

NSB Commission on 21st Century Education in STEM: Implications for Higher Education

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ADVANCING SCIENCE, SERVING SOCIETY

Charge to Commission

- Improve quality of preK-16 education, both general and pre-professional
- Identify critical aspects of entry, selection, education and exploitation of full range of potential talent including addressing losses from system
- Improve mathematics and science programs, curricula and pedagogy
- Determine strategies to address quality of secondary school mathematics and science education

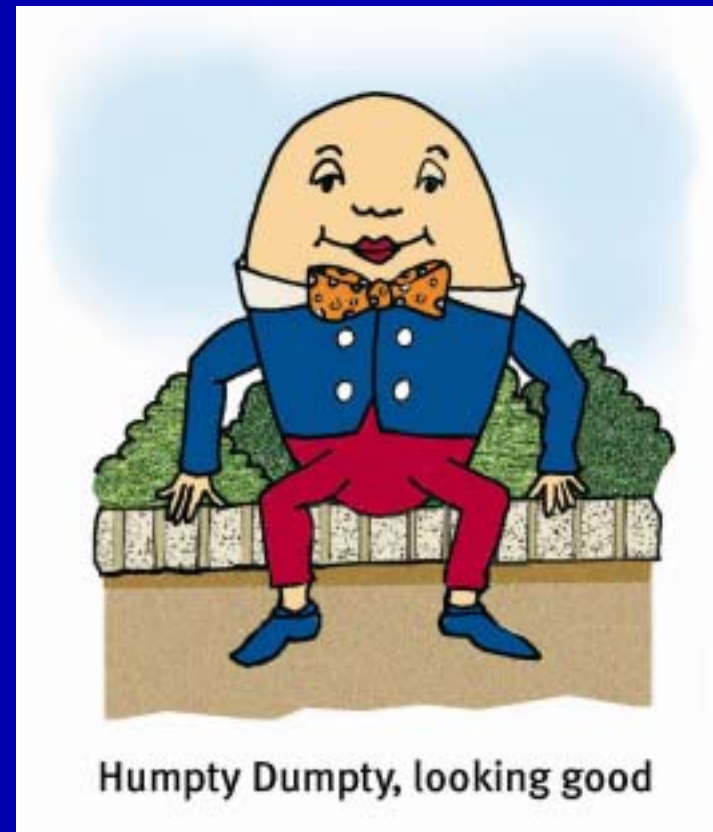
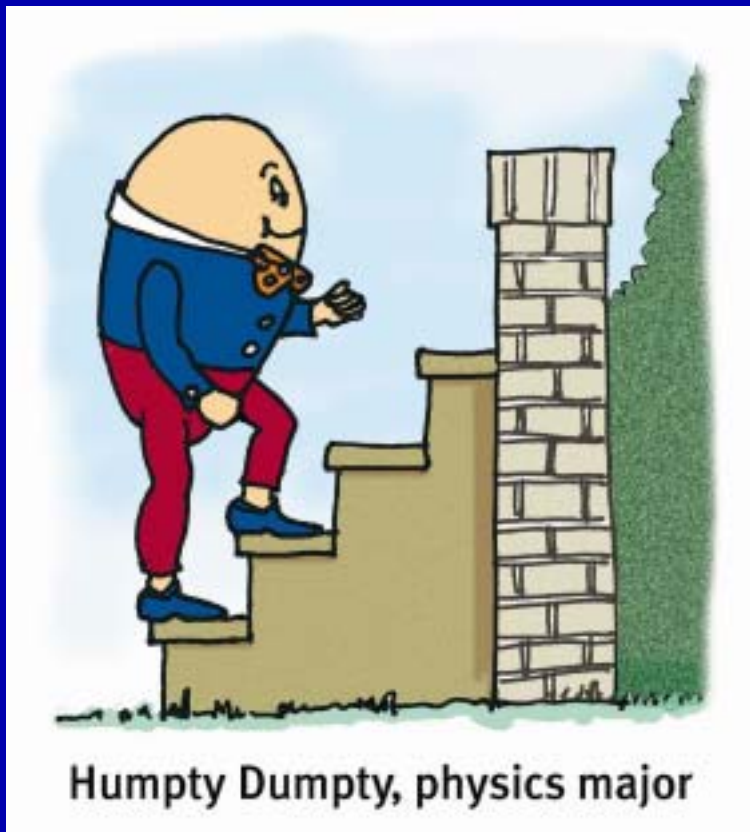
Quality of PreK-16 Education

- Education of teachers
- Professional development of teachers
- Preparation of faculty
- Quality of courses in mathematics, science and technology (what vision is communicated?)
- Articulation and alignment with community colleges
- Alignment with high school
- What vision of graduate education and its connection to careers?
- What experiences in undergraduate education to support interest and entry into graduate education?

