

Nurturing the Next Generation of Computer Science Professionals

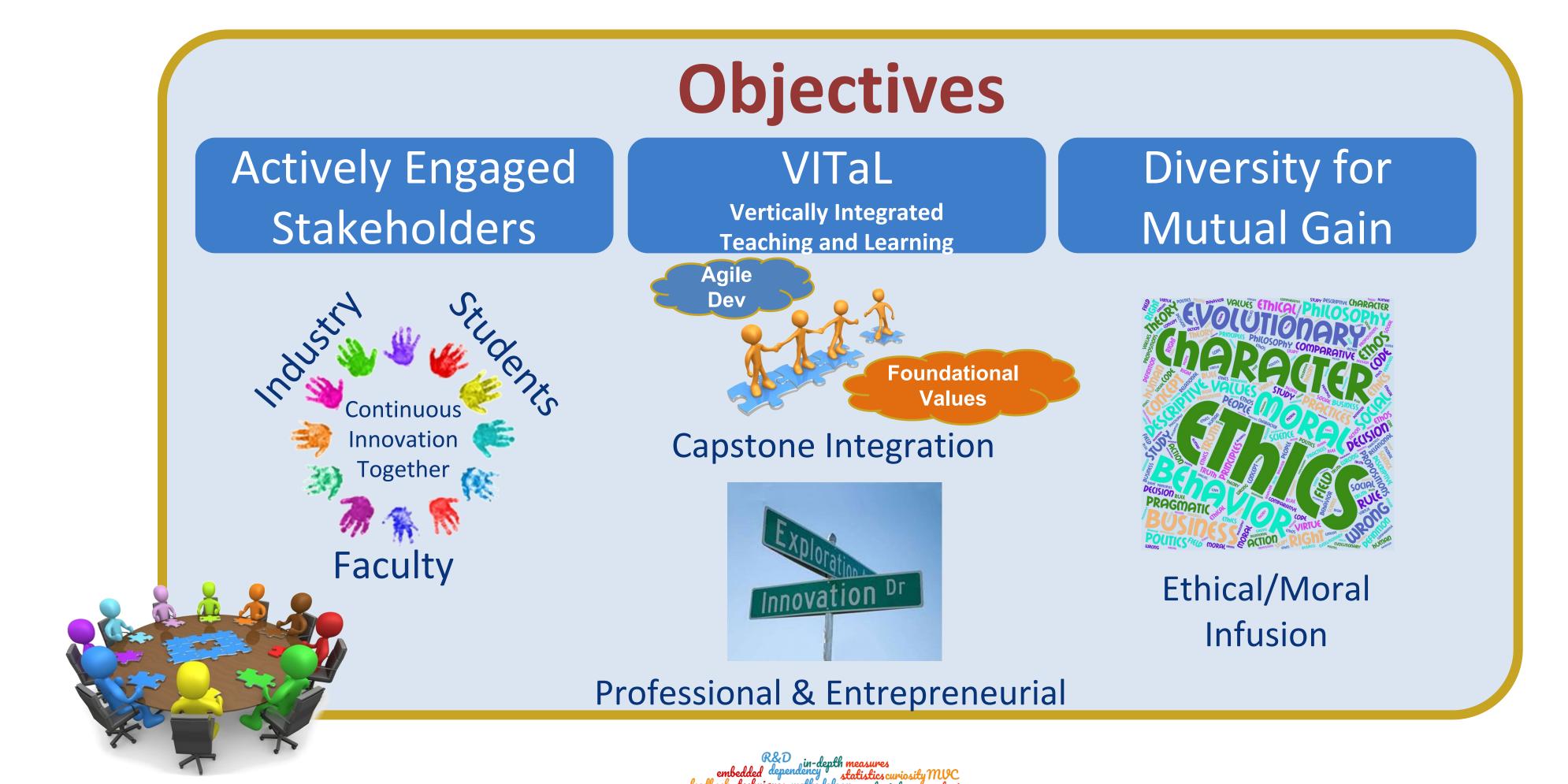
HICE (DEE, DED #1 022100

Tim Andersen, Lead; Amit Jain, Co-Pl and Associate Department Chair; Noah Salzman, Education Researcher; Don Winiecki, Social Scientist; Dianxiang Xu, Co-Pl

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.









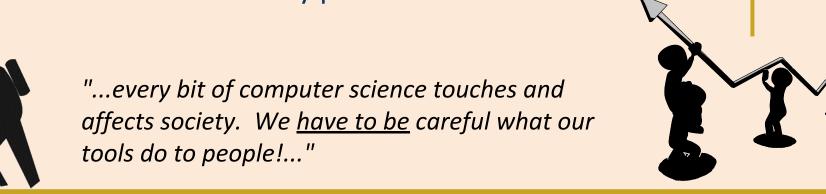


Next Steps

- Threading HU content in CS courses
- Capstone integration
- Add additional HUs as necessary
 5 in development/delivery 2018-2019
- Establish an "Entrepreneurial Emphasis"
 Examine students' social/emotional levels
- Monitor HU content implementation
- Research, Validation, and Publication
- Research, Validation, and Publication
 Final assessment of program impact

Progress

- 14 HU proposals submitted (2/3rd faculty participation)
 Approved 10 HU courses: 5 required, 5 elective
- 5 delivered in 2017-2018
- 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)
- Interviewed industry partners



Challenges

- Ingrained biases and comfort zones
- Building student, faculty, and advising 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

"...That's just the way the world is!

If [under-represented groups] can't

handle that, I can't help them..."

Knowledge, Skills, & Abilities Through several meetings with industry representatives, we iteratively developed the KSA categories and desired outcomes shown below. **Desired Outcomes KSA Category** An understanding of how a company makes money and executes strategy **Collaboration &** Working with people and groups to achieve a goal **Teams** Organizes, manages, and assumes the risks of a Entrepreneurship business or enterprise A person engaged and qualified in the computing **Professional** profession Research & Seeks innovation and improvement of products and Development processes Practical knowledge and skills associated with the **Technical** computing field 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. Project & Concept Development Follow-up **6** HU Integration **Proposal** Development Integration Course Refinement Industry Participation • Integration Opportunities: Project Review & Follow-up Course Materials HU Content Threading Industry Knowledge, Skills and 1st Course Offering Capstone Integration Abilities (KSA) Evaluation • Pilot Decision: Concept Decision: Approve Development Course Refinement Proposal Refinement **Foundational Values** Defer Course Defer Proposal (Diversity and Social Justice) Integration **Threaded Freshman to Senior Courses Agile HU Students Assist Capstone Teams Hatchery Curriculum Map** Computer Science I Foundational Values CS-HU 153 Navigating Computer Systems CS-HU 250 Intro to Version Contro CS-HU 269 Brief Intro to Human Ethical Issues in Computer Science II CS-HU 274 Software Testing CS-HU 310 CS-HU 271 Intro to Database Agile Development CS-HU 375 Secure Programming Intro to Systems Data Structures Programming

CS-HU 398

CS-HU 390

Technical Interviews

Jobs, and Careers

Prereq ---> Coreq

Core CS Required HUS Elective