Usability test
Alien Rescue

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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.
Squires and Preece (1999) addressed limitations of Nielsen's (1994) heuristics
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 leaner 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

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

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

1
Graduate student
More than 3 years of teaching
Prior knowledge in relation to technology with more than 2 years 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.

2
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.

3
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.

RESULTS

Failure Rate bar chart: No.1, 2 (41%), 3, 4, 5, 6 (30%), 7, 8 (92%), 9, 10, 11, 12 (80%) by Question Number
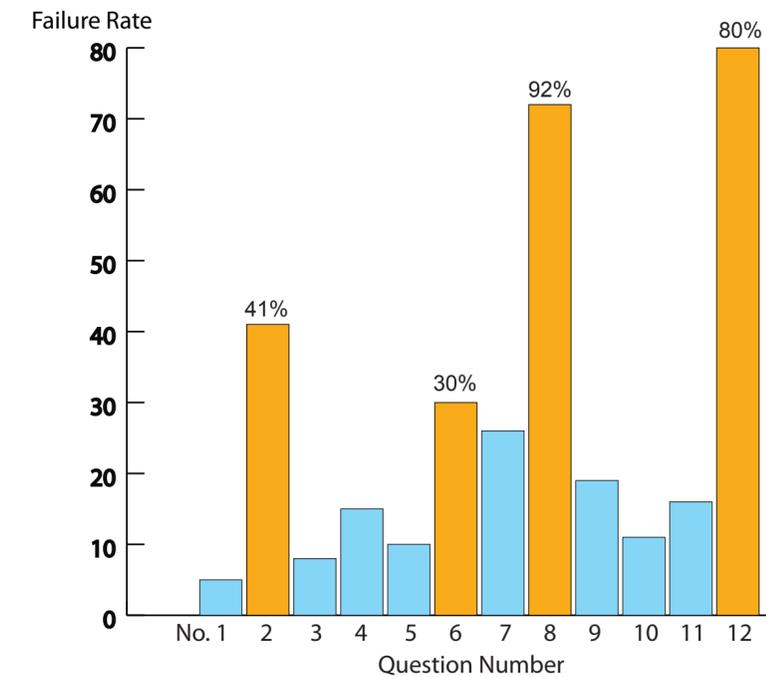
Agreement b/w Students and Adults

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.

RECOMMEDATION
Probe Design Room