

Teaching

(in an Academic Environment)

Peter Brusilovsky

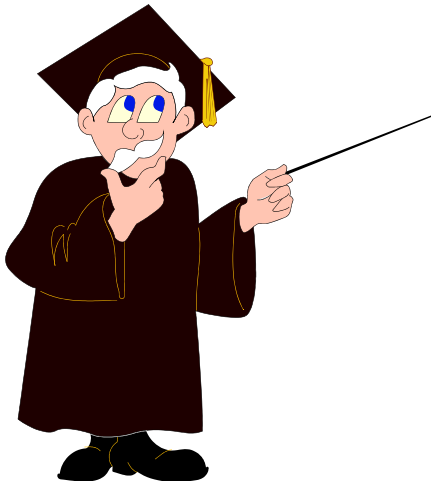
with slides based on the lecture of Marek Druzdzel

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Overview

- **Why do we want to teach well?**
- **A statement of teaching philosophy**
- **Teaching effectiveness**
- **How to do teaching well?**
- **Teaching resources/technology**
- **Concluding remarks**



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Why do we want to teach well?

“I know it seems crazy when everyone else in the world wants to be a film director, but for me, teaching is one of the few heroic jobs left. All the biggest miracles take place in classrooms. Nothing happens without teachers.”

**Stephen Frears
(British film director)**



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Why do we want to teach well?

- You will feel proud to follow your students' achievements.
- Your students are learning from you more than you would like.
- The most important factor affecting student learning is the quality of teaching.

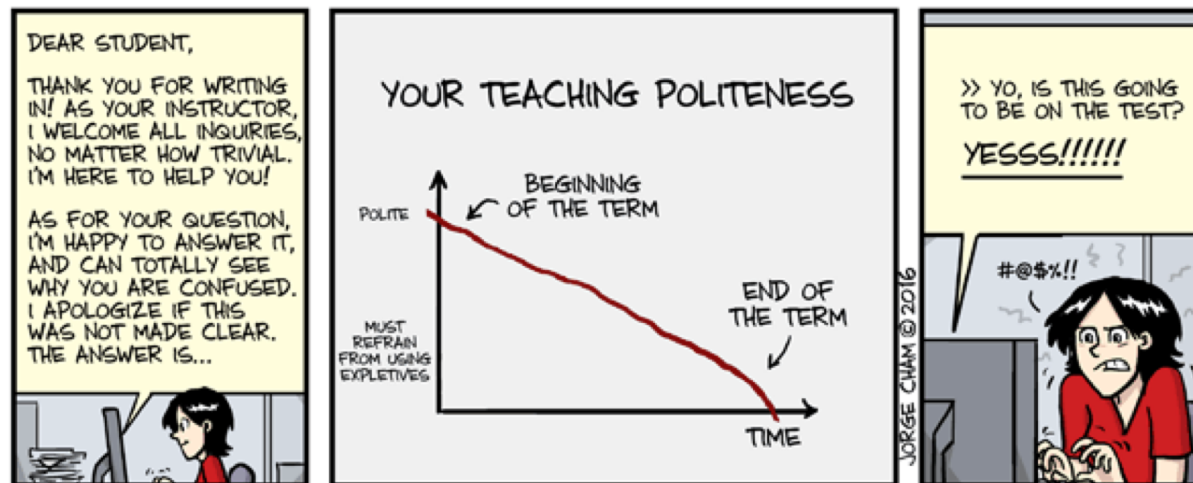
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The importance of motivation

- There should be something that motivates you, something more than a salary or a perspective of tenure.
- What, to you, are the rewards of teaching?
- What ideals keep you motivated and inspire your students?
- How do you want to make a difference in the lives of your students?

Piled Higher and Deeper by Jorge Cham

www.phdcomics.com



title: "Your Teaching Politeness" - originally published 4/13/2016

Why do we want to teach well?
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Your statement of teaching philosophy

- a.k.a. “Reflective statement on teaching goals and approach”
- Documents your approach to teaching.
- Required in most teaching evaluations and in many job applications.
- Answers the question “Why do I teach?”
- Try to write one now!

Your teaching philosophy: Contents

- What is “good teaching?”
- What motivates me to teach?
- What do I expect the outcome of my teaching to be?
- How do I know that I have taught successfully?
- What themes pervade my teaching, what habits, attitudes, or methods make my teaching effective?
- What is my interaction with students?
- How do my students best learn?
- Why is my teaching approach significant?
- What values do I want to impart on my students?
- What is it that I believe?
- **What kind of person/teacher am I?**

**Your teaching philosophy:
“Who am I as a teacher?”**

"If we expect students to be winners and expect them to do well, they will rise to the occasion." – Jaime Escalante

"We can talk all we want about awards and salary raises, but the real reward of teaching is teaching. The personal satisfaction you get when you do it effectively is just phenomenal." – David W. Pratt

How do we assess effectiveness of teaching?