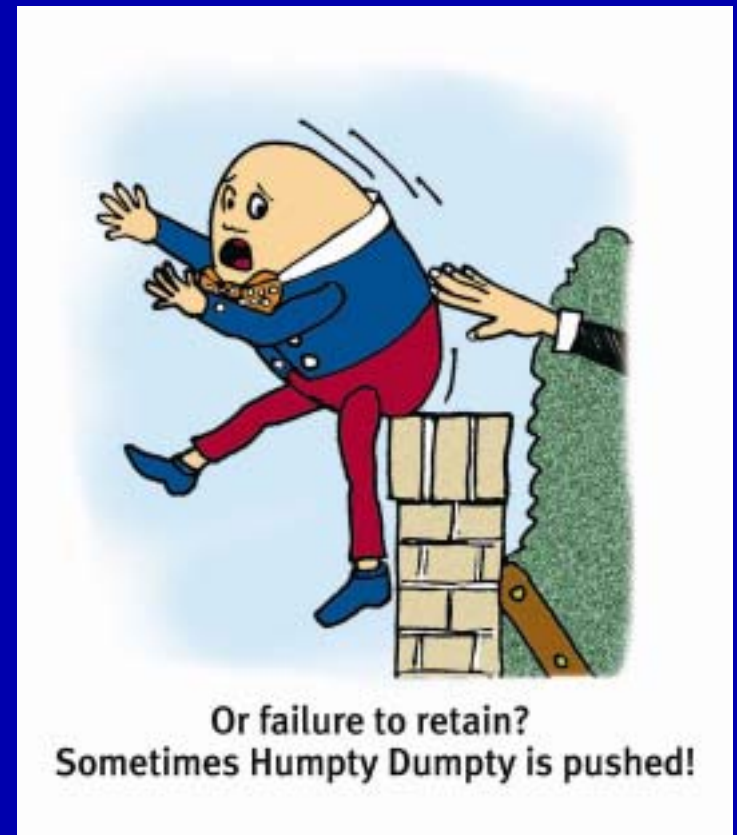
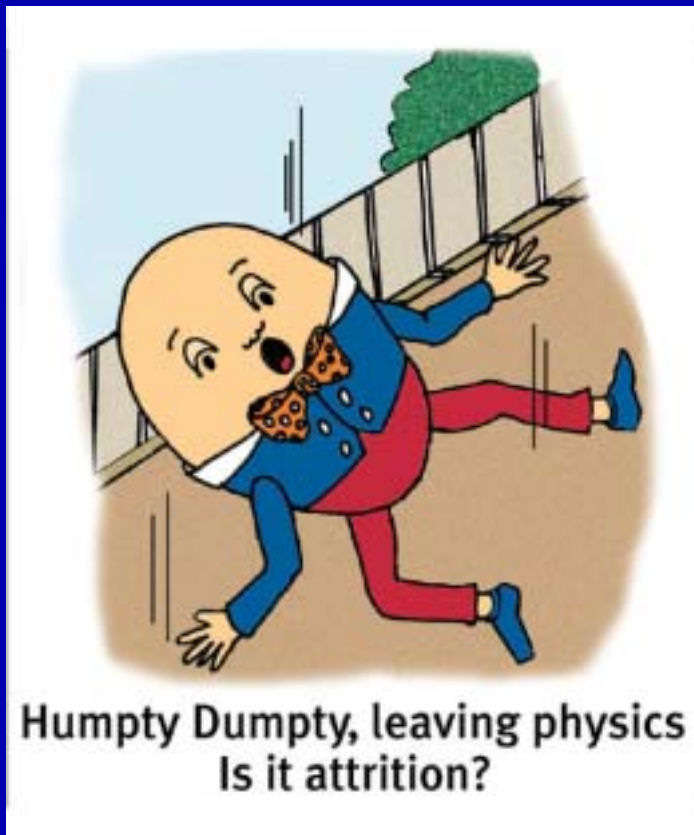
Entry, Selection, Education and Use of Full Range of Potential Talent

- All students
- Timing of recruitment
- Many pathways
- What assumptions about early experiences and education?
- Career guidance
- Curbing losses from system

Getting Students and Keeping Them



Losing Students and Pushing Them Out



STEM Curricula and Pedagogy

- What vision of the nature of science? Mathematics? Engineering? Technology?
- Teaching how to teach; teaching how to learn; learning how to learn; learning how to teach
- Standards for students; standards for teachers

Quality of Secondary School Mathematics and Science Education

- Curricular articulation
- High school teachers as colleagues, research collaborators
- Communicating the “doing” of science

All One System

- Why P-20?
- Workplace requirements
- *The World Is Flat*
- Role of experience
- “Pass-through” responsibility