Trends in undergraduate education and implications for medical physics

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More people are attending college,

But...does this mean the average students of today have less aptitude than the average students of 1960?

38% proficient in reading...
College students today study less…


And many are learning very little…

"After two years of college education, 45% of students showed no statistically significant improvement in critical thinking, complex reasoning and written communication"

1. "Average" student attending college may not be as smart as they used to be.

2. Students are studying less.

3. Very limited gains in critical thinking after two years of college.

So…what has happened to average grades?

"We have credentialism to thank for the averse attitude to a good education of our youth," says sociologist D. F. Labaree, historical sociologist of Yale University Press.

The workforce requires approximately 1 million more STEM professionals than the U.S. will produce at current rates. Council of Advisors on Science and Technology.

How can we do better?

“Flipping the classroom”
“Active learning”
“Project based education”
“Just in time teaching”

Flipping the what?
Teacher explains content in class → You go home and try and figure out what it means

Content delivered at home → You come to class and try and figure out what it means

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**SCALE-UP**

**Mechanics Pre-Post Diagnostics**

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**SCALE-UP**

**E & M Pre-Post Diagnostics by Class Ranking**
These concepts are already being applied in MP... So... there are things we can do to improve student learning... But why bother being a good teacher?
Which of the following are very important for academic promotion?

“Higher grades do lead to better course evaluations”
And:
“Student course evaluations are not very good indicators of how much students have learned.”


- Very limited learning on college campuses
- Increasing competition for STEM graduates
- Active teaching strategies can make a difference
- What are the implications of this culture for Medical Physics?

Thank you