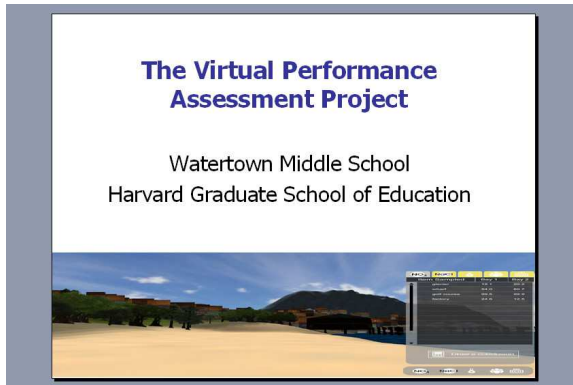


VIRTUAL PERFORMANCE ASSESSMENT PROJECT

Watertown Middle School and Harvard Graduate School of Education

Ann Koufman-Frederick, Superintendent
March 31, 2010 - EDCO Legislative Forum, State House

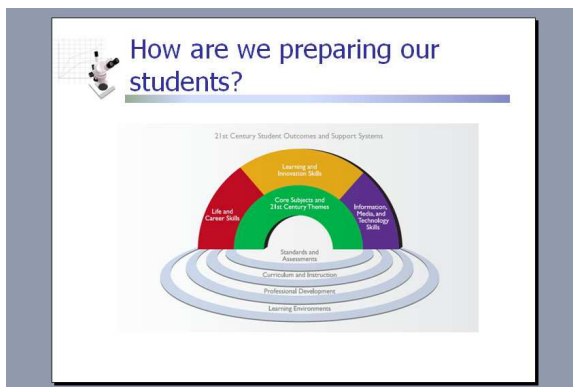


The Virtual Performance Assessment Project is a collaboration between Harvard Graduate School of Education and the Watertown Public Schools.

It is a “proof of concept” project that is exploring and developing new assessment strategies using new technologies in middle school science. It is a project that gives you a glimpse into the near future of testing, teaching, and technology.

Virtual Performance Assessments are on the horizon for our students, as a future application for assessment using the power of technology. This project shines the light in the direction of where we are headed with classroom applications of technology.

Watertown and the Harvard GSE have been working together on this project since it started two years ago. Last year we worked on the curriculum and the “world” (which you will see). This fall sixteen 8th graders piloted the program and this spring 200 7th graders are piloting it.

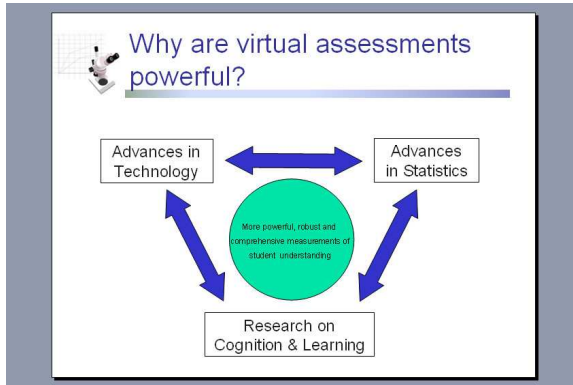


We believe this is important research and development that needs to be practice-based in schools. Students in 8th grade today will be in the job market in about 8 to 10 years from now. The internet has already been around for about 15 years. What will technology look like in 10 years when these students are looking for work? How will we have prepared them to enter the work force and be successful in life?

Also, right now the focus is on engaging students in STEM, Science-Technology-Engineering-Math.



In an ideal world, we would have the image on the right be how we assess science: teacher working on-one-on. However, it is not practical. On the left, is what we tend to defer to—despite research that shows mc tests are not a good measure of complex inquiry and higher order skills.



Paper-and-pencil tests do not measure inquiry well and aren't aligned with the National Science Education Standards (NSES). National Assessment of Educational Progress (NAEP) called for multiple modes of assessment, including interactive computer assessments.

We are at a moment in time where research on cognition & learning, advances in statistics, and advances in

technology are creating new opportunities for richer assessments.

What is a Virtual Performance Assessment?

- 3-D Immersive environment based on authentic setting
- Highly secure, cross platform application
- Realistic causal model for experimentation

Harvard has taken an interface that is popular with middle school age group: game-based environment and designed it around an authentic ecosystem in Alaska. They are creating simulations of authentic problems that allow students to engage in science inquiry. The causal models are real. The application is secure for testing purposes.

How does it work?

- Simulates authentic scenarios
- Allows students to take on identity of a scientist
- Students respond to visual cues over text
- Captures student data unobtrusively

Students take on the identity of a scientist and walk around the 3-D world. They explore and solve an authentic problem (why the kelp in the bay is dying). Students work individually and interact with programmed agents in the world (the image above is of a student scientist interacting with an agent who has the ! Over her head). Behind the scenes, the program is capturing observations of students (everything a student does is

being captured and stored in a database so that it can be determined what the student knows or does not know about inquiry).

Take a look...

<http://virtualassessment.org/media/media.html>

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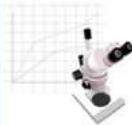
The partnership between the Harvard GSE and Watertown Middle School is unique in that it brings together three distinct educational groups: policy makers on the graduate level, who are on the cutting edge of educational research; teachers who are in the front lines dealing with students daily; and students, who are the recipients of the policy and instruction as determined by the first two groups.



Impact of this Project

"This opportunity is a win-win for all involved. It's a win for the researchers who are able to try out their project on real students in real time, and get feedback that is valid and valuable for improving their work. It's a great opportunity for teachers to glimpse what is happening in higher education. We see where the future is headed, can tailor our instruction to the future trends, and get energized by infusing our work with cutting edge technology. Last, the partnership benefits students in that it shows these kids that their gaming skills and feedback are meaningful and vital. They see that it is they whom the adults are learning from and their opinions and reactions impact the program that future learners may use."

Karen MacAuley, 7th grade science teacher



Goals of this Project

- Proof of Concept for Virtual Performance Assessments:
 - Potentially higher validity than physical performance assessments
 - No challenges of physical materials
 - Virtual worlds enable performances impossible in classrooms
 - Establish higher reliability and usability than physical performance assessments, as well as lower cost
 - Detailed tracking of participant behaviors
 - Respectable psychometrics compared to paper-and-pencil item-based tests

How practical is this to implement in school settings?



More about this Project

- Harvard GSE Principal Investigators-
Chris Dede, Jody Clarke-Midura, Michael Mayrath
- Funded by Institute of Educational Sciences
- Three year grant (now in year 2)
- 6th and 7th grade science inquiry learning in a standardized testing setting
- National Science Education Standards & College Board Standards for College Success: inquiry & life science
- <http://virtualassessment.org/media/media.html>



Credits for this Presentation

Thank you to Jody Clarke-Midura and Michael Mayrath for helping to prepare this powerpoint presentation.