- **Inputs**, that is, what teachers *do*, how well they do the work of teaching.
- **Outputs**, that is, what teachers *accomplish*, typically how well their students learn.

Effectiveness of teaching: Inputs

1. Preparation and content

Identifying objectives and deciding course content

Designing learning activities

Classroom policies and procedures

A syllabus's silent message

Communicating structure

2. Engaging students/Stimulating student thought and interest

Your questions: Do they make your students think?

Discussions, group work, collaborative learning

Teaching to stimulate and motivate

Effectiveness of teaching: Inputs

3. Making the subject matter comprehensible for the students (Explaining clearly)

How to know when you are not clear and they don't understand

Making the content relevant

Examples: The case in point that makes it clear

4. Knowledge and love of content

Is "more" "better" when it comes to content?

How do you convey knowledge? Is knowing the material enough to teach effectively?

5. Developing as a teacher

Professional growth (e.g., seminars or courses focusing on teaching, use of teaching resources)

Effectiveness of teaching: Outputs

Assessing student learning

Exams, written work, projects, presentations, and performances

Assessing your teaching:

Communication and feedback: from your students and your colleagues

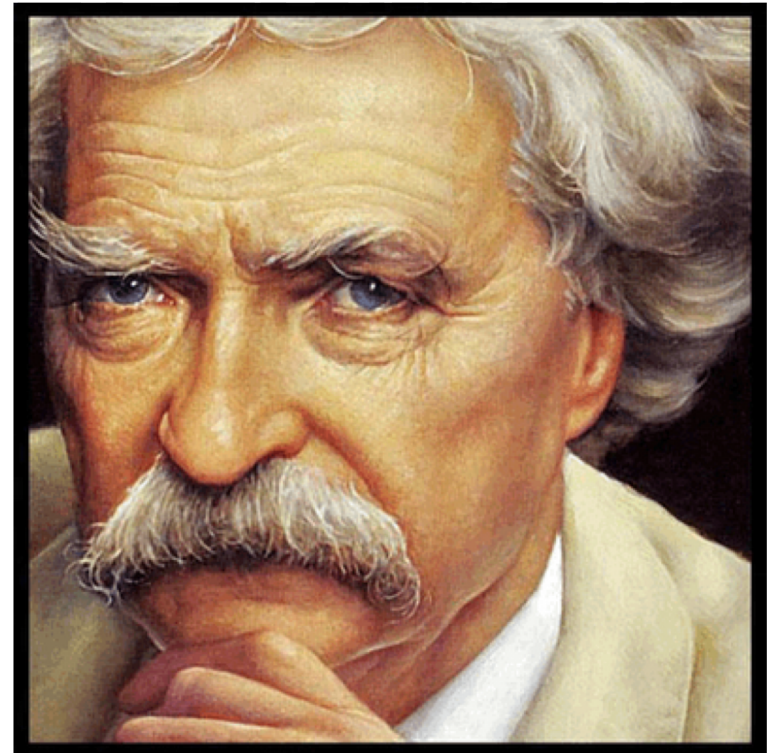
Sherman, T. M., et al. (1986). “The Quest for Excellence in University Teaching”. *Journal of Higher Education* 48(1): 66-84.

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An ironic quote (what teaching should not be like)

“College is a place where a professor's lecture notes go straight to the students' lecture notes, without passing through the brains of either.”

Mark Twain



http://en.wikipedia.org/wiki/Mark_Twain

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An inspiring quote (what teaching should be like)

“The mind is not a vessel that needs filling, but wood that needs igniting.”

Plutarch (from Ian Kidd's translation of *Essays*)



Ta sage instruction sert de riche couronne
A Trajan, esleué par dessus tous humains.
Si les grands te portoient au cœur & dans leurs mains,
Vertu viuroit au lieu de Venus & Bellone

<http://en.wikipedia.org/wiki/Plutarch>

What is knowledge?

- **“To know is to apply whenever appropriate” (I have learned this definition from Herb Simon).**
- **Teach understanding and usefulness of the material.**
- **Start designing your course from the goal: What do you want your students to know?**

Principles of instruction (Yelon, 1996)

- **Meaningfulness/Prerequisites** (*Context*)
- **Open Communication** (*Relationships*)
- **Organized, Essential Ideas** (*Main Points*)
- **Learning Aids** (*Technology*)
- **Active Practice** (*Applying Information*)
- **Safe Spaces/Encouraging Places** (*Feeling*)
- **Consistency** (*Dependability*)

Do you consider these Principles when designing a course? When Teaching it?

