Usability test
Alien Rescue
Jina Kang
Woonhee Sung

What is Alien Rescue?
Problem based learning tool
Hypermedia instructional program

Alien Rescue is designed for
6th graders in solving a problem
via a new media enriched
Problem based learning environment
in science classrooms

GOALS
To evaluate the potential for errors
and difficulties involved in using
the module for learners and
instructors in classroom
environments.

To determine if the user needs
are met in ways to support science
classrooms in an easy, useful, and
productive manner.

Overall Methodological Approach
Heuristic evaluation
Students: Observation
Adults: Performance eval, Surveys

METHOD
The method is adapted from Squires and Preece's (1999) proposed
set of "learning with software" heuristics which considers
both usability and learning issues.
which failed to address the issue of integration of usability and learning.

"Learning
with software heuristics"

Match between designer and learner models
Navigation fidelity
Appropriate levels of learner control
Prevention of peripheral cognitive errors
Understandable and meaningful symbolic representations
Support personally significant approaches to learning
Strategies for cognitive error recognition, diagnosis and recovery
Match with the curriculum

Task and Survey design
based on "learning with software" heuristics

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Categories</th>
<th>Concerns</th>
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<tbody>
<tr>
<td>Navigation Fidelity</td>
<td>Floating Navigation</td>
<td>1. Were menu titles clear enough to inform the directions and contexts?</td>
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<td>2. Was the speed of your movement appropriate?</td>
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<tr>
<td>Understandable and Meaningful Symbolic Representations</td>
<td>Research Lab/ Concept database</td>
<td>3. Did the images and animation in the Research Lab and Concept database help students to figure out the answers?</td>
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<td>Message tool</td>
<td>4. Did students perceive button functions clearly by button titles?</td>
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<tr>
<td>Support for personal learning</td>
<td>Research Lab</td>
<td>5. Did the format for delivering information in the Research Lab make it easy for students to find out and learn about things?</td>
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<td>6. Were students satisfied with the provided categories of the Notebook for their needs?</td>
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<td>7. Was each element in the Periodic Table easy and obvious enough for students to read?</td>
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<tr>
<td>Strategies for error recognition, diagnosis and recovery</td>
<td>Probe Design Room</td>
<td>8. Did the error message explain clearly when students' input was incomplete?</td>
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<tr>
<td></td>
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<td>9. Was the error message obvious and clear enough to notice and read?</td>
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<td>Prevention of cognitive errors</td>
<td>Probe Design Room</td>
<td>10. Were students able to understand the process of launching probes after at least 2 trials?</td>
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<td>Probe Launch Room</td>
<td>11. When students tried to enter information, were they able to find the text box to enter the text?</td>
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<td>12. Were students able to discern each button, Design/Edit/Manufacturer button, in terms of its function in Probe Design room?</td>
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</tbody>
</table>

RESULTS

Agreement b/w Students and Adults
No.2) Speed could have been faster
No.8) The error message fails to explain clearly when users’ input was incomplete in Probe Design Room
No.12) Users were not able to discern each button’s function in Probe Design Room

Disagreement b/w Students and Teachers
No.6) Students were not satisfied with the provided categories of the Notebook however, adults were okay with categories.

RECOMMENDATION
Probe Design Room

PARTICIPANTS
3 ADULTS & 75 STUDENTS (6th Graders observed over two class periods in Science classroom)

Graduate student
More than 3 years of teaching
Little knowledge in relation to technology with less than a year of E-learning module experience
Tasks: To design the probe for a species Jakala-Tay based on the information.
Finally, she was asked to launch the probe designed in Probe Design room.

Graduate student
More than 3 years of teaching
Little knowledge in relation to technology with less than a year of E-learning module experience
Tasks: To explore Research Lab for collecting data and information for designing probes.

Undergraduate student
Background in Visual Arts
No teaching experience
Expert knowledge in technology use but no experience in e-learning module
Tasks: To explore floating menus in order to identify visual clarity and interface design.

PARTICIPANTS
3 ADULTS & 75 STUDENTS (6th Graders observed over two class periods in Science classroom)