey response rate and willingness to provide feedback on beliefs and experiences
- Using survey and interview data to identify and address ongoing challenges

Progress

- 14 HU proposals submitted (2/3 faculty participation)
- Approved 6 HU courses
- RED team member on each HU team
- All CS faculty interviewed by social science PI
- Received 500+ student responses on beliefs, perceptions, educational experience, social (cultural competence) and emotional (self-esteem)
- ...every bit of computer science teaches and affects society. We have to be careful what our tools do to people...

Next Steps

- Second round HU proposals planned - Desire
  - 5 additional required HUs
  - ~6 elective HUs (satisfies CS electives)
  - Threading HU content in CS courses
- Capstone Integration
  - Establish as "Entrepreneurial Emphasis"
  - Examine students’ social/emotional levels
  - Interview industry partners
  - Monitor HU content implementation
  - Research, Validation, and Publication

Objectives

Actively Engaged Stakeholders

Vertically Integrated Teaching and Learning

Diversity for Mutual Gain

Professional & Entrepreneurial

Vertically Integrated Teaching and Learning

 Challengers and Goals

- Proposal Development
- Project Review & Follow-up
- Industry Knowledge, Skills and Abilities (KSA) Evaluation
- Concept Decision
- Agile Development
- Defer Proposal

Agile HU Students Assist Capstone Teams

Facility Staff Advising Students

CS Hatchery Software Development Syllabus

Concept Decision:

- Industry Participation
- Course Materials
- 1st Course Offering
- Agile Development
- Defer Proposal
- Defer Course Integration

Hatchery Curriculum Map

Ingrained biases and comfort zones

Boise State University RED Team