Elements of psychology of learning

- You cannot not study psychology if you want to be a good teacher.
- People come in different shapes, colors, and sizes 😊.
- Some people prefer facts, others relationships, others deductions (start from general principles), yet others inductions (start from examples).
- People learn differently depending on the context.
- Hard to imagine but very true: Some people do not learn best the way you did learn yourself.
- There is no best way to teach/learn: Good teachers use a variety of methods.

Elements of psychology of learning

- **People gain new knowledge by relating it to their existing knowledge: The most effective teachers relate new materials to the students' knowledge.**
- **The same holds for examples: Good teachers illustrate theoretical points and make them more digestible.**

Elements of psychology of learning: Importance of interaction

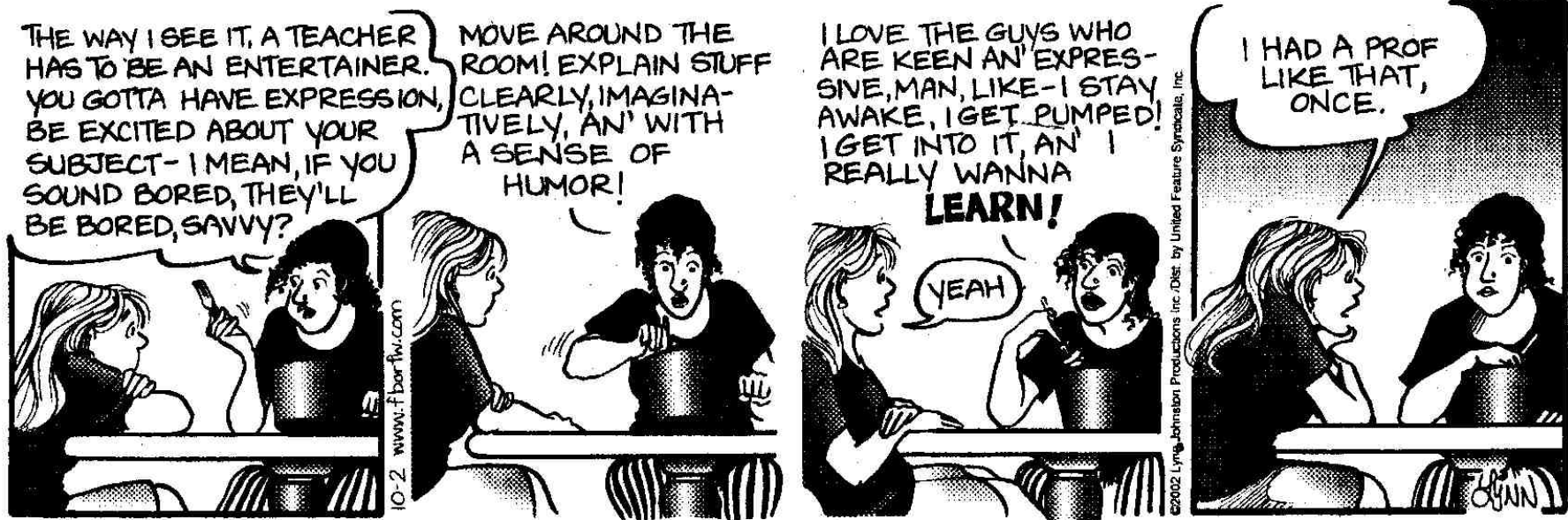
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- **Never lose contact with your classroom: Encourage questions, ask questions yourself.**
- **Use every opportunity for contact with the classroom (this includes the time before, after the class and the break).**
- **Learn to handle questions well!**
- **“Pregnant pause”:** Wait long enough (30 seconds?) until providing the class an answer to your question.
- **Some people learn most from interactions with other people – consider group work (make the groups as heterogeneous as possible!).**
- **Research indicated that some cultural groups (e.g., Asians) are more efficient in learning than others because of group work and interactions.**

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Becoming a great teacher

FOR BETTER OR FOR WORSE



Where to start (becoming a good teacher)?

If you were to walk into a classroom, what might you see or hear there (from the students as well as the teacher) that would cause you to think that you were in the presence of an expert?

What would make you think: *“Oh, this is good; if I had a child this age, this is the class I would hope for.”*

Consider your long life as a student. Recall an occasion (or a pattern of occasions) that you still remember. The memory can be either positive or negative.

What makes this so memorable?

Where to start (becoming a good teacher)?



**“People will forget what you said.
People will forget what you did.
But they will never forget how you
made them feel”**

Maya Angelou
(American writer and poet)

How do we do it well?

