Faculty[1] Interview Protocol[2]

CPATH Project Title:

Grantee Institution(s):

Interviewee Name/Title/Contact Information:

Interview Date:

Interviewer(s):

Introductory Remarks:

My name is _____ and I work for SRI International, a non-profit research firm that is responsible for the evaluation of the NSF CPATH Program. The purpose of this interview is to learn more about the CPATH project at your institution, how it is being implemented, the organizations and stakeholders involved, and the effect that it has been having on various groups and organizations. Beneficiaries of this project may include students, faculty members, administrators, institutions of higher education, K-12 school districts, professional associations, government and non-profit organizations, and businesses and industry. Throughout our discussion, please feel free to interrupt me to ask any questions you may have or include information that you believe we should know.

Before we start, I need to have you review and sign this consent form. SRI International's Institutional Review Board (IRB) has approved this project as well as the U.S. government's Office of Management and Budget. Your signature on this form indicates that your participation in this interview is voluntary and that you understand that we will never directly identify or quote you based on what you tell us today.

After they review consent form: Do you have any questions before we get started?

Introduction and Background

1. Please tell me about yourself. *Probe for*:
   a. What are your roles and responsibilities at this institution?
   b. How long have you taught at this institution?
2. How did you first hear about the CPATH project and what motivated you to get involved? *Probe using the following:*
   a. Direct invitation from the PI, response to departmental request, following up on personal interest in the subject, etc.
   b. How have you been involved in the CPATH project? What has been your role on the project?

[1] Faculty members would include part-time or full-time faculty working with the principal investigator to implement the CPATH project.

[2] Throughout this interview protocol, numbers and letters in parentheses—e.g., (1a, 3d) refer to research questions and are included as a tool for evaluation analysts.

3. Prior to the CPATH project, were you engaged in undergraduate reform activities at your institution? If so, please describe those activities.
    a. What do you view as pressing issues in improving undergraduate education? (*Probe using the following:* enrollment and graduation trends for STEM and other disciplines, new demands on education to align more closely to industry or workforce needs, concepts related to computational thinking in the different disciplines)

Project Strategies

4. (1a, 3d) Please describe the nature of the teaching/learning environment for computing you are trying to create in your course(s). *Probe using the following:*
    a. How might this environment look different from traditional settings for computing?
    b. How will you know you've been successful in creating this environment?
    c. What are the core strategies you're using to create this environment?
5. (1c) What are the core computing concepts that you focus on? *Probe using the following:*
    a. How has the process of working with other faculty helped you identify and refine these concepts?
    b. How would you define the concept of computational thinking?
6. (2a, 2b) How have you integrated these core concepts into courses in your department and into courses outside of traditional computing disciplines? *Probe using the following:*
    a. What disciplines are involved?
    b. What challenges have you face in efforts to integrate core concepts?
7. (1f, 1g, 3a) Who do you think are the primary beneficiaries of your project? *Probe using the following:*
    a. Which groups of students are you targeting for participation?
    b. Are you targeting any underrepresented groups for participation? If yes, please explain. (*Probe for traditionally underrepresented groups including minorities, females, disabled and non-traditional computer majors*.)

Implementation Factors

8. (1b, 2b) How has project implementation at your institution gone thus far? *Probe using the following:*
    a. What have been the highlights or successes?
    b. What failures has the project experienced? Please describe.
    c. What have been the challenges to the implementation of the project? *Probe about the relevant actors – students, faculty, administrators, partners, etc.* What have been the lessons learned from addressing these challenges?
9. (2e, 3c) What support do faculty at your institution have to help with curriculum development or devising pedagogical strategies for teaching computational thinking? *Probe using the following:*
    a. Describe the current incentive and awards structure at your institution.
    b. What incentives are being offered through the CPATH project to faculty to develop curriculum, to devise pedagogical strategies, and/or to participate in the project?
    c. Are there any additional incentives to encourage you or your peers to develop innovative ways to teach computational thinking?

