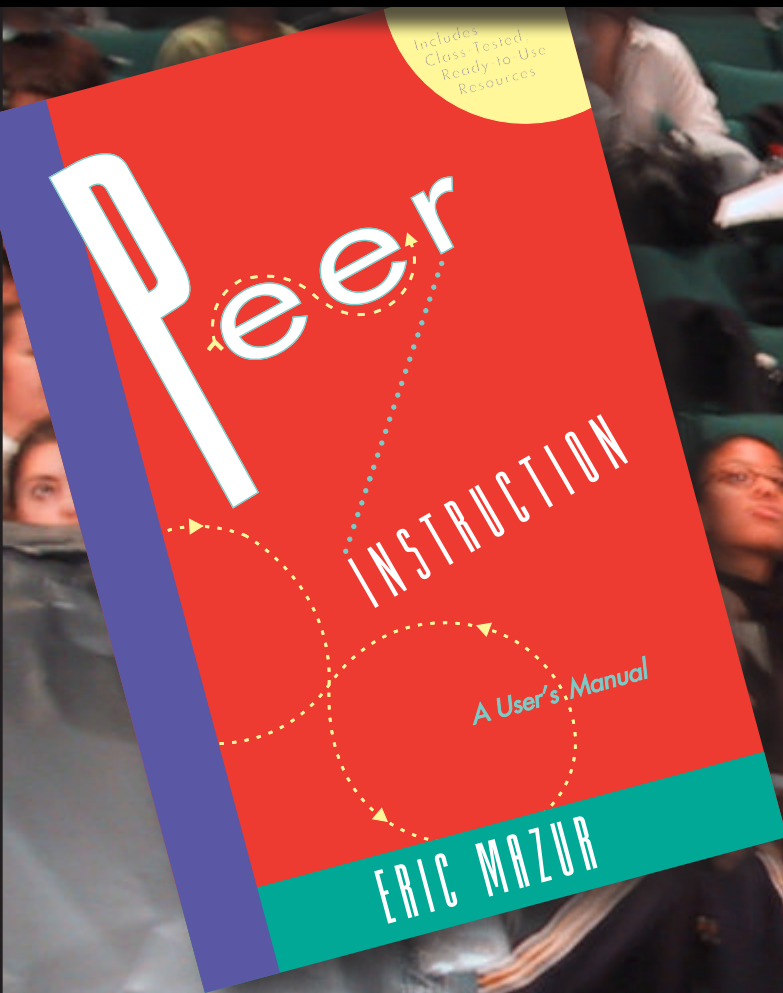


Disseminating Curriculum and Pedagogy: Peer Instruction



2009 AAPT Winter Meeting
Chicago, IL, 14 February 2009



What strategy?

