Quincy Bock

Final Project Outline

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I. Introduction

• Science Education (and Education in general) need a make over. Too many students are scared away from careers in or even interest in science because it seems too hard. This points to a major flaw in our perception of science and our way of teaching it.

• “Society gets what it celebrates” so it is not just the content but the delivery and perception of that content which need a make-over. No one wants to become a scientist if they think it means long hours of doing boring things and looking like a nerd.

• As digital natives grow up, they require ever-more engaging and interactive means of holding their attention. However, it is not just the flashy exteriors to education platforms, but the designed foundations that need reworking. For this we need to look at ways of learning that draw in the student through exploration and systems.

• In addition, access to good teachers and engaging resources is limited. Education is a worldwide issue but it must be approached one child at a time. Web based interactions might be a good way to reach a large audience.

• I hope to research ways of learning, ways of teaching and ways of presenting scientific material to create… SOMETHING! Most likely this something will be one manifestation of a well researched and developed approach which could be used as further research material.

II. Science Education and Ways of Learning Background

a) Importance – why is it important to increase the appeal and quality of science education for elementary, middle and high schoolers

- Code - http://www.youtube.com/watch?v=dU1xS07N-FA

b) Challenges – science is “hard,” “boring,” lots of math, few good teachers or resources in some schools, it isn’t “cool,” etc.

c) Roles of Education – where is science education being addressed and who is most successful: STEM, museums, television, internet, games

i) government

ii) family

iii) not for profit

d) Approaches – this could be approaches to teaching in general, curriculum, games, web based, systems thinking, activities, experimental… What is most effective?

- USA Science and Engineering Festival - http://www.usasciencefestival.org/

- Quest to learn <http://dmlcentral.net/sites/dmlcentral/files/resource_files/Quest_to_LearnMacfoundReport.pdf>

- Games/Experimentation <http://biologica.concord.org/webtest1/web_labs.htm>

- Simulation/Exploration learning: <http://phet.colorado.edu/en/simulations/category/new>

- Games: <http://www.brainpop.com>

e) Museums – how do museums create different ways of learning, are the more effective, more fun, more boring, more interactive

- Simon, Nina, The Participatory Museum

- Adair, Bill, Filene, Benjamin and Koloski, Laura. 2011. Letting Go? Sharing Historical Authority in a User-Generated World, Philadelphia: The Pew Center for Arts and Heritage

- Murawski, Mike. Teaching With The iPad: Adding a New Dimension To the Museum Experience. <http://artmuseumteaching.com/2012/04/24/teaching-with-the-ipad-adding-a-new-dimension-to-the-museum-experience/>

- Cherry, Thian. Augmented Reality: What Reality Can We Learn From It? <http://www.museumsandtheweb.com/mw2012/papers/augmented_reality_what_reality_can_we_learn_fr>

- Second Life Exploratorium <http://blogs.exploratorium.edu/fabricated->realities/qa-with-splo-machinima-creator-opal-lei/

- Ruben H Fleet Science Museum <http://www.rhfleet.org/exhibitions#permanent>

- Montshire Museum of Science <http://montshire.org/exhibits/exhibits/>

III. Project

a) Goals – what does this project hope to address, which of the “challenges” will it confront, in a similar way to other approaches, in a different way or a different subject matter or just to increase access and quantity and quality of content?

i) Precedents

-Scale of the Universe - <http://scaleofuniverse.com>

ii) Audience

b) Methods and Means

i) Research on what realm to work in

- Teacher Survey - htt<ps://scholarnexus.wufoo.com/forms/teacher-sur>vey/

ii) Research on particular topic and ways it is addressed

iii) What platform? Physical? Web based?

iv) Prototypes

v) Testing

vi) Iterations

vii) Final Product

c) Final Description of Project

d) Review of Project