Professional Development Grant Report:

University of Massachusetts President's Office
Information Technology Council, Subcommittee on Academic Technology

Project Title: Making Sense of School Data with Tablet PCs

Principal Investigator: Matthew Militello, Assistant Professor
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Award: $1500.00 to purchase a Tablet PC

OVERVIEW OF ORIGINAL GRANT

The original grant was written for $4500 to include a Tablet PC and a wireless (Bluetooth) data projector. The grant was accepted for $1500, the cost of one Tablet PC. The Tablet was ordered through the School of Education Business Office in the summer of 2006. However, the Tablet was not delivered until late October 2005. Because of the late arrival, I was not able to fully implement the Tablet PC into the newly created "School Data" course (EDUC 615f, Making Sense of School Data).

The grant proposal stated, "The Tablet PC technology will provide an in-class vehicle to develop *just-in-time*, *hands-on* application of the learning objectives and concepts." The proposal detailed four elements of use:

1) **Data Collection**: The wireless technology and portability of the Tablet PC will engage the instructor and students in the research and construction of data collection instruments.
2) **Data Analysis**: Because students will be required to analyze data (Excel and in some cases students may be able to utilize more advanced software such as SAS), the Tablet PC will be provide a real-time display of the data analysis process.
3) **Data Dissemination and Presentation**: A feature of the Tablet PC is the ability to create a multi-media, real-time application of data. The instructor and students will utilize the Tablet PC in class to demonstrate and present experiential assignments that are a major portion of the class work.
4) **Data Use**: While the course is offered only in the Fall of 2005—students will be afforded the opportunity to check the Tablet PC out during the Spring semester of 2006.

The proposal also indicated general uses of the Tablet PC:

> The instructor will utilize the Tablet PC for the purpose of providing electronic feedback to student writing and presentation assignments. The Tablet PC allows the instructor to make insightful comments and suggestions in a paperless modality. Specifically, assignments can be reviewed (highlights and comments- text and handwritten) and saved as PDF files to be sent back to students.

The key *milestones and deliverables* included:

1) The instructor will become familiar with the uses of the Tablet PC [Summer 2005]
2) An overview of the uses and requirements of the Tablet PC for students enrolled in the course [September 2005],
3) Artifacts of student and instructor use will be monitored and recorded [September 2005-December 2006],
4) An initial summative report will be generated [December 2005],

5) The Tablet will be utilized in two courses in the Spring 2006 semester [January-May 2006],
6) A departmental learning session to demonstrate the utility of Tablet technology for teaching and learning [April 2006],
7) Availability to schools and districts to demonstrate the utility of the Tablet technology [January-May 2006],
8) The final summative report will be submitted to the President's Office [May 1, 2006].

This report begins how the grant did *not* meet the goals previously outlined. This section (The Grant Inaction) provides details regarding the barriers that were faced in the attempt to incorporate the Tablet into a new course. The following section (The Grant In Action) accounts for how the Tablet was utilized in a thoughtful and effective manner. The report then reports on barriers that inhibited the use of the Tablet. The report concludes with summary comments and implications.

THE GRANT INACTION

The intent of the grant revolved around the use of the Tablet PC in a new course titled, "Making Sense of School Data." The course syllabus embedded a number of uses of technology into the collection, analysis, and dissemination of school data. Because the Tablet PC was not delivered to me until mid way through the Fall 2005 semester, I had to modify the uses of the Tablet in the course. The Tablet was utilized in this course for student feedback and presentations. However, I had difficulty meeting a number of the grant's objectives. For example, I was not able to utilize the Tablet to demonstrate school data collection tools. Additionally, I was unable to allow students to utilize the Tablet in their own schools.

THE GRANT IN ACTION

The Tablet was utilized in my Spring 2006 course EDUC 865, Theory and Research in Educational Leadership. Below is a summary of the uses of the Tablet PC in the course as well as uses outside of the course.

Student Feedback

Student papers were sent to me electronically for review. The Tablet PC allowed me to review and edit papers using the electronic pen. The interactivity of the pen allowed me to combine the effectiveness of Microsoft Word's "Track Changes" with the ability to write comments and add figures and/or drawings (e.g. conceptual framework). Students described the feedback as both thoughtful and effective. The capabilities of the Tablet to utilize a keyboard as well as the electronic pen provides the instructor will a new set of tools to give students.

