Formative Evaluation

Standards "Quilt"

Mathematics Education
Series of formative evaluations began for Principles and Practices of School Mathematics.

Dr. Joan Ferrini-Mundy (Chair of the Writing Committee) reviewed the authenticating institution completed by Mathematics as an organizer.

Created using NCTM's Principles and Standards for School Mathematics.

Beta version of the Mathematics "Quilt" developed in 2001.

Math curriculum

Many NASA education programs began developing math teaching mathematics (real-life applications) and recognized potential for using space science to

History
Based on statistical consensus
- Assessment of methodology for lesson placement on Qunit
- Assessment of consistency of standards alignment in education community
- Accuracy and verification of lesson placements on Qunit

(Rich Alivirez, JPL)

Education Office (E)

Quality Assurance Rubrics

- Organizational framework
- Need to search by standard
- Continued evaluation of Qunit assumptions

Study Rationale
Qualitative and Quantitative Components

- Follow up survey and telephone interviews
- Five educators per lesson
- Certificate of participation offered as incentive
- Information booth at CAMT, 2003

- Teachers of Mathematics
- Invitation extended to members of Georgia Council of
- Associations asking that they distribute information
- Email sent to the Presidents of all States’ Mathematicians
- Bulletin boards
- Email sent using various listserves and on-line education
- Educators contacted by various means soliciting volunteers

Method

Formative Evaluation

Methodology
• Receiving one of 68 proposed lessons
• 195 educators from 42 states enrolled,
Perhaps this will help!

their standards alignment.
been able to easily find
largely because I haven't
"I don't use NASA lessons,

standard
materials by educational
for educational
have a need to search
Math educators do

It is helpful to have the capacity to search for NASA

Validation - Results
These days, "since that is the big push our state (CA) standards were correlated/aligned with it would be nice if the lessons it would use them anyway, but I would use them anyway, but"

Many would prefer

The national standards. Standards rather than alignment to state

The Mathematics Education Standards Matrix would be of

\[ egin{array}{c|c|c|c|c|c|c|c} \text{Strongly Agree} & \text{Agree} & \text{Undecided} & \text{Disagree} & \text{Strongly Disagree} \\ \hline 100 & 90 & 80 & 70 & 60 \end{array} \]
Access to Online Materials

Please check all that apply to your teaching environment:

A. I am personally able to access online materials from my home
B. I am able to access online materials from my place of work that I can print off and distribute in hard materials
C. My students are able to personally access online materials from their homes
D. I have the ability within my school for my students to access computers for interactive online activities.

There still exist many technical barriers in schools that limit the use of online materials.

Don't have access
Have access
Current use of NASA Materials

"I didn't realize that NASA had resources material into their curriculum.
• Couldn't see how to fit with "match"
• Never associated "NASA"
• Not aware of NASA materials

Have you previously taught mathematics? teaching materials to used NASA data or

Those who had not used

43%
Unavailable resources

- Without more background info, I would like to have scientific vocabulary explained beforehand before presenting to a class. I read that I'm not familiar with. I would want to understand the vocabulary conceptually beforehand in the lesson plan.

- Lesson not designed for math teachers

- Model curriculum requirements

- Material delay. Your use of our that prevents learning within NASA resources.

Barriers to Lesson Use-Classroom
Barriers to Lesson Use-NAVA

- Lack of publicity
  - Individual homepage
    - It could be listed with a link to their main homepage for educators where all the many different home pages within NASA that I find it difficult to locate lessons. There are so few information about its existence needs to be distributed, especially to districts that materials.
  - "I am not sure teachers are aware of these"
11. Can this lesson be applied effectively in practice?

12. Would it be easy for teachers to adopt this lesson?

13. How well did your instructional lesson align with state and national standards?

Results - Lesson Quality