Outline

- Past

- Present

- Future

Past

Teaching @ harvard

Sep 1984



1985

1986

1986

1987

1988

1989

Past

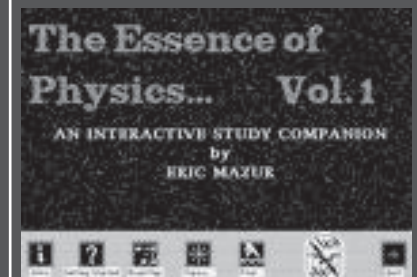
Teaching @ harvard

Sep 1984



Essence

Dec 1988



1985

1986

1986

1987

1988

1989

Past

FCI
Sep 1990

1990

1991

1992

1993

1994

1995

Past

Peer Instruction

Sep 1991



FCI

Sep 1990

1990

1991

1992

1993

1994

1995

Past

Peer Instruction

Sep 1991



FCI

Sep 1990

NSF CCLI

Dec 1991



1990

1991

1992

1993

1994

1995

Past

Peer Instruction

Sep 1991



FCI

Sep 1990

NSF CCLI

Dec 1991



1990

1991

1992

1993

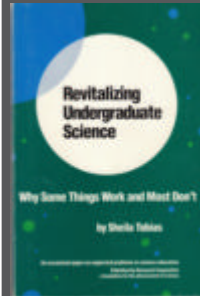
1994

1995

Past

Tobias

May 1992



Peer Instruction

Sep 1991



FCI

Sep 1990

NSF CCLI

Dec 1991



1990

1991

1992

1993

1994

1995

Past

FCI

Sep 1990

Peer Instruction

Sep 1991



NSF CCLI

Dec 1991



Tobias

May 1992



NSF

June 1992



1990

1991

1992

1993

1994

1995

Past

FCI

Sep 1990

Peer Instruction

Sep 1991



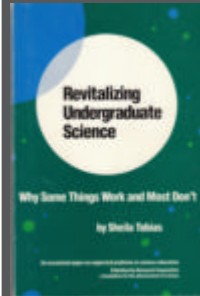
NSF CCLI

Dec 1991



Tobias

May 1992



NSF

June 1992



Video

Sep 1992



1990

1991

1992

1993

1994

1995

Past

FCI

Sep 1990

Peer Instruction

Sep 1991



NSF CCLI

Dec 1991



Tobias

May 1992



NSF

June 1992



Video

Sep 1992



RPI

May 1993



1990

1991

1992

1993

1994

1995

Past

FCI

Sep 1990

Peer Instruction

Sep 1991



NSF CCLI

Dec 1991



Tobias

May 1992



NSF

June 1992