Attached is an example of how student writing was reviewed using the Tablet (see Attachment 1- Student Work Sample). The example demonstrates both the ability to

track changes using the keyboard as well as the capability to make hand written comments.

Presentations

The Tablet PC was utilized for two kinds of presentations. First, class PowerPoint presentations were created using the Tablet. The Tablet allowed me to write on the presentation in a "real-time" format. That is, as the slides were discussed, student comments and areas that needed to be highlighted were described by the electronic pen. These slides were then converted to PDF documents and sent to students. After each class, students received an e-mail from me that included a class summary and two attachments: the original PowerPoint document as well as the PDF of the PowerPoint that included the notes that were added to the slides. Second, I was able to utilize the Tablet PC at three professional conferences. In November 2005, I delivered a presentation at the Annual Conference of the University Council of Educational Administrators (UCEA) in Nashville, Tennessee. In April 2006, I utilized the Tablet to present at the Annual Conference of the American Educational Research Association (AERA) in San Francisco, California. In May 2006, I presented at the statewide Connecticut Data Warehouse Conference in Hartford, CT.

The Tablet's lightweight and small size made traveling much easier. More importantly, my presentation at the Connecticut Data Warehouse Conference included a number of graphs. Using the electronic pen feature, I was able to highlight the important elements (e.g. specific numbers and trends in the data). I think I had more questions about the Tablet's capabilities than the study itself after the presentation! Attached is a sample slide from that presentation (see Attachment 2- Presentation Slide).

Other Uses

At a monthly Educational Administration Concentration meeting, I presented the utility of the Tablet PC to our faculty members (as per deliverable 6). The use of technology in our program is currently at the basic stage. However, the recent purchase of a student information system (TK20) by the School of Education requires the use of technology in our Principal Certification Program. Faculty members will be required, beginning in the Fall 2006, to utilize the web-based system to communicate with students, post assignments, and assessment student work. Faculty members expressed interested in the features of the Tablet PC for use with the new TK20 system.

The compact Tablet PC makes this tool less clumsy than traditional laptop computers. More specifically, the Tablet can be utilized at a note taking instrument at meeting. I have attended a number of meetings in which notes were taken with the Tablet. I then converted the notes to a PDF document and sent the PDF to faculty member who were unable to attend—this included both campus meeting and national seminars. Attached is an example of such notes (see Attachment 3- Meeting Notes).

BARRIERS TO USE

I have identified three issues that could be addressed in order to make technologies such as the Tablet PC more useful for instructors.

1) Physical Plant/Go Wireless:
Classrooms in our building (Hills South) do not have LCD projectors that are built into the classroom. While there is wireless connectivity, there lacks the infrastructure of an LCD projector that may advance the use of technology in the classroom. Additionally, the LCD projectors should be Bluetooth compatible. That is, currently the instructor is tethered to the LCD projector. Instructor interactivity often requires movement around the classroom. And, if the Tablet can be moved around a classroom from student to student, multiple users could utilize the Tablet.

2) Building Individual Capacity:
Capacity is both a matter of will and motivation as well as the development of new knowledge. Fellow faculty members were "wowed" with this technology. However, they view individuals like myself as tech savvy. I believe that being technologically comfortable and able is a matter of professional development. I could imagine that a number of my colleagues resisted converting to e-mail communication methods ten years ago. If the trends of nano and wireless technologies continue, we must provide instruction to our faculty members. In my estimation, this is a matter of both comfort and ability. If we want to see instruction in the 21st century, we must develop hands-on, on-going, and content specific training opportunities for our faculty members.

3) Organizational Coherence/Expectations:
While you cannot mandate what matters, an institution can certainly provide clear expectations for the use of technology in the classroom. Beyond the hyperbole of promoting the use of technology in instructional practices, the university as an institution must pay close attention to the Physical Plant and Individual Capacity Development it provides and offers.

