

WHERE SCIENCE MEETS HUMANITIES: A PROGRAM EVALUATION PROPOSAL FOR SIPARCS



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Program Evaluation

- Program Evaluation is a form of research that identifies the efficiency and effectiveness of a program's components and practices.
- Competency Categories²
 - As outlined by the American Evaluation Association:
 - DOMAIN CONTEXT
 - Context of environment, power, and values/beliefs
 - DOMAIN PLANNING & MANAGEMENT
 - Determine what components are necessary to conduct and complete an evaluation

SIParCS Overview

- Established in 2007
- Mission: Promote positive work-force development in High Performance Computing (HPC) related areas through student intern transition into new professionals.
- Goals
 - Introduce
 - Transition from Academic Space → Work Force
 - Train
 - NSF NCAR Staff practice mentorship and teaching ability
 - Student interns learn technical skills
 - Development
 - Leadership
 - Mentorship
 - Professional
 - Network
 - Horizontal Growth
 - Balance between formal and informal
 - Open space for candid conversation

Student Success Frameworks

- Transition Theory Model⁷
 - Enduring changes over a period of time
 - Academics → Workforce
 - Support Mechanism
 - Cohort, Student life, Professional Development, Essential Skills
- STEMM Mentorship^{3, 5}
 - Autonomy + Personal Growth = Safety Net
 - Significantly aids self-efficacy in science identity
 - Effective Mentorship
 - Flexible
 - Supports all types of development
- Experiential Learning¹
 - Beyond the classroom
 - Hands-on concrete work
 - Reflection is key
 - Technical and Essential Skills

Theory of Change

- IF...
 - The program coordinators in SIParCS make adjustments to the methods and measurements that take place during the program...
- THEN...
 - ... they will be able to improve the overall experience of stakeholders during the internship and prepare for future internship seasons to align with the principles outlined in student success frameworks.

Evaluation Approaches

- Formative
 - Examines a program's progress and improve its implementation
 - Typically based on feedback provided by stakeholders
- Utilization- Focused^{4,6}
 - Puts the intended users needs as the primary goal and works to enhance their experience
 - Not necessary to create any new rather ensure the stakeholders evaluation is effective

(Mertens & Wilson, 2012; Patton & Campbell-Patton, 2021)

Evaluation Questions

- 1A. How does participation in the SIParCS program impact the stakeholders' development?
- 1B. How does participation in the SIParCS program influence stakeholders' attitude towards their participation in the organization?
- 2. How can feedback for participation in SIParCS be done effectively and efficiently?

LOGIC MODEL: SIPARCS CONTRIBUTION TO TRANSITION FROM STUDENT TO NEW PROFESSIONAL

PURPOSE: Promote positive work-force development in High Performance Computing (HPC) related areas through student intern transition into new professionals.

REACH

Interns
(Mentees)

Staff
(Mentors)

Program
Coordinators

INPUTS

- Time
- Effort
- Commitment
- Open-Mindset

- Projects
- Deliverables
- Timeline
- Daily supervision and mentorship

- Funding
 - Travel funds
 - Housing
 - Salary
- Administration
 - Training/orientation
 - Hiring committee
 - Data collection tools
- Events & opportunities

ACTIVITIES

- Professional Development Workshop (PDWS)
- Weekly check-ins w/ mentors
- Weekly meeting w/ coordinators

- Weekly check-in with mentees
- Monthly mentor community meet-ups

- Conferences
- Fieldtrips
- Community building
- Weekly intern cohort check-in

OUTPUTS

- 10 PDWS
- 2 weekly meetings w/mentor
- 1 weekly meeting w/ coordinators & interns

- Mentors attend optional Mentors Community Meetup
- At least 2 weekly meetings with mentee

- Student engagement and participation
- 2-3 multi-medium check-points to individually gather intern feedback

OUTCOMES

- Increase interns technical and soft skills

- Mentors communicate weekly with interns on technical and non-technical subjects

- Program evaluators receive feedback to be implemented throughout internship

SHORT (Individual Level)

- Interns increase their skills and confidence in a professional work space
- Interns increase their technical knowledge in their project topic