Video

Sep 1992



RPI

May 1993



ClassTalk

Sep 1993



1990

1991

1992

1993

1994

1995

Past

FCI

Sep 1990

Peer Instruction

Sep 1991



NSF CCLI

Dec 1991



Tobias

May 1992



NSF

June 1992



Video

Sep 1992



RPI

May 1993



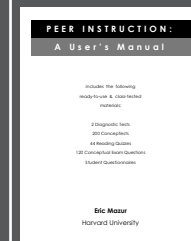
ClassTalk

Sep 1993



Manual

Mar 1994



1990

1991

1992

1993

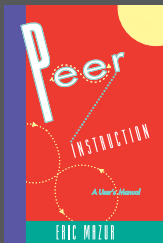
1994

1995

Past

PI Manual

May 1996



1996

1997

1998

1999

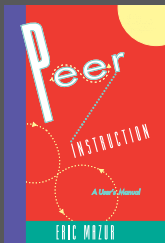
2000

2001

Past

PI Manual

May 1996



Project Galileo

May 1997



1996

1997

1998

1999

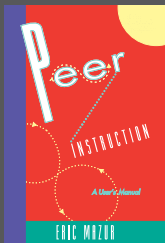
2000

2001

Past

PI Manual

May 1996



Project Galileo

May 1997



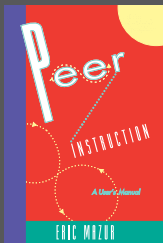
AAPT NFW

Oct 1997

Past

PI Manual

May 1996



Project Galileo

May 1997



Boyer Report

Apr 1998



AAPT NFW

Oct 1997

1996

1997

1998

1999

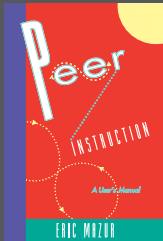
2000

2001

Past

PI Manual

May 1996



Project Galileo

May 1997



Boyer Report

Apr 1998



PRS

Sep 1999



AAPT NFW

Oct 1997

1996

1997

1998

1999

2000

2001

Past

ME03

Monday 10:15 am, H-Truffles

Project Galileo

May 1997



Boyer Report

Apr 1998



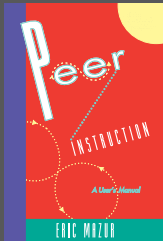
PRS

Sep 1999



PI Manual

May 1996



AAPT NFW

Oct 1997

1996

1997

1998

1999

2000

2001

Past

ME03

Monday 10:15 am, H-Truffles

Project Galileo

May 1997



Boyer Report