SUMMARY

As technology continues to become more and more assimilated into our culture, university faculty members will need to keep pace for a number of reasons including:

1) Modeling Good Technological Use
2) Efficiency of Work (Teaching and Research)
3) Enhanced Communication with Colleagues and Students
4) Just-in-Time Instruction and Learning

However, the ubiquity of technologies themselves will not lead to meaningful and effective uses. If the true fidelity of the thoughtful, effective use of technologies- such as the Table PC- are to be realize beyond proxy measures (e.g. number of computers available, wireless capabilities in classroom), then we must consider the anchors of: 1) Physical Plant (wireless capacity and access to technologies such as Tablets and wireless projectors); 2) Building Individual Capacity (advancing one's belief and knowledge into a culture of technology for instruction), and 3) Organizational Coherence and Expectations (the need for institutional support).

In sum, the Tablet PC can have a powerful and profound impact on both teaching and learning at the graduate level of education. The form- size and wireless capabilities of this technology of this tool- along with the functionality- the interactivity components- provide a ready-made vehicle for use in the classroom. If strides are made by the institution to work with faculty members and to provide the appropriate infrastructure, undoubtedly technology can be infused into teaching in order to strike at the university's core technology: student learning.

ATTACHMENTS (3):

Attachment 1- Student Work Sample

Attachment 2- Presentation Slide

Attachment 3- Meeting Notes

Appendix 1: Writing Sample

Rost (1993) defined leadership as, "an influence relationship among leaders and followers who intend real changes that reflect their mutual purposes" (p. 102). This definition of leadership is a useful rubric – a definition is not a rubric unless you develop a matrix with parts of the definition on the x-axis and specific outcomes on the y-axis [see my diagram below]- for considering an action plan for Robin—yes, an artifact that would be useful for this paper would have been the development of a rubric based on the action plan you developed in this case study. In order for Robin to be a successful leader, he must first examine and articulate the vision, mission, and goals of the band, and make certain that goals are congruent with mission and vision. Second, Robin should broaden the notion of leadership within the band utilizing Elmore's (2000) notion of transformational leadership. Not only would such a leadership model likely prove effective it is more congruent with the organization's vision of justice. Finally, Robin and the band should continuously utilize Sergiovanni's (1984)- don't come back to Serg., you can now make such claims on your own- you have the expertise from the literature to make claims at this point. framework for continuous analysis and understanding of leadership and the organization—these three points provide a good summary. By employing the recommendations herein, Robin will be able to successfully lead his merry band to become a more successful, sustainable organization.

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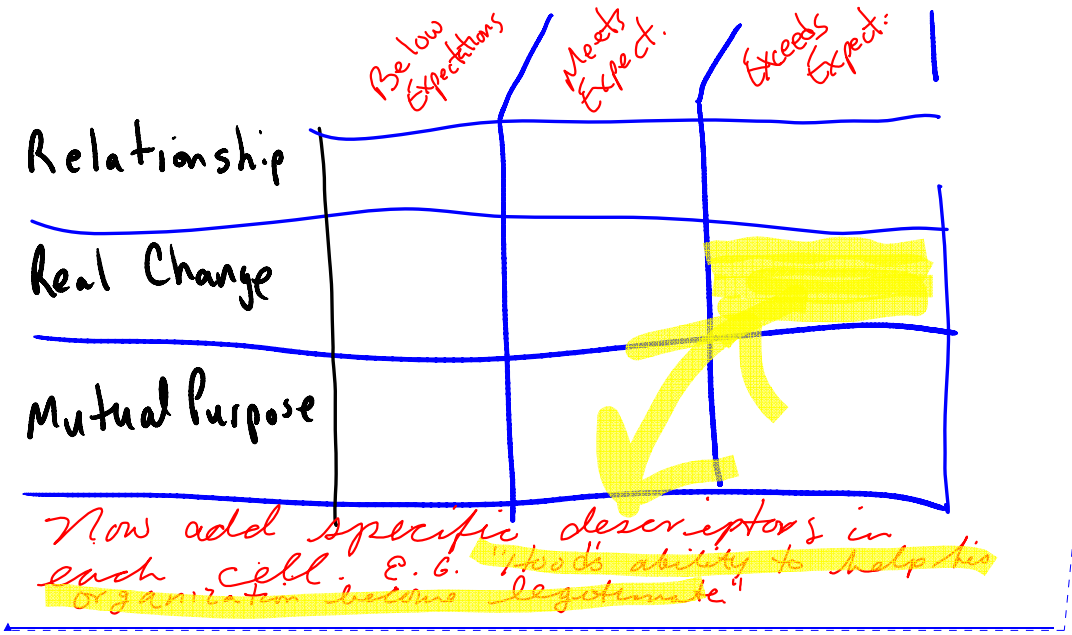

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Appendix 2- Presentation Slides Using School Data

"In God we trust.
All others bring data."

