



# Transitions from High School to University Physics at BYU

Steve Turley  
AAPT, Sacramento  
August 2, 2004

# Outline

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- BYU Background
- National Engagement Data
- General BYU Engagement Data
- Results of BYU Physics Focus Groups
- General Conclusions

# Brigham Young University

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- Private school sponsored by the Church of Jesus Christ of Latter-Day Saints
- Enrollment capped at about 30,000 students
- Some enrollment pressure, but most students who apply get admitted
- Principally an undergraduate focus, with a relatively small but significant graduate program
- About 100 entering physics majors each year.

# National Data

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- Academically Disengaged
- Lower Grades
- Support from peers rather than campus personnel

## Challenges

- Loneliness
- Making friends
- Finances
- Increased independence

## Trouble

- Time Management
- Partying
- Less time volunteering
- Less time in religious activities

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# Particular BYU Data

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- Sources: NSSE, Internal Surveys
- Relatively High
  - academic challenge
  - active and collaborative learning
  - supportive campus environment
- Relatively Low
  - level of student interactions with faculty
- Concerns
  - grades
  - relationships with faculty
  - balancing activities

# Physics Recruitment and Retention Survey

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- Introductory courses matter a lot (half chose major after arrival)
- Challenging material is a plus for some
- Relationships are important
  - Faculty (research experiences help)
  - Students
- Students respond to subject interest more than career motivations

# Focus Group: General Issues

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- Time management: balance, sleep, class demands
- Size of campus/classes
- Grades
  - pressure
  - scholarships
  - lower than high school
- Adjusting to unique nature of BYU
- Pressure because general level of students higher than in high school
- Mission issues (not taking first year seriously)
- Professors seem intimidating

# Focus Group: Transfer Students

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- Higher level of academic expectation here
- Adjusting to new campus culture
- Mismatch between previous courses and BYU courses
- Felt welcome to new school



# Focus Group: Physics Issues

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- Men lament having few women
- Some faced ostracism from other students who thought they were strange
- Intimidation by quality and intensity of other students
- Snob appeal from disciplinary challenge
- Amount of out-of-class time required was unexpected

# Helpful Resources

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- Peer Interaction
  - Homework labs/Commons Room
  - Majors section
  - Working together outside class (*often mentioned*)
  - Challenge creates bonds
  - Society of Physics Students
- Friendly atmosphere
- Smaller classes
  - more intimate and informal
  - professor seems more approachable
- Same professor for several classes
- Undergraduate research involvement
  - Faculty relationships
  - Putting classroom experience in context
  - Relationships with other students

# Good Teaching

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- Enthusiastic
- Sense of care
  - Students are a priority
  - Recognize students outside class
  - Know names
  - Available even outside office hours
- Obvious effort and dedication

# Advisement

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- Prefer advice from professors over College Advisement Center
  - Better career connection
  - Feel like they receive better information
  - NOTE: in fact, College Advisement Center people are knowledgeable and well trained
- Alumni expressed desire for better information about graduate school and careers.
  - Quality of resources good
  - Students did not take advantage of (or were unaware of) resources

# Conclusions

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- Importance of social environment for first-year students
  - Peers
  - Faculty
  - Advisement
- Several things promote support
  - Meeting a common challenge
  - Common interests
  - Efficiency