- Mentors develop teaching, communication, and supervisory skills

- Develop methods to identify successful tools, strategies, and materials

MEDIUM (Period of time)

LONG (Overall)

- Candid conversation between professional staff and interns.
- Strong SIParCS Network
- Positive influence on the quality and development of future HPC workforce

ASSUMPTIONS

- Interns benefit from some of the listed activities
- Interns participate in all activities
- Mentors are trained prior to interns arrival
- Mentors attend the mentor community meetup
- Program Coordinators implement changes throughout the course of the internship

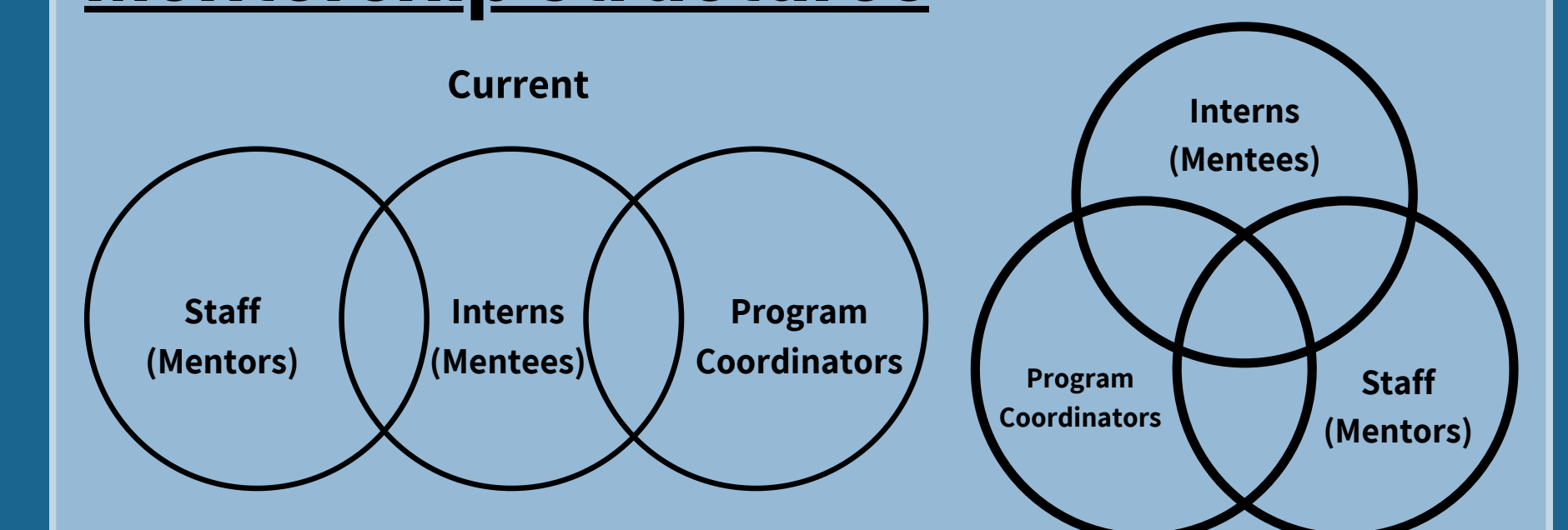
EXTERNAL FACTORS

- Changes in funding
- Mentor and mentee participation
- Program coordinators flexibility with each cohort

Implications & Future Directions

- Mentorship Relation: Program Coordinators and Interns
 - Evaluation Approaches
 - Improvements to current cohort of interns experience
 - Enhance/Improve feedback collection
 - Measurement
 - Weekly Check-ins → Focus Groups (weekly/biweekly)
 - 3 checkpoints
 - Consistent Format
 - Qualitative Survey
 - Pre-, Mid-, Post-test
- Mentorship Relation: Program Coordinators and Mentors
 - Evaluation Approaches
 - Providing support in the form of essential skills and reflections
 - Initiate feedback collection
 - Measurement
 - Focus Groups
 - MCM → Requirement
 - Consistent meetings between Program Coordinators and Mentors
 - 3 checkpoints
 - Same rate and medium as Interns

Mentorship Structures



RESOURCES

CONTACT

