Examining the Fossil Record:
A Fun Look Back at some of the Earliest Energy Education Research

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Lightning Session 3A @ BECC
December 8, 2014
BACKGROUND: THE “ENERGY CRISIS”

• 1973 Oil Embargo
• 400% oil and gasoline price increase
• Crisis atmosphere (gas station lines, rationing, shortages)
• Ripple effect in natural gas markets
• 1978 Powerplant and Industrial Fuel Use Act, prohibited the use of natural gas for electricity generation
• Three Mile Island nuke accident (1979)
ENERGY EFFICIENCY CONSERVATION RESEARCH [circa 1978]

- Virtually all energy research was by academia and government
- Academics primarily running 4 legged and 2 legged rats through classroom experiments
- Some early research on energy attitudes & behavior (Winett, 1976, etc.; Seligman & Darley, 1977, etc.; Becker, 1978, etc.)

➢ Ecological Psychology: “A PhD Program Aimed at Survival” Founded 1970, at MSU
  ▪ Required applying social science tools to social problems in actual community field experiments
  ▪ I entered 1975, went to work at the newly formed Michigan Energy Administration in 1977
RESEARCH CHALLENGES

• Basically a brand new field
• “Primitive” data handling capabilities (see props)
  • Paper rather than digital
  • Mainframe computers only
  • “transparencies”
GOVERNMENT POLICY CONTEXT

- Jimmy Carter….national Energy Extension Service (modeled after historically successful “Cooperative Extension Service” in agriculture)
- 10 ‘pilot’ states selected in 1977
- Michigan named as the lead state in the area of youth education. Goals:
  1. create an “energy conservation ethic” in 50,000 high school students
  2. Examine various strategies for achieving energy education objectives
- Implementing agency: Michigan Energy Administration (created 1975)
THE RESEARCH

• Develop an instrument to measure attitudes and behaviors of youth (first high school, later middle)

After considerable test development and pilot testing:

 The “Youth Energy Survey” (YES)
   45 item likert-type attitude scale (highly reliable and valid)
   Self-report behavior index
   Optical scan enabling large-scale use
MICHIGAN FIELD RESEARCH

• 2-phase longitudinal research to test different intervention strategies
• Population of 124 high schools in 15 targeted counties

Phase I (1977-78)

• Teacher training workshops
• Student to student presentations
• Student drama (theater) presentations
• Large scale assembly ("Energy Today and Tomorrow")
• Control group
MICHIGAN FIELD RESEARCH

Phase II (1978-79)  (my dissertation research)

• Teacher consultation change agent (co-op extension)
• In-school conservation committee
• Teacher workshops
• Teacher workshops plus “task oriented” module
• Control group

3 dependent variables

❖ Teacher response (teaching lessons on energy)
❖ Student attitudes
❖ Student self-reported behavior
Based on promising Michigan work, DOE tasked us to develop a national data set using the YES

- States sorted into 4 strata based on HDD
- 8 target states selected (2 per strata)
- Over 100,000 students surveyed for the study

- Eventually opened up a clearinghouse service and scored tests for teachers in nearly 20 states
HIGHLIGHT RESULTS FROM MICHIGAN RESEARCH

• **School participation:** over 80% participated fully
• **Teacher response:** all 4 conditions signif. more likely to teach an energy unit, & signif. more hours taught
• **Student response:**
  - Attitudes not quite signif. vs. control group in aggregate
  - Very significant relationship to hours taught
  - “Task oriented” group very signif. on behaviors, not quite on attitudes as a group, but strong relationship on hours taught
MOST INTERESTING RESULTS

- Promising results for ‘task oriented’ education

Classic paradigm: Attitudes >>> Behavior
So change attitudes

‘Task-oriented’ approach:
Behavior >>> Attitudes >>> more behavior >>>
(a ‘virtuous circle’)

- Rather than just lecturing students on the importance of conservation, have students engage in conservation behaviors (at school and at home), and attitude changes will follow

- Mini-scandal on “Energy Today and Tomorrow” pro-nuke industry show. Negative results on conservation attitudes. (Business Week 1980 interview)
REFERENCES

[Note: nothing digital back then, so documents are scarce]


