

BECAUSE WE TEACH ...

Computing Education: A Journey Continues

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BECAUSE WE TEACH...

Preaching to the choir...

- Many people in this room are at least as well qualified as I to give this talk...



BECAUSE WE TEACH ...

... or a "prophet" in her own neighborhood

- People here include
 - family
 - students
 - colleagues from my department
 - those who mentored me
 - and a lot of very special friends
- At least one has promised to laugh at (not with) me...



BECAUSE WE TEACH...

A journey described

- In the early days
- and back again
- moving off the stage
- knowing our students
- knowing where to turn
- traveling companions
- The Joy of SIGCSE



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Things have changed

- Do you remember...
 - carefully working through the topics in the text for that day's lecture
 - filling in all the things the author left out
 - writing an expanded version of the text on the board
- Did it ever happen to you:
 - Just as you are about to leave for class, you realize you have no clue about how this works?

The stuff of nightmares

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The challenge

- Don't let the students know you are human
- After all, you are

the sage on the stage



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But that's all changed now

- Someone noticed that the person who was learning the most under that system was the teacher
 - the one who was carefully working through it all and figuring it out for ourselves
- If our students would do that, would they learn more?
- Would they still need us?

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Why did we?

- Why did we do things that way?
- Partly, because the field was young and there were not enough of us
 - we did not have the luxury of teaching only our individual specialties and favorite subjects
 - we filled in and made do and struggled with subjects we were learning just a little faster than our students

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Or has it?

- Recent posting on the SIGCSE list:
 - I teach <topic deleted, could have been any of a number of things> and, like many of you, I have no formal training in the area.
- The field is not so young, but once again there are not enough of us and we have to fill in where needed.

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Teach thyself ?

- Shall we solve the faculty shortage problem by pointing our students to all the wonderful books and web pages we rely on?
- Can our students learn it all by themselves and put us out of work?
- Of course they can!
 - There have been successful stories of self taught paragons throughout history
- Some can, but most will not.

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Not quite the same

- The teacher does start out with an advantage
 - years of prior study and experience
 - successful completion of other courses that give a perspective to the current topic
 - successes and failures in applying the related knowledge
- We have a head start

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We've learned

- We have learned, though, that we are the real learners when we work at acquiring new knowledge
- Whether the subject is our specialty or a challenge to our understanding
 - We cannot just pour the knowledge we obtain into even open minds



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- knowing when and how to contribute to help others
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BECAUSE WE TEACH ...

A new role

- No longer the sage on the stage
- Now we must be
(all together now)
the guide on the side



So you want to be on stage

- I have a theory
 - people who love to teach are often people who like to be on stage, the center of attention
 - (I'm not saying that's bad, just noticing the relationship.)
- The guide on the side is not on stage; it is a different sort of role. That's one reason it is hard for some of us.

Guiding

- Helping students learn
 - Lectures are the most efficient ways to convey some kinds of information
 - Active learning puts the responsibility of organizing what is to be learned in the hands of the learners themselves, and ideally lends itself to a more diverse range of learning styles. [1]

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A new role

- If we are not satisfied with standing in front of a class and delivering a carefully prepared recitation of fact,
- we have to come down off the pedestal, down from the stage, stand beside our students and help them help themselves



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Not easy

- It is not easy to change directions
- I still prepare detailed lectures
 - and post links to the slides on the course web page
- Progress
 - Scheduled in-class activities
 - News articles
 - Role playing
- A long way to go

Some little things

- Portfolios
 - emphasizes accumulation of accomplishments;
continuity
- Reading Summaries
 - a simple way to ensure preparation for class
discussions

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Know our students

- When we lose distance, we come into contact with our students as individuals
- If we are involving ourselves directly with their success or failure, we need to know who they are
 - not the personal details, but what defines them



Generations

- There is a theory that each generation is like an earlier one and that the characteristics repeat in a predictable pattern:
 - Prophets/Idealists
 - Nomads/Reactives
 - Heroes/Civic
 - Artists/Adaptive
- About 20 years each

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Hero/Civic

- as children, good
- coming of age -- empowering
- young adulthood -- building
- midlife -- energetic to hubristic
- leadership style -- collegial, expansive
- as elders - powerful, rewarded
- + selfless, rational, competent
- - unreflective, mechanistic, overbold
- ->community, affluence, technology

BECAUSE WE TEACH ...

