INTRODUCTION TO THE RESEARCH QUESTIONS

> **The research component of RPPforCS is focused on four questions:**
> 1. What are the RPP-specific activities and partnership characteristics that shape the extent to which/ways in which RPPs meet their goals for quality CS education?
> 2. How do different RPPs define and design around different indicators of healthy RPPs and how do they evolve over time?
> 3. How do RPPs measure their effectiveness at affecting CS education and broadening participation?
> 4. What is the influence of RPPforCS on the grant-funded community and broader CS education community?

The RPPforCS research questions were developed in consultation with the RPPforCS community and reflect the evolution in our understanding of the common research needs from the time we proposed RPPforCS in 2917. Our current understanding of each question is reflected in a brief write up that summarizes what we've learned based on data collected from the RPPforCS community over the last three years (data sources and methods can be found here)

As you review these reflections, we encourage you to consider the following themes that relate to the interpretation of our data.

1. **All data from RPPforCS participants is heavily biased towards information about the research partners, their experiences and perspectives**. By design, RPPforCS was open to all RPPforCS team members, but focused on supporting PIs and researchers in this (for many) new way of work. Many projects are highly protective of the practice partners' time and thus we trusted projects to relay any information to their broader teams as appropriate.

2. **The community is made up of projects that although share goals of broadening participation in computing through RPPs, are highly varied and responsive to individual context.** Our *Descriptive Report* provides an overview of the NSF investment in RPPforCS by summarizing the types of awards.

   Small projects seem to be significantly different than medium or large projects. Their goals differ in that many are planning grants supporting the formalization of the relationships in an RPP, the timeline is shorter, and the resources are fewer. The outcomes of these projects are likely different than those of medium or large projects which typically have more ambitious implementation, research, and scaling goals.

3. **The CS for All: RPP awardees were all successfully responsive to a set of NSF objectives and requirements.** As projects were evaluated for NSF support through the proposal review process, projects were subject to the interpretation of reviewers. Early in the program the understanding of RPPs

as a modality for CS education efforts was not well understood and there may have been more variation in the ways in which the intellectual merit and broader impacts of grants were reviewed.

4. **As a project funded as part of the first cohort, we've evolved alongside the program including developing a stronger understanding of the theoretical and practical implications of RPPs.** We now have a better taxonomy of RPPs gained through the connections to the CS for All: RPP funded projects and the border RPP field. Our original goals of a cohesive community were challenged by the uniqueness of the individual RPPs. As a community we've centered around some common language and frameworks that have facilitated our shared understanding of RPPs in support of CS education, yet we still have more to learn. Our reflections presented concerning our research questions are still evolving. Check back regularly as we update them.

Future Work

As with any research study, we're left with more questions. To continue advancing our knowledge about RPPs for CS education we suggest exploration into the following:
1. Are RPPs a better way of achieving CS for All than traditional implementation and/or research projects?
2. How is research generated and utilized in the CS for All: RPPs?
3. How do RPPs affect the ecosystem in which they operate?
4. How do RPPs for CS education affect the participants?
5. What are the student outcomes associated with RPPs for CS education?
6. How do evaluators shift their approach to project evaluation in an RPP structure?

Answering these questions will both depend on a) keeping up with a program-wide database to maintain a big-picture view about the efforts of the community and b) developing a set of case studies that help to tie the activities to outcomes.

There are also several measurement questions that come out of this work including
1. Are there common ways projects can measure goal attainment (implementation, research, BPC, partnership, dissemination and sustainability goals?)
2. How does an RPP measure research utilization?
3. What instruments have been developed to help the field of CS educators assess instruction or student learning?