Innovation in simSchool 2.0

www.simschool.org

Executive Summary: Tasks & Improvements Oct 2017 – June 2018

simSchool 2.0 Roadmap

The simSchool web environment and application have been continuously researched and utilized for nearly a decade. While used around the world in hundreds of higher education and K12 school districts, to date the tools have most often been used in educator preparation programs in English-speaking programs with a western-centric perspective of classroom instruction and management. Taxonomy used within the simulation and web space currently reflect these most common use cases and constituencies of users. At present the artificial intelligence engine is currently capable of generating 10 trillion instructional tasks and 10 trillion character profiles and presumes students are placed in a general education class

In order to serve the ASSET program, as well as growing needs within the global community, simSchool is expanding and evolving to better simulate target populations, cultural differences, and technical needs. Rapid development and iteration is underway to ensure that a fully revised and enhanced version of the sim playspace is ready by Fall 2018.

Identified goals for platform intelligence and capability development are:

Artificial Intelligence Engine

- Expand AI engine to enable domain-specific learning tasks and character profiles, including math, ELA, and science
- Expand AI engine to enable character - to -character emotional impact when characters are placed in collaborative groups
- Expand AI to enable "simple," "moderate," and "expert" levels of gameplay, reporting, and analysis
- Develop capacity to tag art, background, and student name database by age, enabling ability to teach an "elementary" classroom, etc.
- Develop capacity to tag art, background, and student name database by geographic region, enabling ability to teach an "elementary" classroom in 'x' geographic location
- Develop template for geographic data and learner profiles that the system can accept, enabling any new location with appropriate data to be rapidly assimilated into platform
- Modify conversational database to reflect statements that are more reflective of student reaction (i.e. instead of "Is this class remedial?" convert to "This task is very academically easy for me and I may become distracted soon if I don't have something new to do.")
- Modify reaction database and character art so that more data is available to teacher-as-player and visual cues feel authentic; *Note: Right now students raise their hands when they experience an academic and/or emotional change, but this can feel inauthentic and overwhelming to players. We will explore better methods to reflect state change and only have characters raise their hands if a student inquiry would be a predictable response to a state change.*
- Begin exploration of potential for enabling "cultural" profiles in the system enabling, modeling of students effected by or exposed to, for example, prevalent community violence, housing and food insecurity, etc.

Authoring & Reporting

- Develop capability to indicate a specific age of classroom to be taught
- Develop capability to indicate preferred seating arrangement of students
- Develop capability to indicate "level" of class to be taught which would automatically simplify the intelligence model, social interaction student to student, variation of task and talk, behaviors available in the sim playspace, and the way data is framed in sim
- Develop capability to indicate domain of class to be taught or learning domain of the student, i.e. math, ELA; Note: At present simSchool presumes students are in a general education class. While domain-specific tasks can still be authored, we have found this can create a disconnect for users. Also, by expanding "general cognitive/academic capacity" into levels of learning by domain, we will multiple the AI engine and number of characters and tasks that can be created by 21 x [number of dimensions] for each new characteristic.
- Develop capability to toggle on or off "scaffolds" in sim by level of play
- Develop narrative version of numerical data reporting
- Develop ability to "group" tasks created into "lesson plan" and to easily embed whole lesson plan in a sim
- Develop narrative description of tasks authored similar to narrative of students authored
- Create expanded research dashboards enabling view across players and modules
- Explore new graphic data renderings to increase the player and instructor experience

General Platform / Website

- Enhance device responsivity of website and sim
- Integrate with identified LMS to increase portability of sims, reports, and data
- Revamp and modernize website
- Create new tutorial videos and resources based on AI and interface changes
- Release capability to map sim gameplay to competency model for formative and summative assessment
- Begin to explore requirements for app version able to operate offline
- Begin to explore potential for open source app version

Simulation Playspace

- Develop new character art, with an emphasis on younger characters, expanded ethnic features, and items reflecting inclusivity (i.e. characters with disabilities)
- Rebuild sim in React for enhanced flexibility and explore use of svg file format for character art, both of which may help facilitate a pathway toward low fidelity virtual reality in Phase 2
- Develop new classroom art, including varied backgrounds and seating arrangements
- Redo entire interface to make talking and task assignment more clear
- In task interface, display all tasks available in one view as "lesson plan"
- Add ability to access externally attached pdfs and additional resources as aides while sim is running
- Redo data indicators for individual students, to include ability to see recommendations for student intervention during gameplay
- Create capability for a log/timeline of student performance and emotional changes in response to choices made
- Create capability to record sim with our without "talk aloud" while sim is running (i.e. talk through thought process while teaching)
- Create capability to port sims to identified LMS for peer peer feedback
- Identify needs of Research team for bundling recorded sim + data reports in a format appropriate for summative assessment and micro-credentialing
- Differentiate features in sim based on identified level of gameplay indicated during authoring