-Brad Duggan
CEO National Center
for Educational Accountability

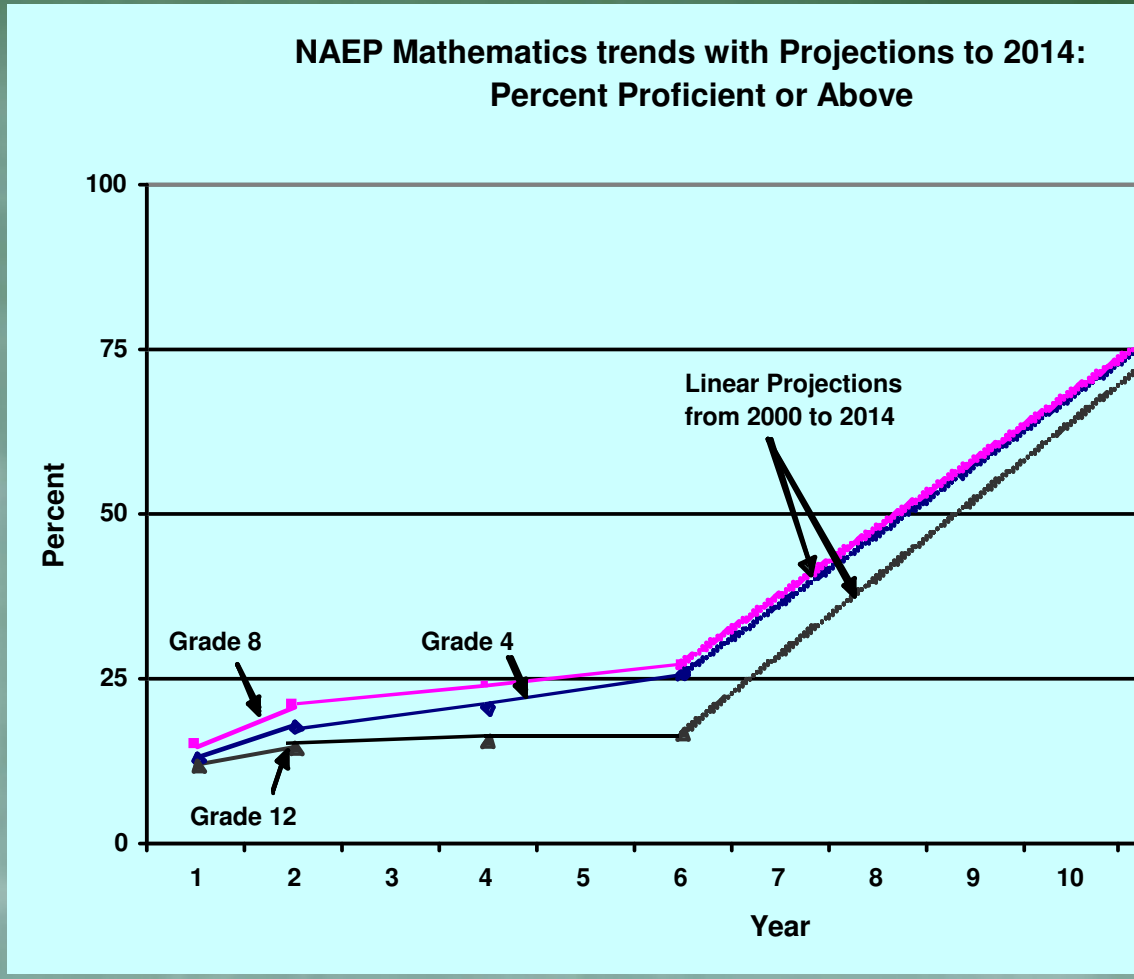
Matthew Militello
University of Massachusetts- Amherst

landates- Realistic?