10. (1d, 1e, 2a) What are some of the factors that have supported project implementation? *Probe using the following:*
    a. Culture of committed faculty involvement and participation
    b. Strong institutional support from department head/deans/administrators
    c. Innovative curricular and pedagogical strategies
    d. Student demand for course changes

Outcomes

Follow-up probes in this section should be tailored based on the knowledge of the interviewee.

11. (2d, 3a) Overall, what influence has the CPATH project has had on students and faculty? *As appropriate, probe using the following:*
    a. To what extent has the CPATH project influenced student engagement in computing courses and how? Please describe.
    b. How has the project influenced student enrollment in computing courses? Have there been any changes in the demographics or population of students enrolled in computing courses?
    c. How has the CPATH project prepared students for STEM and other careers?
    d. How has the project influenced you and other faculty members? Do you think it has led to changes in faculty culture?
    e. Have faculty members published any articles related to computational thinking in peer-reviewed journals? (Note: this may or may not be related to the CPATH project)

12. (3b, 3c) Are there any institutional changes that you would attribute to the CPATH project? Please describe. *If appropriate, probe using the following:*
    a. Has the CPATH project integrated computational thinking into other disciplines?
    b. Has the CPATH project influenced the rewards/incentive structure of your institution? If yes, please explain.
    c. Are the changes formal or informal?
    d. In your view, who or what is driving those changes?

13. (3d, 3f) Do you think the CPATH project has created a model that could be used at other institutions? If yes, please describe the model and how the project is supporting its implementation at other institutions. *If appropriate, probe using the following:*
    a. Are other institutions implementing your models?
    b. Are you providing materials or guidance?

Community Building and Partnership Development

Questions in this section should only be asked if the interviewee is sufficiently connected to the CPATH project and the broader discussion of computing education reform within their discipline.

14. (4a, 4b, 4c, 4d) Who do you view as the stakeholders for the project? How is information shared with this community of stakeholders? Note: Stakeholders may include other CPATH grantees, faculty within computing-related disciplines (e.g., computer science, informatics), faculty in other disciplines, university administrators, other higher education institutions, K-12 teachers, professional associations, industry and businesses, and government and non-profit organizations.

As appropriate, probe using the following:

a. How inclusive is this group of stakeholders?
b. Would you say there is a shared understanding about computing competencies among stakeholders in this community?
c. How do stakeholders communicate with and learn from each other? (How is the project supporting learning and sharing of best practices around computational thinking and education amongst these stakeholders?) *Probe for online sharing and communication, conferences and colloquia, informal networks and other venues for sharing best practices.*

15. (5a) Do you know if there are other organizations with which the CPATH project has a significant ongoing relationship as a part of the CPATH project? *Probe using the following:*
    a. Post secondary institutions
    b. K-12 school districts
    c. Government offices
    d. Private companies/non-profit organizations
    e. Professional membership organizations
    f. Any other groups that have had or will have a significant connection to the project.

(IF YES to Q15, then ask questions 16-17; IF NO, then go to Q17)

16. (5b,5c) Please describe these partnerships and how they came about.
    a. Has NSF funding (for the CPATH project) opened new opportunities for partnerships between multiple sectors (e.g. industry, K-12, professional associations) around computing? If yes, please describe.
    b. To what extent have these partnerships leveraged pre-existing relationships or new opportunities in the local science, technology and economic development environment?
17. (5d) How much does the work done by each partner depend on the work of other members? *As appropriate, probe using the following:*
    a. To what extent is the work shared equally among the partners?
    b. How do you assess the effectiveness of the partnership? What measures are you using to make that assessment?
    c. How would you describe any challenges to building and maintaining effective partnerships?

Conclusion

18. Is there anything else you would like to add that might help us get a better understanding of the CPATH project and computing reform activities at your institution?

Thank you for your time.