Apr 1998



PRS

Sep 1999



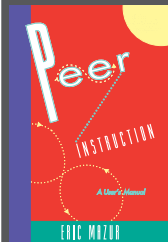
Chemistry

2000



PI Manual

May 1996



AAPT NFW

Oct 1997

1996

1997

1998

1999

2000

2001

Past

ME03

Monday 10:15 am, H-Truffles

Project Galileo

May 1997



Boyer Report

Apr 1998



PRS

Sep 1999



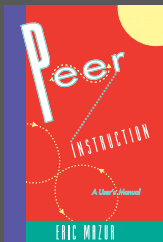
Chemistry

2000



PI Manual

May 1996



AAPT NFW

Oct 1997

PI survey

2001

1996

1997

1998

1999

2000

2001

Past

DTS Award

Nov 2001

2002

2003

2004

2005

2006

2007

Past

DTS Award

Nov 2001

Astronomy

2002



2002

2003

2004

2005

2006

2007

Past

DTS Award

Nov 2001

Astronomy

2002



DVD proposal

Mar 2002



2002

2003

2004

2005

2006

2007

Past

DTS Award

Nov 2001

Astronomy

2002



DVD proposal

Mar 2002



2002

2003

2004

2005

2006

2007

Past

DTS Award

Nov 2001

Astronomy

2002



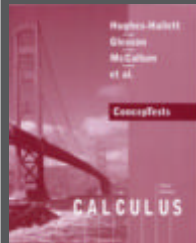
DVD proposal

Mar 2002



Calculus

2003



2002

2003

2004

2005

2006

2007

Past

DTS Award

Nov 2001

Astronomy

2002



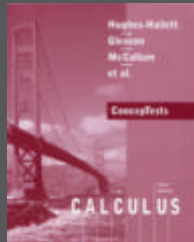
DVD proposal

Mar 2002



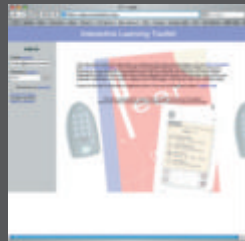
Calculus

2003



ILT

May 2003



2002

2003

2004

2005

2006

2007

Past

DTS Award

Nov 2001

Astronomy

2002



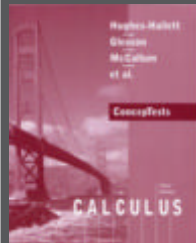
DVD proposal

Mar 2002



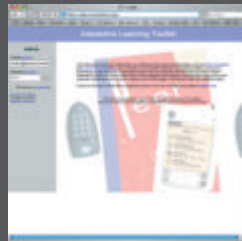
Calculus

2003



ILT

May 2003



Documentary

May 2004



2002

2003

2004