4, Mathematics: 57yrs

8, Mathematics: 61yrs

12, Mathematics: 166yrs



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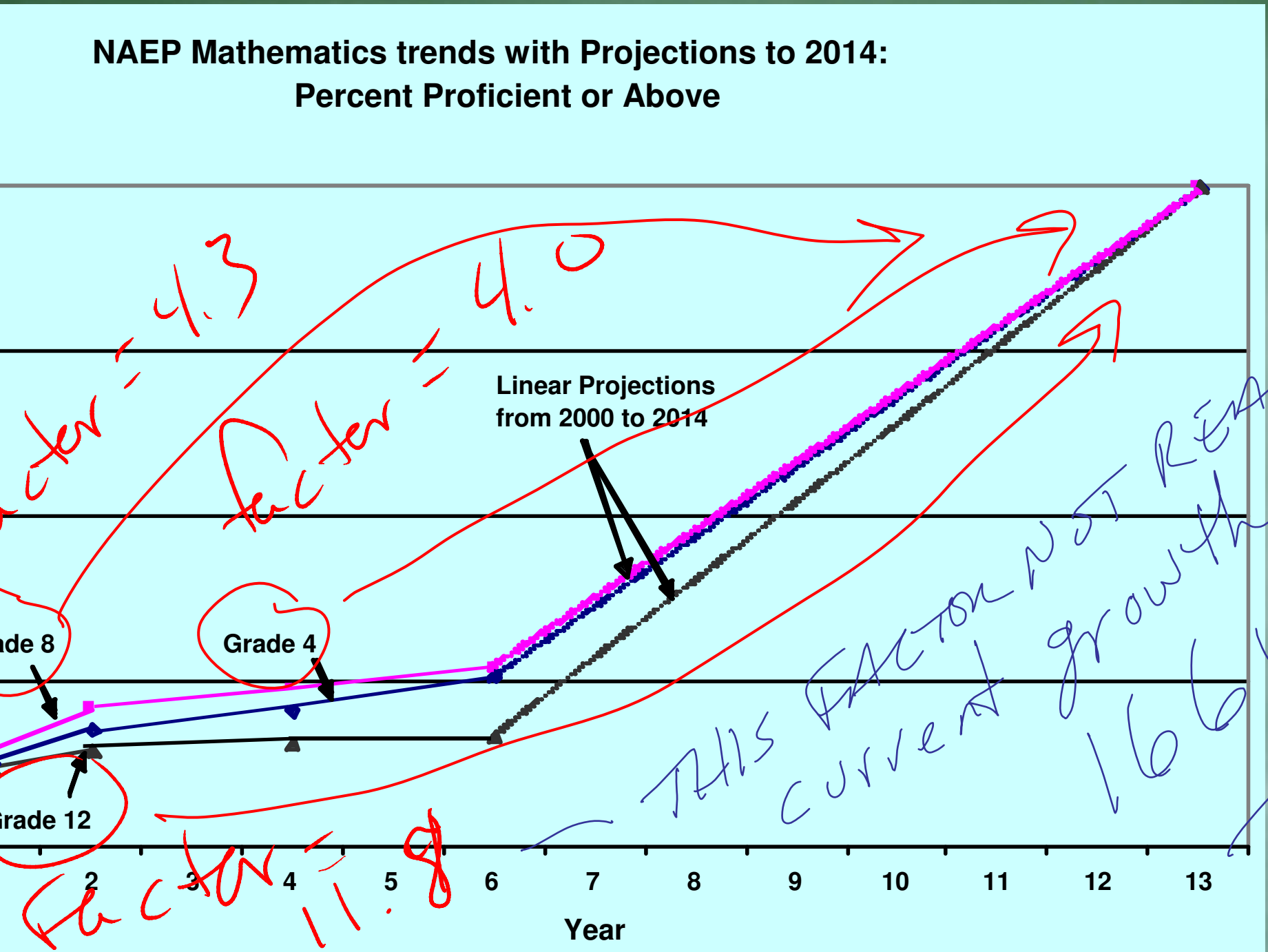
ate of improvement by factors of 4.0, 4.3, and 11.8
les 4, 8, and 12, respectively

...landates- Realistic?