Most of student learning happens at home, so your classroom meetings are mean to:

- **Structure the material**
- **Show relevance to the student needs**
- **Motivate the students, make them enthusiastic about the material**
- **You cannot make the students enthusiastic about the material if you are not enthusiastic yourself!**
- **Create and maintain enthusiasm!**

Dealing with student dishonesty

- **Do not tolerate it! The students whom you are teaching today will be:**
 - **Your colleagues**
 - **Your workers**
 - **Your compatriots**
 - **Your congressmen, senators, presidents**

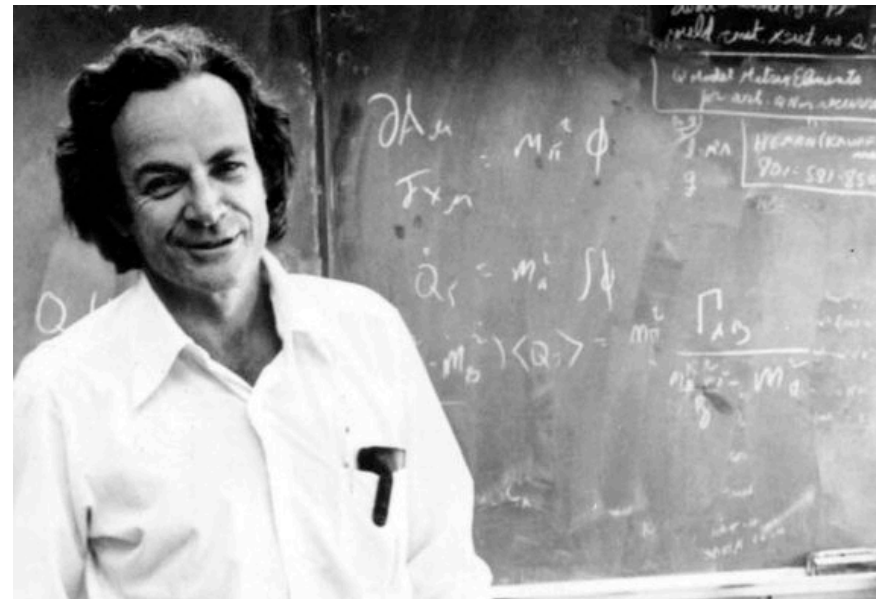
... in the future
- **Do you want them to learn that dishonesty pays?**

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How do you combine teaching and research?

- The two can support each other
- It is easy for a beginning teacher to spend too much time on preparing lectures: Plan and limit the time.

"I don't believe I can really do without teaching." –
Richard P. Feynman



Richard Feynman teaching at Cornell University. Credit: **Briola Giancarlo**

“Parkinson's Law”

“Work expands so as to fill the time available for its completion.”

(Attributed to Cyril Parkinson)

When facing a task, it sometimes works to set yourself a time limit for it

How can technology help?

- **Use full functionality of your LMS (Canvas)**
- **Course materials on the web.**
 - **Additional readings**
 - **Rich practice content: examples, problems, exercises**
- **Recording your lectures and making them available online**
- **AI-based technologies in education**
 - **Adaptive learning, ITS, peer technologies**
 - **Pitt is a leader in this field, learn from the top experts!**

Resources for teaching

- **University of Pittsburgh's CTL (Center for Teaching and Learning)**
 - **Rich library of examples of teaching materials**
 - **Experts that you can meet with and that you can invite to your classes**
 - **Opportunity to videotape your lectures**
 - **Lunch-time talks and workshops**
- **Your colleagues: You can invite them to sit your classes and give you feedback.**
- **Literature on teaching**

Resources for teaching: Courses

DESIGN OF EDUCATIONAL SYSTEMS PSY 2477

What is the origin of innovative educational solutions? It involves a systematic and systems-oriented approach to design. This class takes on real educational design problems from the Pittsburgh community (schools, museums, universities, companies). Students work in teams to develop innovative solutions to these problems, and learn about systematic and systems-oriented educational design. The teams are interdisciplinary, as good educational design teams must be, and the course welcomes doctoral students from all areas. Students are assigned to projects as a function of experience and interest. This year, the focus will be on equity in online instruction. To help recruit relevant clients, it would be very helpful if interested graduate students would let me know about their preferences for intervention contexts

LSAP 3595 Learning / PSY 2470 Skill Acquisition

- What are the foundational theories from psychology and the learning sciences for how learners become (more) expert-like in a discipline? What are the major debates in the field? This course provides a framework for understanding the landscape of theories while connecting this understanding to particular research efforts students are currently planning to start or extend. In design efforts, theories of action depend upon these foundational theories. In research efforts, understanding why interventions or inequities of access influence outcomes requires use of such theories. Writing will be a focus skill, with an emphasis on (grant) proposal writing. Students across disciplines are welcome.

Christian Schunn, Professor of Psychology and of Learning Sciences and Policy
(schunn@pitt.edu).

Concluding Remarks

- **You cannot teach everything in a department – then choose what you teach carefully.**
- **The best idea, it seems to me, is to teach what you know best.**
- **Try to integrate your teaching and your research – you will do both better. NSF will like it too!**
- **Obtaining research funding will help you in teaching – you can hire your students as research assistants. This includes undergraduate students.**