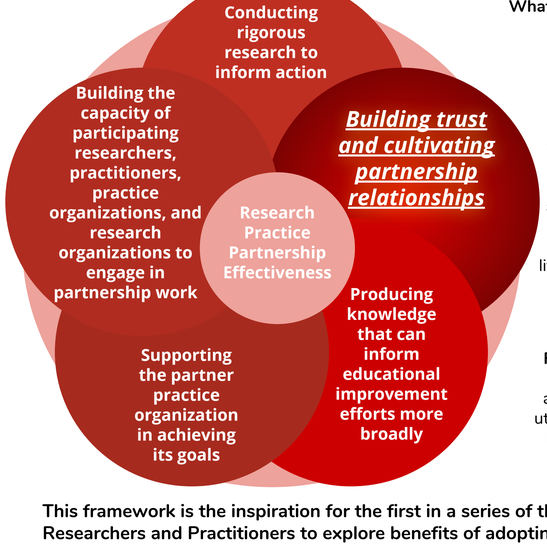
Building Trust in Computer Science Research-Practice Partnerships: A Theme Study

Motivation for Research

Computer science (CS) education research has gone through a period of rigorous transformation in the last 10 years. Partially prompted by the National Science Foundation (NSF) requiring the inclusion of education researchers on CS education grants, and renewed interest from faculty in schools of education or psychology, an increase in projects with large research teams have joined the SIGCSE landscape.

Additionally, CS education researchers are often concerned with problems of practice. Much of the research conducted in the SIGCSE literature focused on K-12 CS does not happen in laboratory studies, but instead in classrooms or informal education settings.These settings require the involvement of not only the primary researcher, but also practitioners (teachers or facilitators).

In this poster we describe research-practice partnerships, a specific research team design and methodology that has recently become a focus of support by the National Science Foundation. We then focus on one dimension of the health of the RPP, building trust with partners, and offer both a method of assessing this dimension as well as examples from interviews with funded RPPforCS projects. We use these examples to motivate recommendations for the SIGCSE community and describe future research in this area



What is the WT Grant Foundation RPP Framework?
As a resource to support research-practice partnerships working toward greater effectiveness throughout different stages of the growth and development of such a partnership, Henrick, et al. published a five dimension framework to provide a snapshot of RPP effectiveness. The five dimensions were developed after a careful review of the RPP literature and a subsequent round of semi-structured interviews with around ten leaders from nationally recognized RPPs.

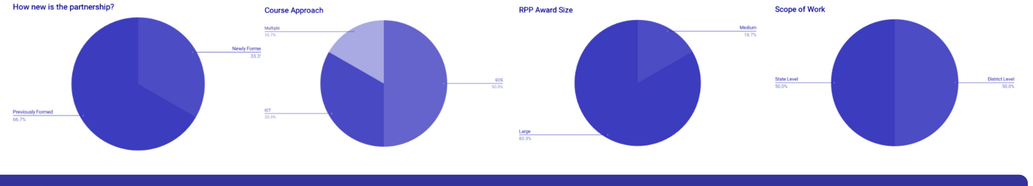
Future theme studies will focus on the role of teachers in RPP project activities and research; the use and utility of partner health assessments in RPP projects; and the four other dimensions within the WT Grant Framework.

This framework is the inspiration for the first in a series of theme studies for CS Education Researchers and Practitioners to explore benefits of adopting RPP approaches in research.

Process

A qualitative cross-case interpretive analysis of semi-structured participant interviews and was used for this study. This process included the use of a structured coding scheme which was created based on the first domain of the framework created by the WT Grant Foundation.

Participants were recruited from six RPP grant awardee (2017) teams from across the United States. The timing of the award, combined with the timing of the interviews means that all teams had been operating for at least 8 months. Participating teams varied in many respects, including the size of the RPP award (16.7 % medium, 83.3% large), the scope of their work (50% district level, 50% state-level work), the approach course used (50% Exploring Computer Science, 33.3% integrated computational thinking, 16.7% multiple curricular approaches) and whether the teams were newly formed specifically for the project or were building off of previous work(33.3% newly formed, 66.7% based on existing work).



Findings on Building Trust and Cultivating Relationships in RPP

Researchers and Practitioners Routinely Work Together:
Trust is strengthened when researchers and Practitioners routinely work together. Across all the RPP teams in the study, researchers and practitioners made working together towards common goals a priority. The six teams in the study spent varying amounts of time working together and collaborating in many ways, often utilizing multiple means of communication depending upon the needs of the group and their situation. For example, in one rural RPP, meetings were often held through video conferencing as teams members were distributed across the state and face to face meetings were impractical. Other teams focused on the way they structured their meetings to ensure robust communication.

Variations were often the result of the size of the RPP's focus, the number of team members involved or whether the team was already established when the RPP had begun or was created for the sake of the grant. Some teams described a desire to include additional administrative practitioners but found it challenging due to the competing demands faced by those administrators. For example, one researcher noted, "*We do have a plan. We haven't yet put it in place yet, but we do have a plan as well for a principal group of practice that Aletta would convene, which would be similar. I don't think that we can get away with having monthly meetings with all these principals.*"

Collaborative Decision Making and Guarding Against Power Imbalances:
Effective RPP teams established routines that promoted collaborative decision making and guarded against power imbalances. Every team interviewed expressed their desire to ensure that all team members were able to contribute to the collective work in meaningful ways on a regular basis. Multiple RPP teams spoke of purposefully structuring meetings so that there was always a practitioner perspective present. This theme of establishing collaborative routines appeared in the interviews of all six RPP teams who participated in the study. Another obvious priority for the teams was to make sure that all members felt safe in offering ideas and disagreeing with other team members. For example, one researcher focusing on how power dynamics can shift depending upon locale, described being intentional about not having team meetings on the university campus. They focused instead on having all meetings take place on school district grounds so that practitioners might feel more comfortable. Other teams cited the importance of spending time together socially away from work as a major factor in building trusting and sustainable relationships. The creation of routines such as these also served as a mechanism by which the team could weather challenges that may arise as a result of the shared work.

Emerging Themes

"*I think if we think about culture and appreciating other cultures in a sense the university culture and the high school culture are different from each other. We're not going to a foreign country and speaking a foreign language but I think the value of wanting to be successful has meant that we've realized that we have to listen to the culture and the values of the high school teachers and administrators and we have to, in a sense, subsume ourselves and some of ourown goals to that bigger, to that greater mission.*"

Several emergent themes surfaced as a result of analysis of the interview data. One prevalent theme was the importance of team members holding common values and vision. This theme was echoed by both researchers and practitioners. They often spoke of the power of a unified vision in building trust and helping team members make decisions, and in overcoming barriers.

More than half of the teams described important relationships with outside partners or organizations. Multiple interviewees spoke of the importance of their local Computer Science Teachers Association (CSTA) chapter in being a middle ground and meeting place where researchers and practitioners interacted and where ideas for research (problems of practice) were explored.

RPP Teams with pre-existing relationships often felt they had a head start in their RPP work. They often spoke of feeling unified in their vision, being able to overcome obstacles and being more in tune with team members strengths and diverse perspectives. Evolved communication structures were also reported by teams that had long standing relationships. The gift of increased time together clearly holds some advantages for RPP teams in many areas.

Citations

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