New Year, New Schedule, Updated Project Plan

With the beginning of a new semester, the project has a new meeting schedule as both students and faculty have different times on different days they are available to work on the project. Some students have moved on to and others are joining, so the team adjusts with each new term. During the break between the fall and spring semesters, there was also some important planning done around the overall project timeline. We are now projecting a four-year project duration to adjust for the start time and ramping up of project staff as well as aligning to the planned testing of the innovations in actual undergraduate classes, which is an important feature of this project. Figure 1 below illustrates the new project timeline with some new schedule features.
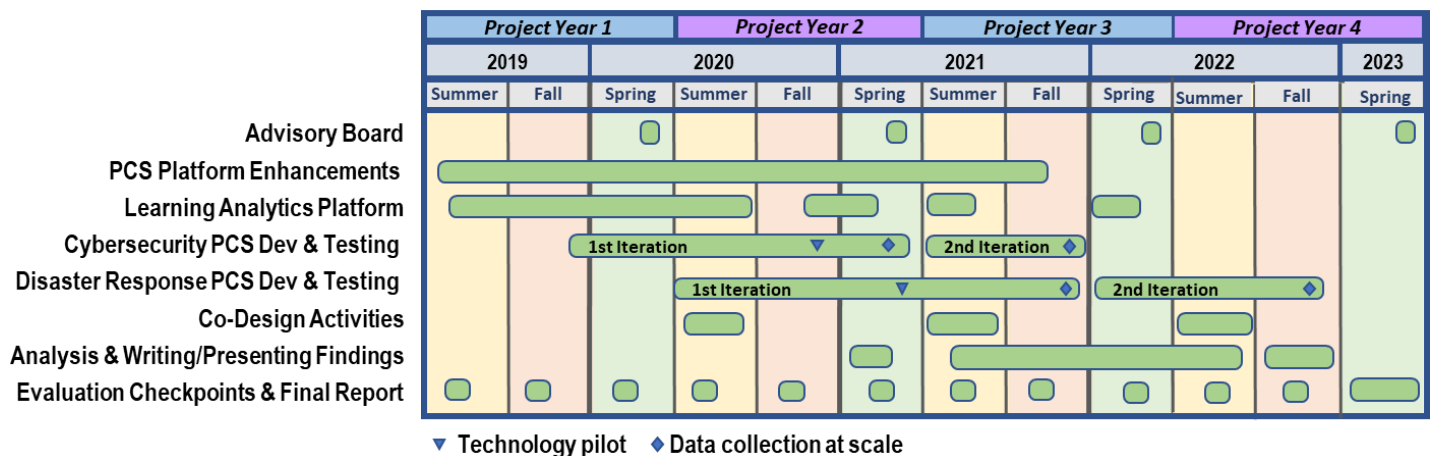

Figure 1 - Four-year project plan

One change involves the testing of innovations. Rather than testing the alternate reality game module in a laboratory setting only, this project plans to test in actual undergraduate classrooms at both the University of Maryland and Brigham Young. This new plan has two kinds of classroom tests. The first is a *technology pilot* involving a test of the full playable case study (PCS) in at least one classroom of the planned course and the second is a *full test data collection* across multiple sections of the same course. This two-stage release process should allow a more stable module for the students.

Planning for a Review Checkpoint with the Advisory Board Members

The original plan for this project was an annual meeting in the summer to be held at the University of Maryland. This would allow advisory board members to come visit the project team and learn about the progress as well as visit with others in the DC region that might relate to their other work advisors might have in the DC area, including at the NSF that has funded this project. With the timing of the award, it was not possible to organize a meeting the first summer, and so the project leadership and external evaluator began to discuss ways to creatively connect to the advisors and allow them to provide guidance on the challenges. We are now planning a meeting in conjunction with the American Education Research Association (AERA) meeting in San Francisco in April of 2020 to serve as an opportunity for advisor input. Having a spring review associated with conferences may be a better pattern going forward. The evaluation team is also working to connect members of the advisory board with specific PIs and senior personnel around the topics that are relevant to their expertise. Drawing upon considerable experience with NSF technology projects, the evaluation team is looking for other ways to optimize this area of the project for both the advisory board and the team.

Clarifying the Phases of the Project

As the work on the first version of the PCS involving cybersecurity is underway and we are planning to begin the design of the second version having to do with crisis or disaster response (ex: fires, epidemics, etc.). We can now see the second iteration as not only involving a different context, but some of the features originally proposed will be addressed in this later version. We are now thinking about our project as having two distinct phases. The first phase will feature a foundational set of features, such as the basic roles and collaboration interactions. The second phase is planned to build upon that with some new kinds of features and project elements.

