

Getting the Most from Nspired Learning: What Research Says

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Panel

Why Multiple Representations? – What Research Says

Allan Duncan

University of Aberdeen Scotland, UK

What are the effects of adding TI-Navigator to a
graphing calculator classroom?

Stephen Pape,

University of Florida USA

CAS Yes, We Can! But Should We?

Hans-Georg Weigand,

University of Wurrzburg, Germany

What is a super even number?

What is a super even number?

Is 2,097,152 super even?

How can you decide in an efficient way? (Roodhardt et al, 1997)

Research suggests – People learn by

- Engaging in a concrete experience
- Observing reflectively
- Developing an abstract conceptualization based upon the reflection
- Actively experimenting/testing based upon the abstraction

Students learn if

1. they are actively involved in choosing and evaluating strategies, considering assumptions, and receiving feedback.
2. they encounter contrasting cases-notice new features and identify important ones.

National Research Council, 1999

Ways technology materials have gone astray

- Emphasis on mastering the technology - mathematics is of secondary importance
- Demonstration of concept - students are spectators
- Revisiting a topic in a simple way - students' role is verification
- Replicating activities from the point of view of current instructional materials, underutilizing the technology's potential
- Fragmented ideas - obtaining a formula as an objective

(adapted from Belfort & Guimaraes, 2004)

Role of teacher

- work needs to be both structured and unstructured in order to maximize learning opportunities.
- students need to
 - discuss observations after an activity to focus on what observations were most important,
 - become aware of important observations they did not make, and
 - reflect on how important observations are connected.

Chance et al, 2004

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- James Zull, (2002). *The Art of Changing the Brain: Enriching the Practice of Teaching by Exploring the Biology of Learning*. Association for Supervision and Curriculum Development, Alexandria, Virginia.