2005

2006

2007

Past

DTS Award

Nov 2001

Astronomy

2002



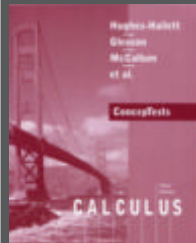
DVD proposal

Mar 2002



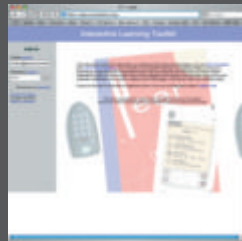
Calculus

2003



ILT

May 2003



Documentary

May 2004



Wireless devices

Jan 2005



2002

2003

2004

2005

2006

2007

Past

DTS Award

Nov 2001

Astronomy

2002



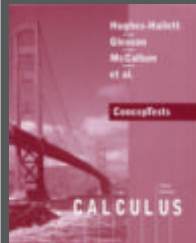
DVD proposal

Mar 2002



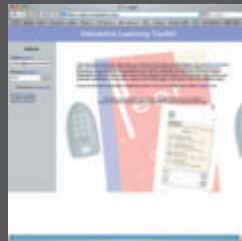
Calculus

2003



ILT

May 2003



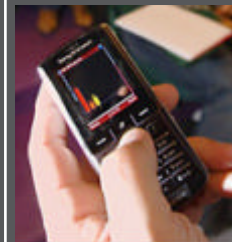
Documentary

May 2004



Wireless devices

Jan 2005



DVD

Nov 2006



2002

2003

2004

2005

2006

2007

Past

DTS Award

Nov 2001

Astronomy

2002



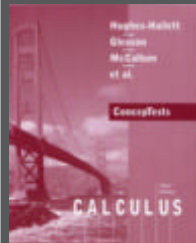
DVD proposal

Mar 2002



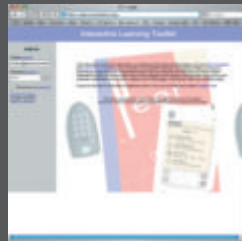
Calculus

2003



ILT

May 2003



Documentary

May 2004



Wireless devices

Jan 2005



DVD

Nov 2006



2x NFW

June 2007

2002

2003

2004

2005

2006

2007

Outline

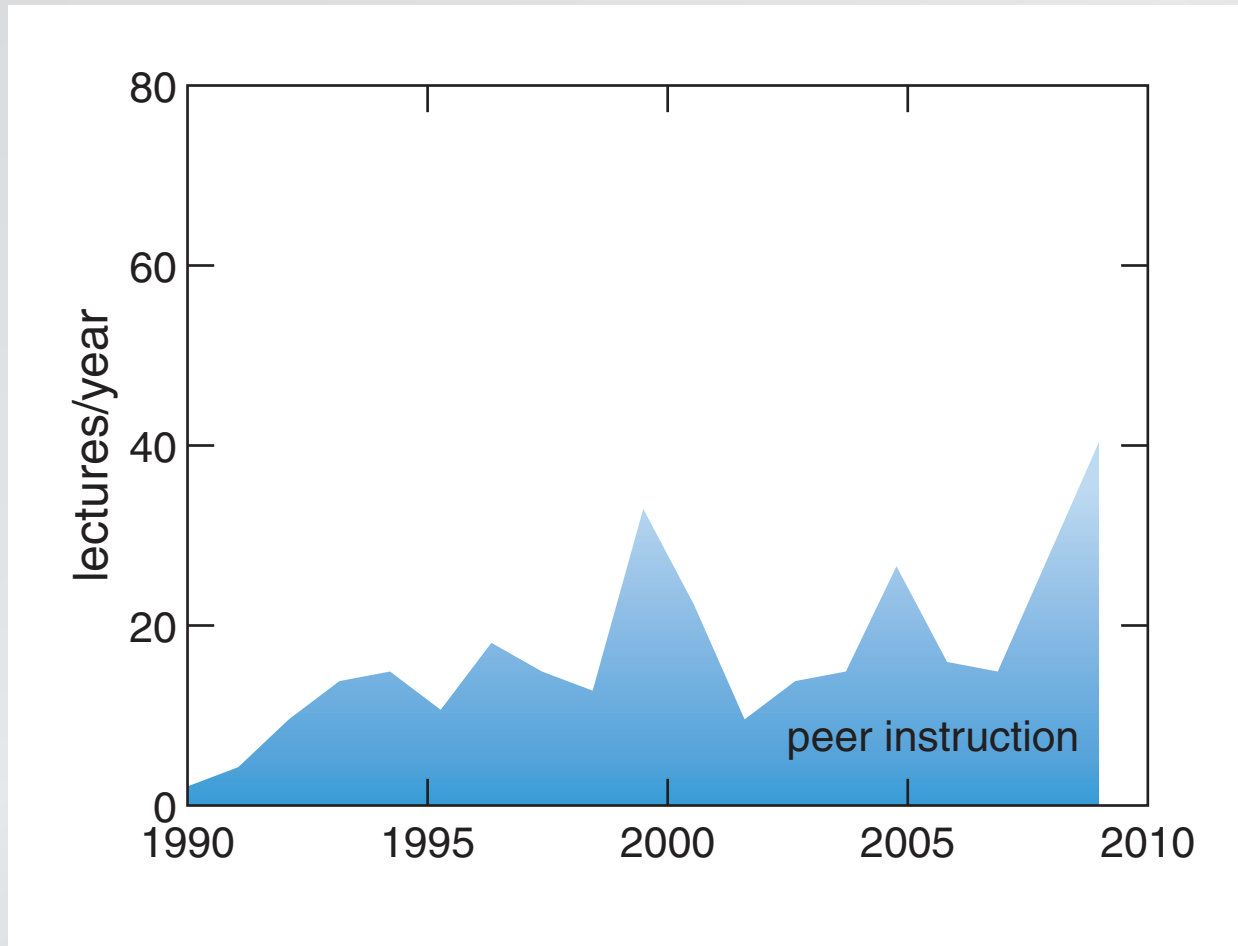
- Past

- Present

- Future

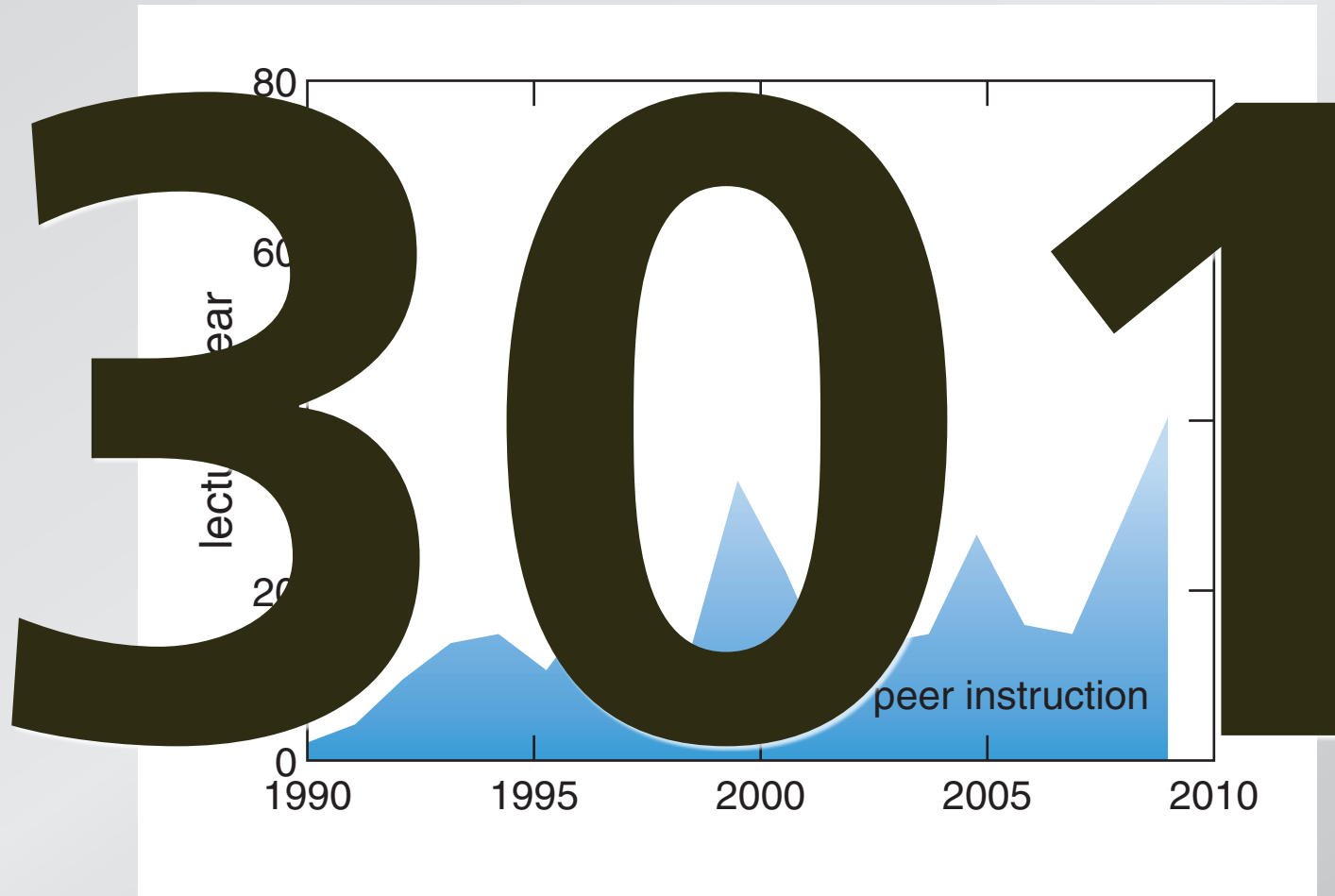
Present

lecturing



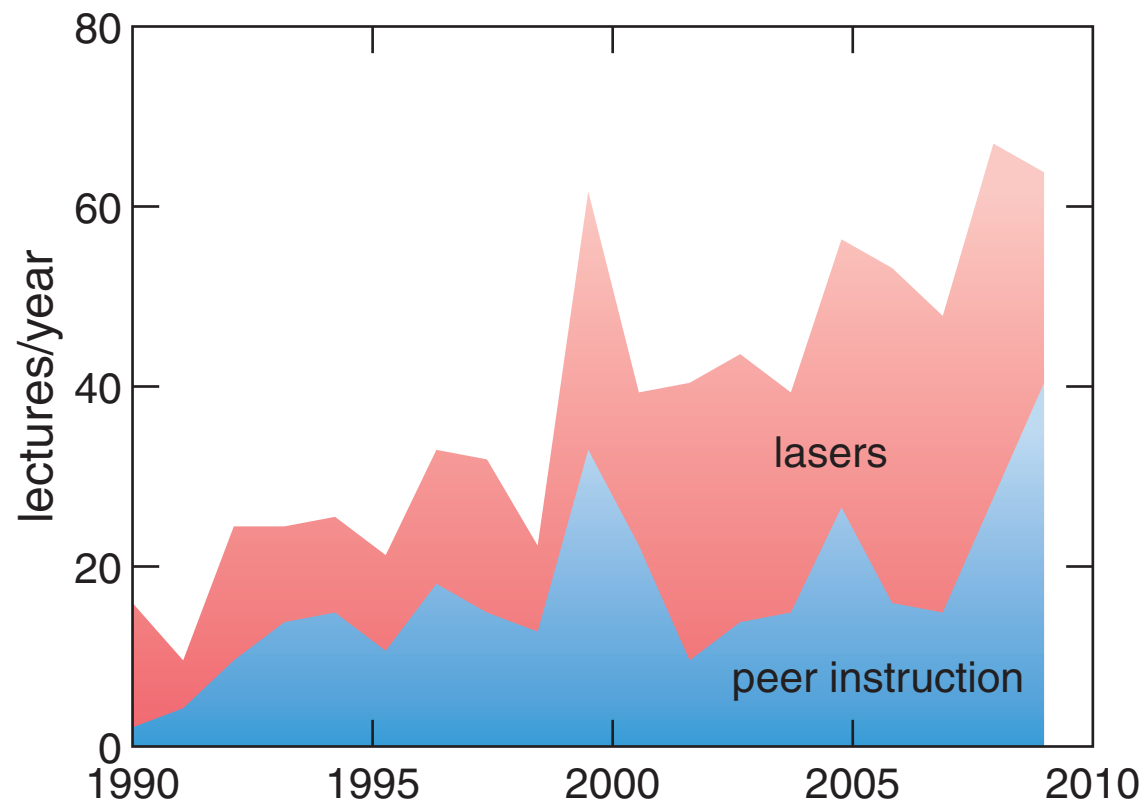
Present

lecturing



Present

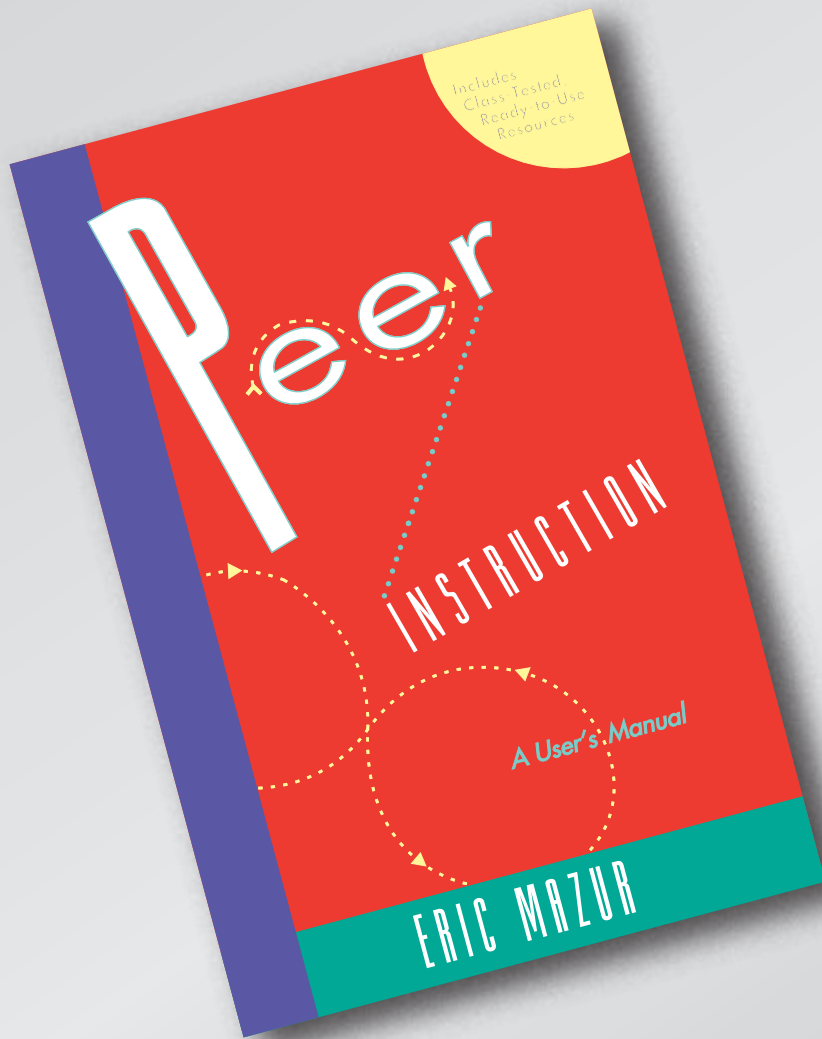
lecturing



Present

18,700 copies shipped since 1996

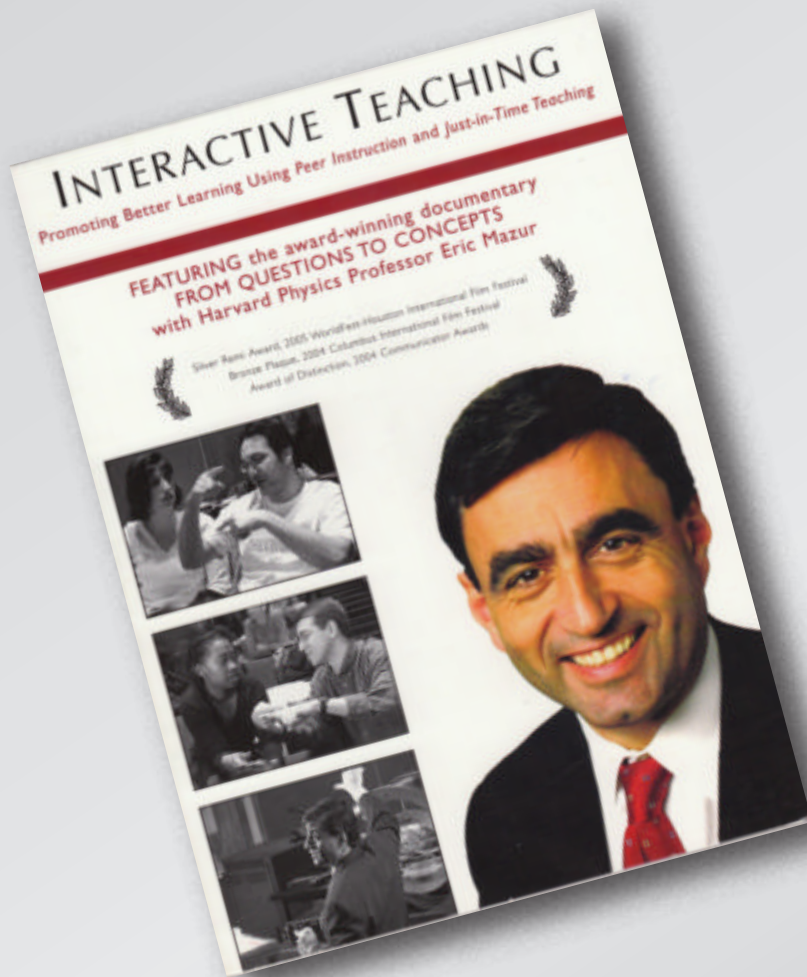
(12,700 free!)



Present

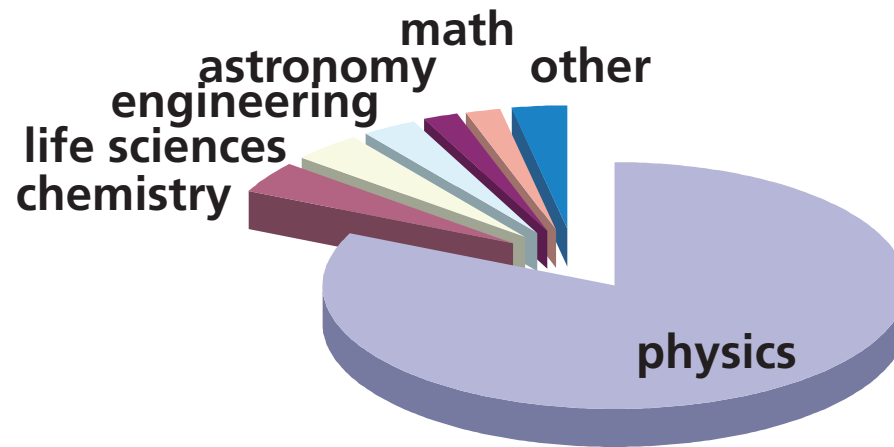
4,400 copies shipped since 2006

(3,700 free!)