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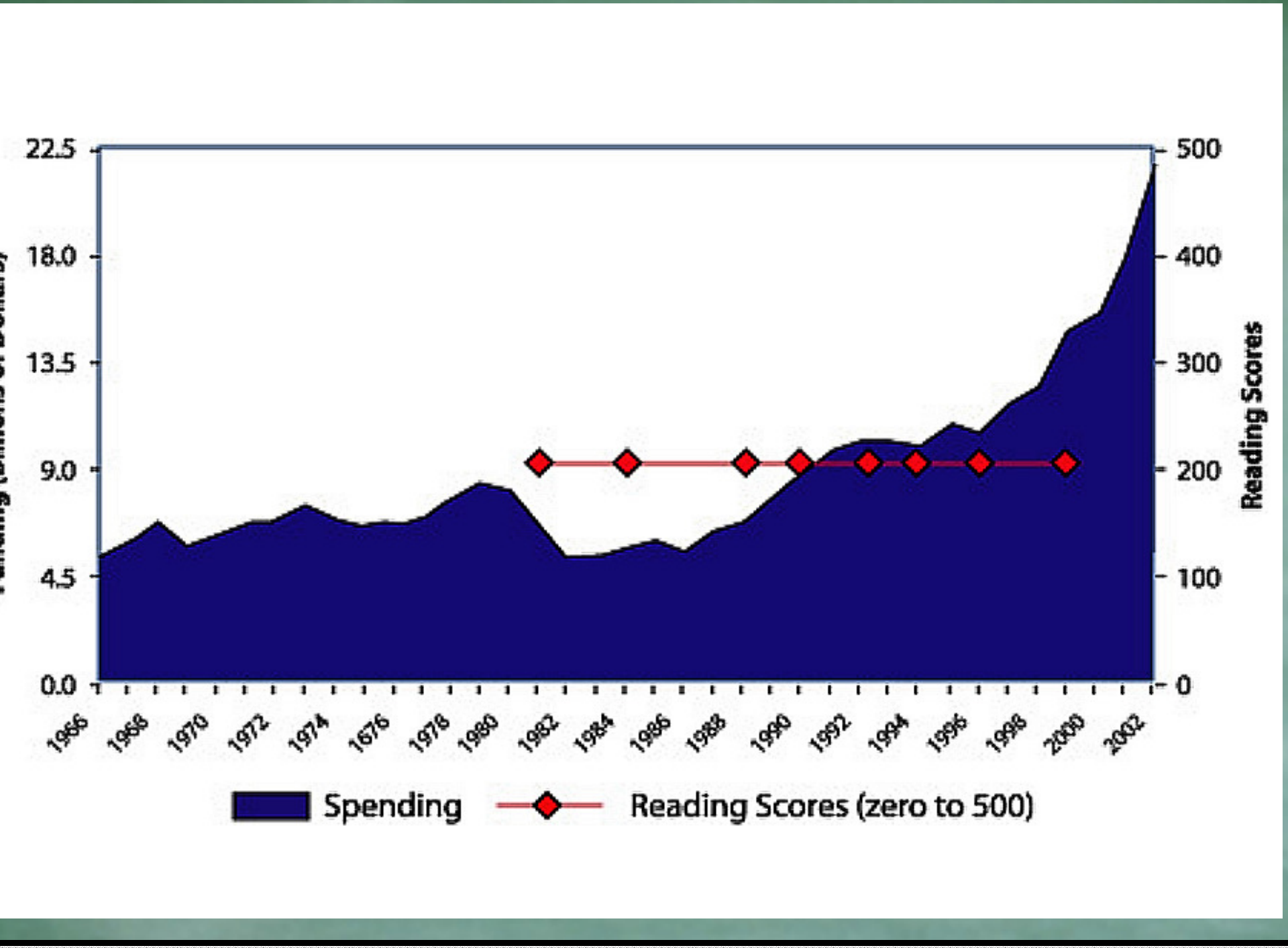

NCATE Conference

Note Title 4/27/2006

Assessments for Standards

Some Examples May Include:

Plan Instruction
Fulfill Prof. Roles
Effective Clinical Practice
Impact on Student learning
[survey]

Persistence to Performance

NCATE STANDARDS (6)

Candidate Performance
1) Knowledge, Skills, & Dispositions
2) Assessment System & Unit Evaluation

Unit Capacity
3) Field Experience
4) Diversity
5) Faculty Qualifications, Perf., & Devel.
6) Unit Governance & Resources