Table 1 - Planned features by phases

First Phase (Cybersecurity)	Second Phase (Crisis Response)
• Roles and collaborative tasks	• Fake news
• Information resources by role	• Communities of Practice
• Baseline assessments	• Deeper learning goals for roles
• Classroom experience	• Re-playable versions, different version

Mapping Out the Design Process

The process of designing the innovations that are part of this project requires some designing itself. Because we have a broad team with various areas of expertise, it has become important to identify different areas of design that members of the project team can take a leading role in addressing. Figure 2 is a conceptual illustration of some of the more substantial areas of the design process.
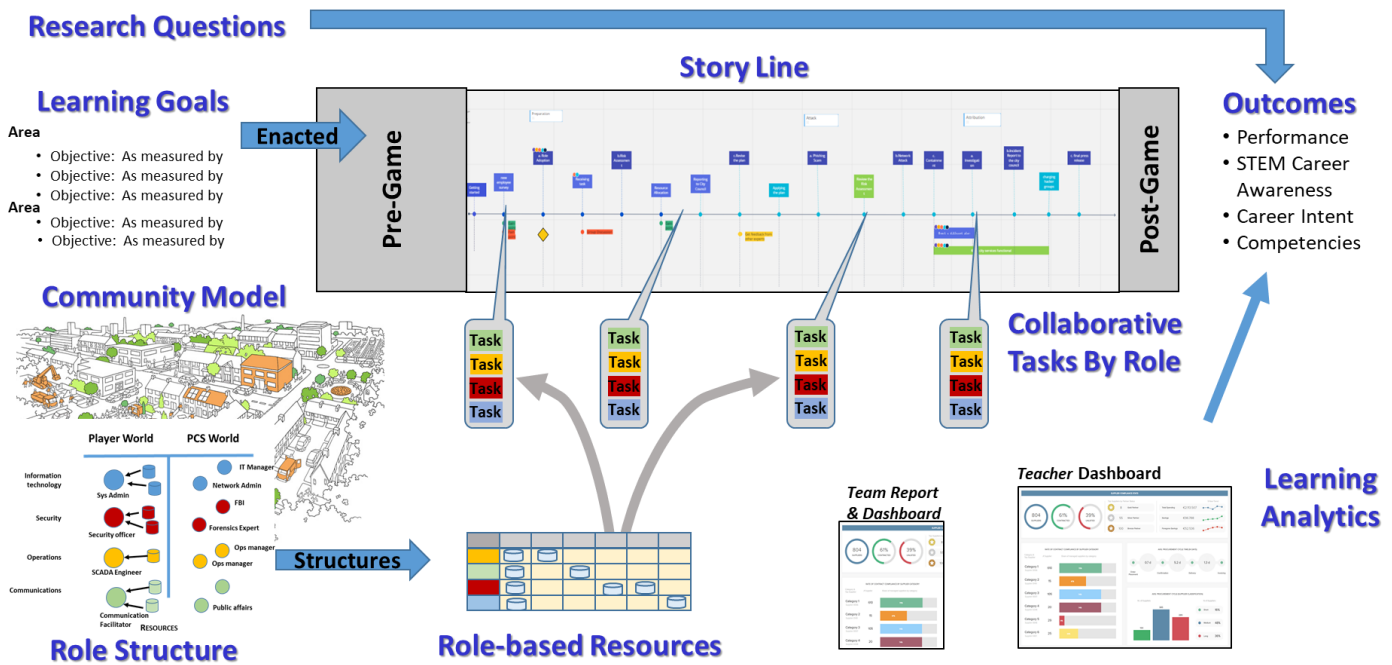

Figure 2 – Schematic of the Design Process

From this model of the design process, that is ultimately iterative, we can see the different areas of work and how they need to come together. The learning goals— *largely around collaboration and STEM awareness*—combine with the research questions to provide a vision of what our project should be testing. This helps the development of surveys and other measures that will be used to evaluate the success of the intervention. More specific to the student experience is a design for the community and the fictional roles that will be used in the game to teach collaboration, we call the *community model*. As we develop an understanding of the community and roles, we are also developing a

storyline that forms the narrative backbone of the student experience.   Within the storyline, we are planning tasks that will provide students an opportunity to collaborate using information specific to the role they are playing. This area of the design requires the team to look at each role and to consider the kind of information that might be available to a person in that role that can support the specific challenge in the storyline. This feature of having information that a player uses and translates for others in their team seems to be a new area for our project to explore.

This kind of decomposition of the design process meets the need for supporting the distributed team. It also helps new members to see where design the work is being done and to put it in context.   Each of these elements brings with is specific kinds of design challenges in addition to coordination that is done through weekly PI and senior personnel meetings.

Planning for the Disaster Response Module

The second version of the PCS was designed around disaster/crisis response is beginning and this will involve some people at Maryland and BYU who have not been active for much of the first phase. While there will be core teams continuing their work on the platform and the narrative designs, a new team will form around the next version. This cross-location team will begin in the summer of 2020 to review the work done on the first module and start to design the second module. One area of specific interest for this module is fake news.

Sharing the Word: Upcoming Conferences

Careers In Play team members will be at the upcoming American Educational Research Association (AERA) annual meeting in San Francisco in April and at the International Conference of the Learning Sciences (ICLS) conference in Nashville in June. At AERA there is a briefing being planned for members of the advisory board. At ICLS, there is a long paper based on this project titled *Expanding the Frame: Designing a Learning Analytics System Using a Theory of Learning* by Phil Piety. Dan Hickey and Grant Chartrand of the Indiana team have an upcoming paper titled *Expansive framing as a pragmatic theory for instructional design. Educational Technology Research and Development* for a special issue on learning theory for instructional design.

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