Present

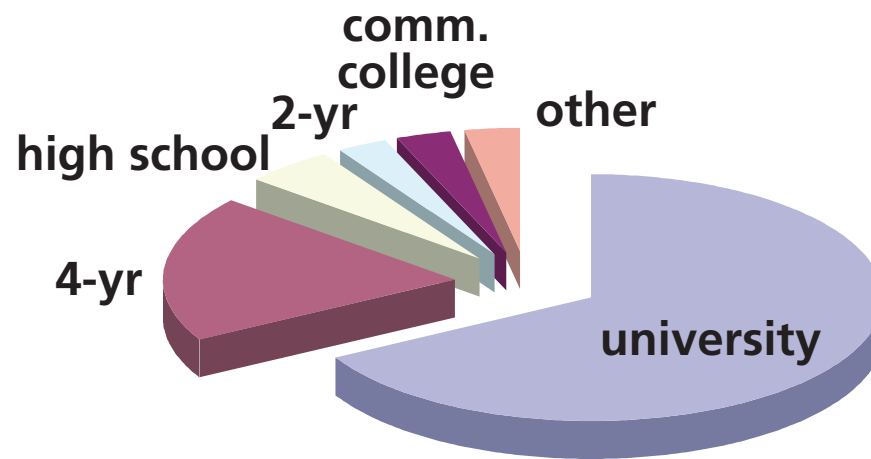
spreading across disciplines



PI survey 2001

Present

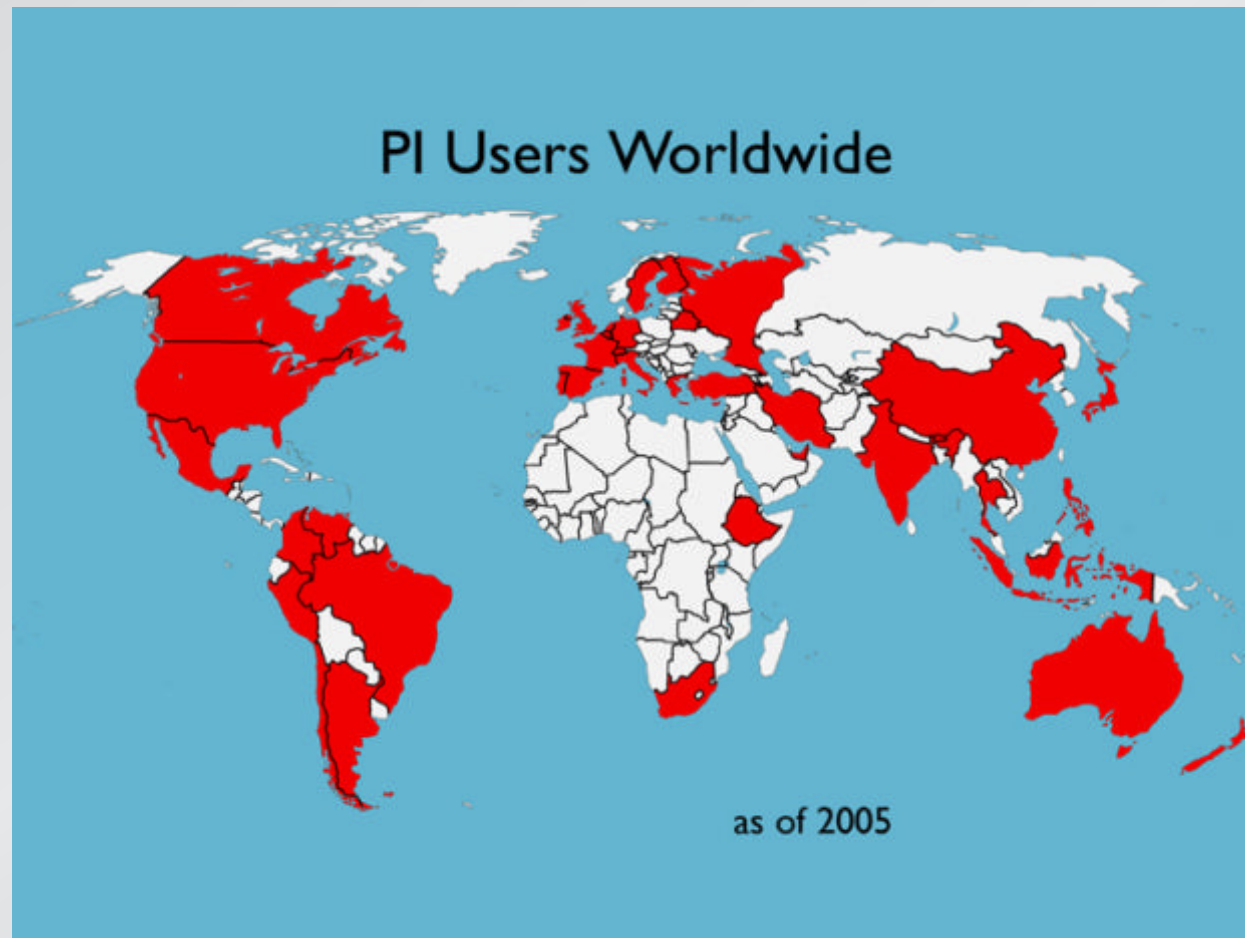
spreading across levels



PI survey 2001

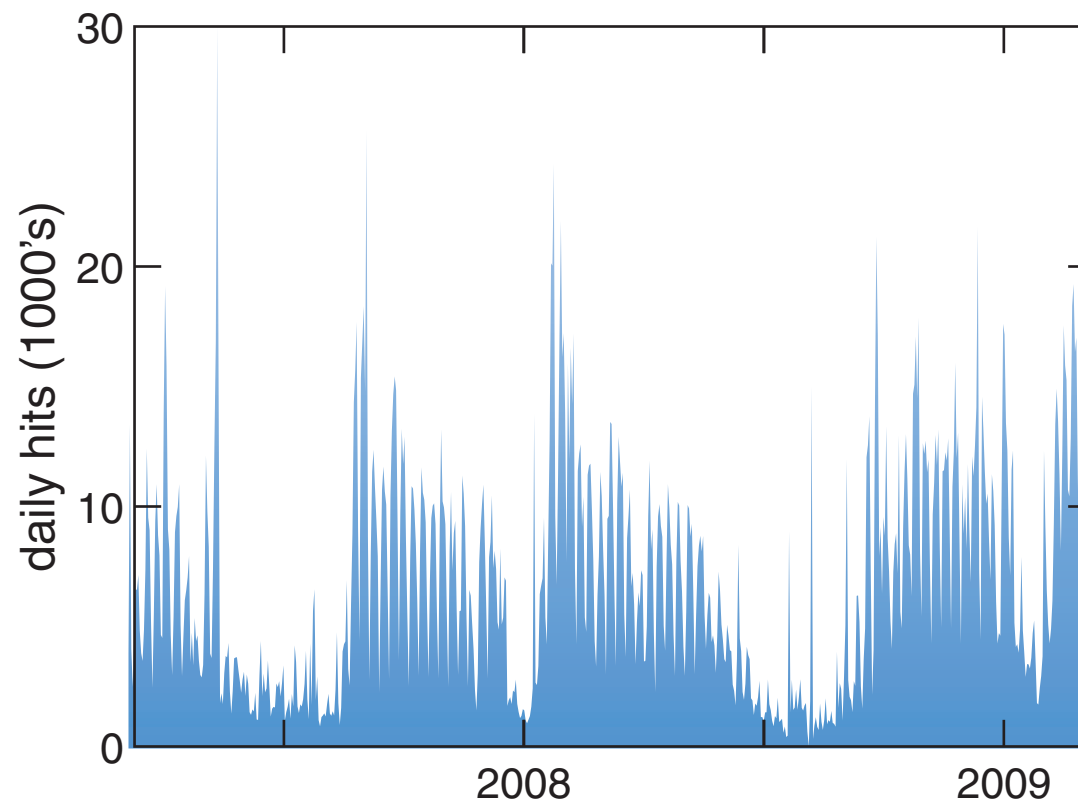
Present

geographic spreading