Artist/Adaptive

- as children, placid
- coming of age -- unfulfilling
- young adulthood -- improving
- midlife -- conformist to experimental
- leadership style -- pluralistic, indecisive
- elders - sensitive, liked
- + caring, open-minded, expert
- - sentimental, complicating, indecisive
- -> pluralism, expertise, due process

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Prophet/Idealist

- as children, spirited
- coming of age -- sanctifying
- young adulthood -- reflecting
- midlife -- detached to judgmental
- leadership style -- righteous, austere
- elders - wise, respected
- + principled, resolute, creative
- - narcissistic, presumptuous, ruthless
- -> vision, values, religion



BECAUSE WE TEACH ...

Nomad/Reactives

- as children, bad
- coming of age -- alienating
- young adulthood -- competing
- midlife -- frenetic to exhausted
- leadership style -- solitary, pragmatic
- elders - tough, abandoned
- + savvy, practical, perceptive
- - unfeeling, uncultured, amoral
- -> liberty, survival, honor

BECAUSE WE TEACH ...

Some recent examples

- GI generation (b. 1901-1924) - hero/civic
- The Silent generation (b. 1925-1942) - Artist/adaptive
- The boomers (b. 1943-1960) - Prophet/Idealist
- Generation X (b. 1961-1981) - Nomad/Reactive

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Millennials or Generation Y

born 1982 -200? -- hero/civic

- as children, good?
- coming of age -- empowering?
- young adulthood -- building?
- midlife -- energetic to hubristic?
- leadership style -- collegial, expansive?
- as elders - powerful, rewarded?
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What to expect

- Theirs is the role of pillar of society. They become powerful midlifers and develop society in their image and build its institutions. As elders they come under attack by the midlife Idealist after the next spiritual event.
- Personality: good youth, confident elders, grand, powerful, rational and competent but maybe insensitive. [3]

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But who are they now?

- Relate to their parents
- Doers and achievers - accelerated courses, extra effort
- Consumers - with their own money to spend in large quantities
- Technology veterans
- Diverse population
- Service activities
- 70+ million



BECAUSE WE TEACH ...

They want to know

- What do I have to do to succeed in this?
 - What does it take to get an A?
 - I just need to pass this course; what do I have to do?



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BECAUSE we teach ...

We teach

- To Teach:
 - to cause to know something
 - our desired outcome
 - to guide the studies of
 - how we get there



BECAUSE WE TEACH...

Emphasis on Assessment

- Accountability
 - We demand it of our students
 - It is an appropriate concern for us as well
- How do we know how well we are accomplishing our goals?
 - Do we know our goals?
 - Do we recognize them when we achieve them?

BECAUSE WE TEACH...

Teachers & Students

- I don't believe that students are customers
- They are students and we are teachers. We don't need other words than those.
- Our responsibility is to provide guidance and inspiration and an atmosphere conducive to learning.



BECAUSE WE TEACH ...

Accreditation

- Professional programs do accreditation.
- Sciences rarely do.
- Arts programs never do.
- It is one element of our identity crisis.



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Sharing

- CSTC
- JERIC
- Computer Science Journal
- Distributed Expertise
- SIGCSE links
- SIGCSE Symposium
- ITiCSE
- Australasian Conference



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BECAUSE we teach...

The Joy of SIGCSE

- 20 years
 - for me; more for others
- It still works
- Welcome the first timers
- Renew the old timers
- Share the wealth
- Thank you!



References

- Active Learning:

[1] <http://edweb.sdsu.edu/people/bdodge/Active/ActiveLearning.html>

- Generations

[2] Strauss, William and Neil Howe *The Fourth Turning, an American Prophecy* Broadway Books 1997. See also <http://www.fourthturning.com/html/>

- Timelines/types

[3] <http://www.timepage.org/types.html>

- These slides, for anyone interested, will shortly be posted on my web page: www.csc.villanova.edu/~cassel