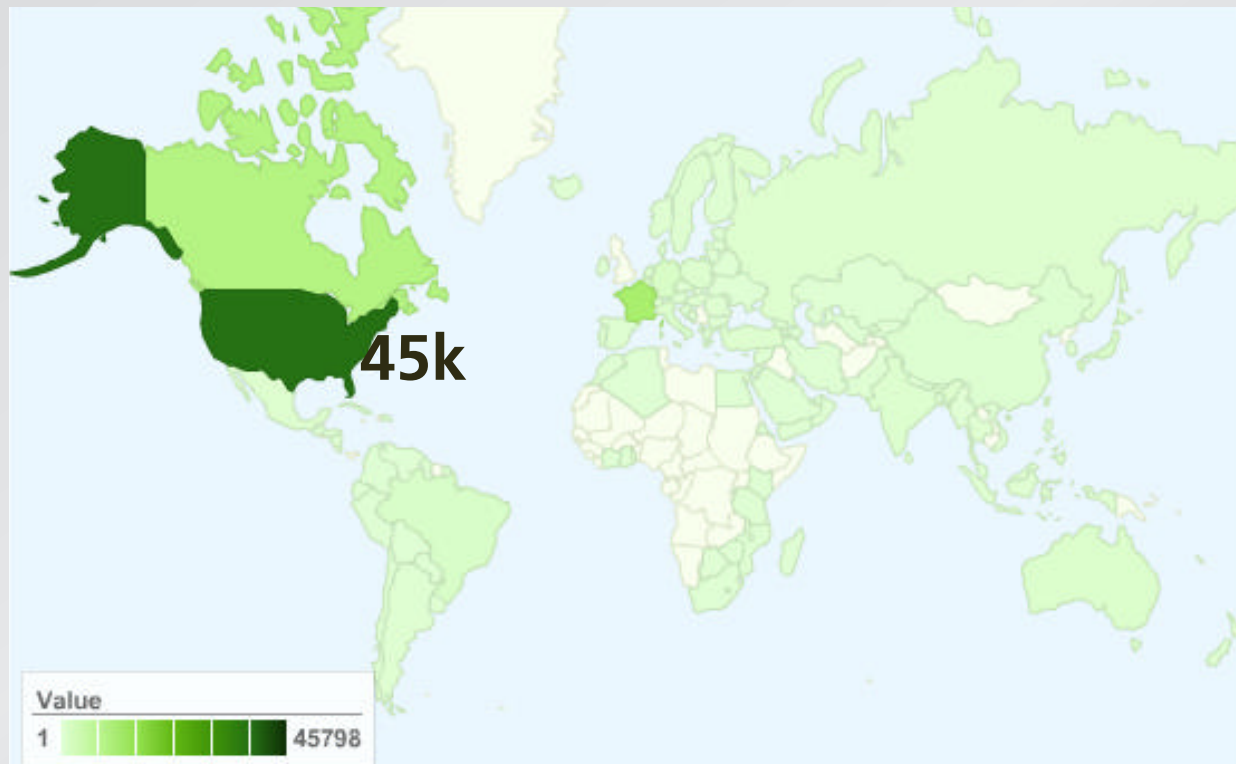
Present

ILT usage (10k registered users)



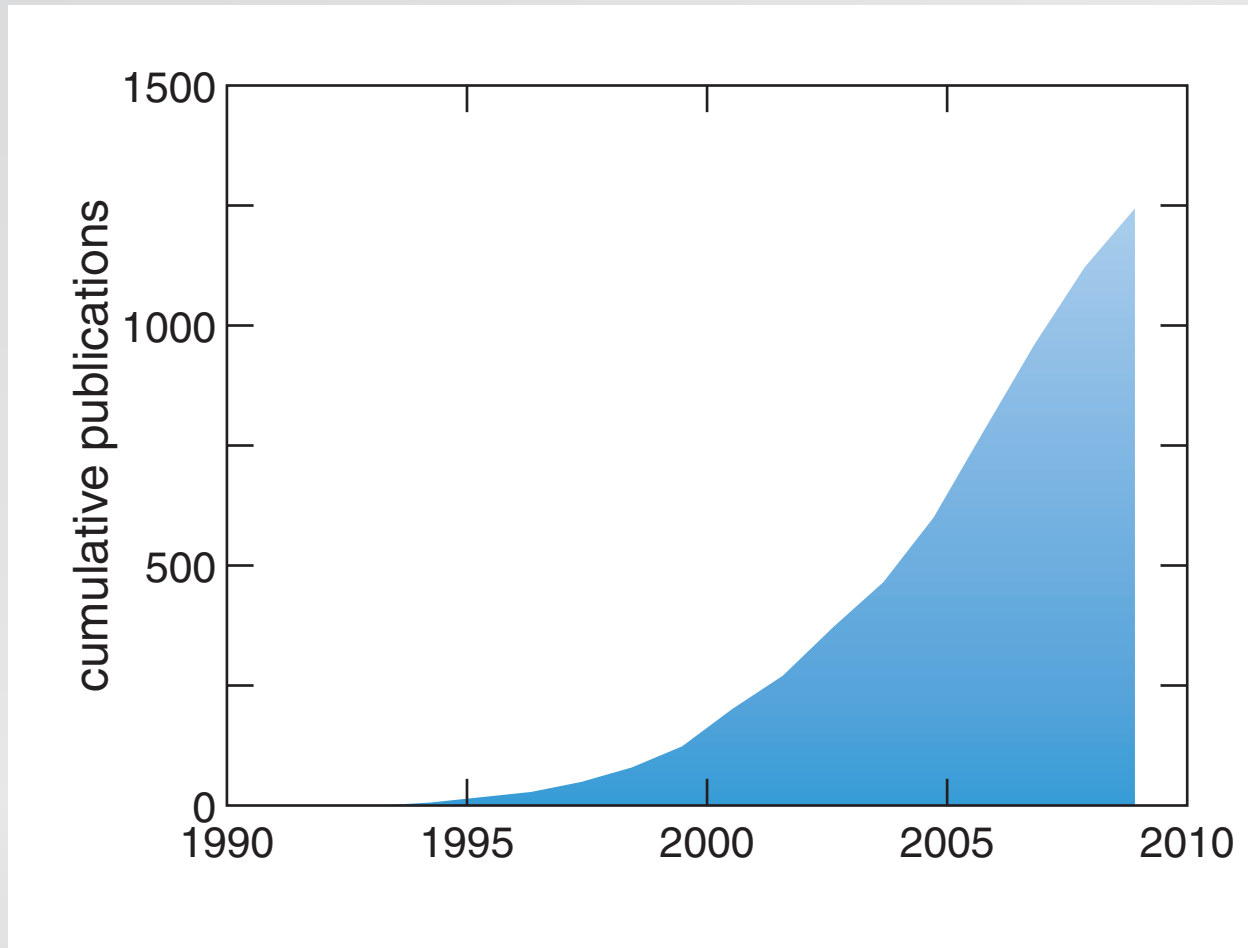
Present

5M education hits (120k users)



Present

publications mentioning PI



Education

taking the “peer” out of “peer instruction”?

PHYSICS EDUCATION RESEARCH SECTION

All submissions to PERS should be sent (preferably electronically) to the Editorial Office of AJP, and then they will be forwarded to the PERS editor for consideration.

Physics faculty and educational researchers: Divergent expectations as barriers to the diffusion of innovations

Charles Henderson^{a)}
Department of Physics and Mallinson Institute for Science Education, Western Michigan University,
Kalamazoo, Michigan 49008

Melissa H. Dancy
Department of Physics, University of North Carolina at Charlotte, Charlotte, North Carolina 28223

(Received 11 April 2006; accepted 26 September 2007)

Physics Education Research (PER) practitioners have engaged in substantial curriculum development and dissemination work in recent years. Yet, it appears that this work has had minimal influence on the fundamental teaching practices of the typical physics faculty. To better understand this situation, interviews were conducted with five likely users of physics education research. All reported making changes in their instructional practices and all were influenced, to some extent, by educational research. Yet, none made full use of educational research and most had complaints about their interactions with educational researchers. In this paper we examine how these instructors used educational research in making instructional decisions and identify divergent expectations about how researchers and faculty can work together to improve student learning. Although different they are all related to a single underlying issue: the typical dissemination model is to disseminate curricular innovations and have faculty adopt them with minimal changes, while faculty expect researchers to work with them to incorporate research-based knowledge and materials into their unique instructional situations. Implications and recommendations are discussed. © 2008 American Association of Physics Teachers.

[DOI: 10.1119/1.2800352]

by educational research. Yet, none made full use of educational research and most had complaints about their interactions with educational researchers. In this paper we examine how these instructors used educational research in making instructional decisions and identify differences in expectations to be barriers to more full use of educational research. It is argued that these barriers are not unique to PER. From this study.

Outline

- Past

- Present

- Future

Future

so maybe I had a strategy

Future

so maybe I had a strategy

I worked on:

- **dissemination**
- **lowering the threshold**
- **bridging the divide**

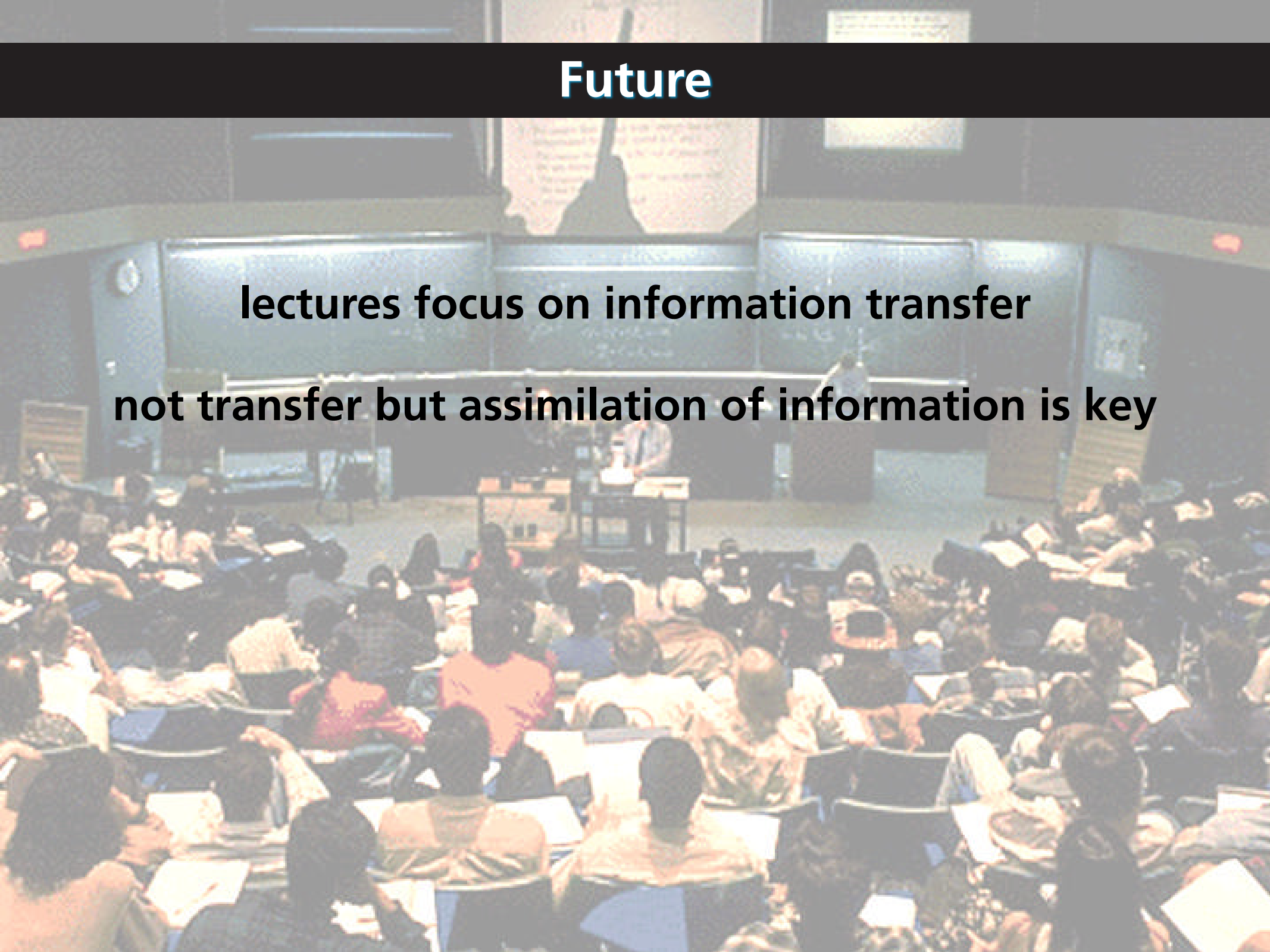
Future

dissemination

- relentlessly focused on one message

Future

**lectures focus on information transfer
not transfer but assimilation of information is key**



Future

dissemination

- relentlessly focused on one message
- always told *my* story

Future

dissemination

- relentlessly focused on one message
- always told *my* story
- always used data

Future

dissemination

- relentlessly focused on one message
- always told *my* story
- always used data
- avoided jargon

Future

lowering threshold

- share material
- provide resources
- encourage ownership, stress adaptability

Future

bridging the divide

Summary

some suggestions

- **relate to others by describing own experience**
- **use data/scientific approach**
- **let others take ownership**





Funding:

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Pearson/Prentice Hall

Davis Foundation

Engineering Information Foundation

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