Using goal-based instructional design to frame innovative learning experiences

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MAZUR GROUP

Introduction

Think of something you know very well

How did you learn that something?

1. Trial and error, experimentation, doing it
2. Taught myself
3. Reading or listening to lectures
4. Other

Introduction

How can we design learning environments to leave lasting learning impressions on students?

Message

use **established principles of learning design** to

develop experiences that are outcome and
evaluation driven

6. Resultados de aprendizaje

Al finalizar el curso, los estudiantes deben estar en capacidad de:

| Dimensión de la competencia	Resultado de aprendizaje
Conocimientos (saber conocer)	
Habilidades (saber hacer)	
Actitudes (saber ser)	

Outline

What is Backward Design?
Focused Learning Outcomes
Pitfalls of Learning Outcome Development

What is Backward Design?

What do you think about first when you sit down to plan a course?

What is Backward Design?

Forward Design

Topics to cover	→	Instructional Approach
		↕
		Evaluations
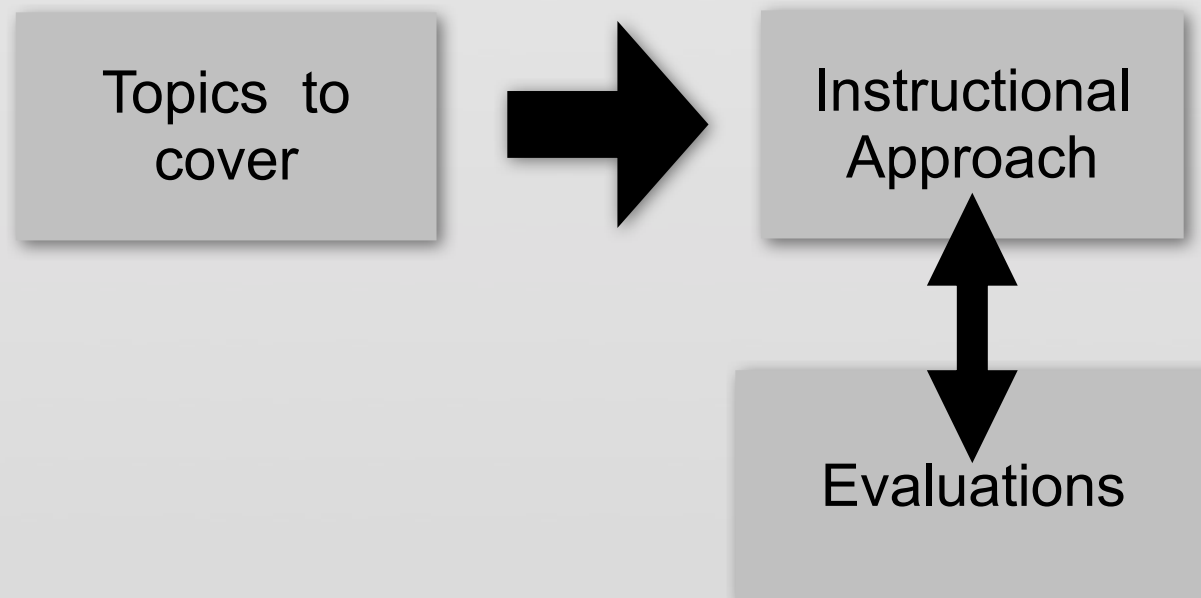
Content-driven learning design

What is Backward Design?

Introduction to Statistics

Forward Design	*The mean, median and mode*	Coverage driven, assessment afterthought

What is Backward Design?

3

Instruction
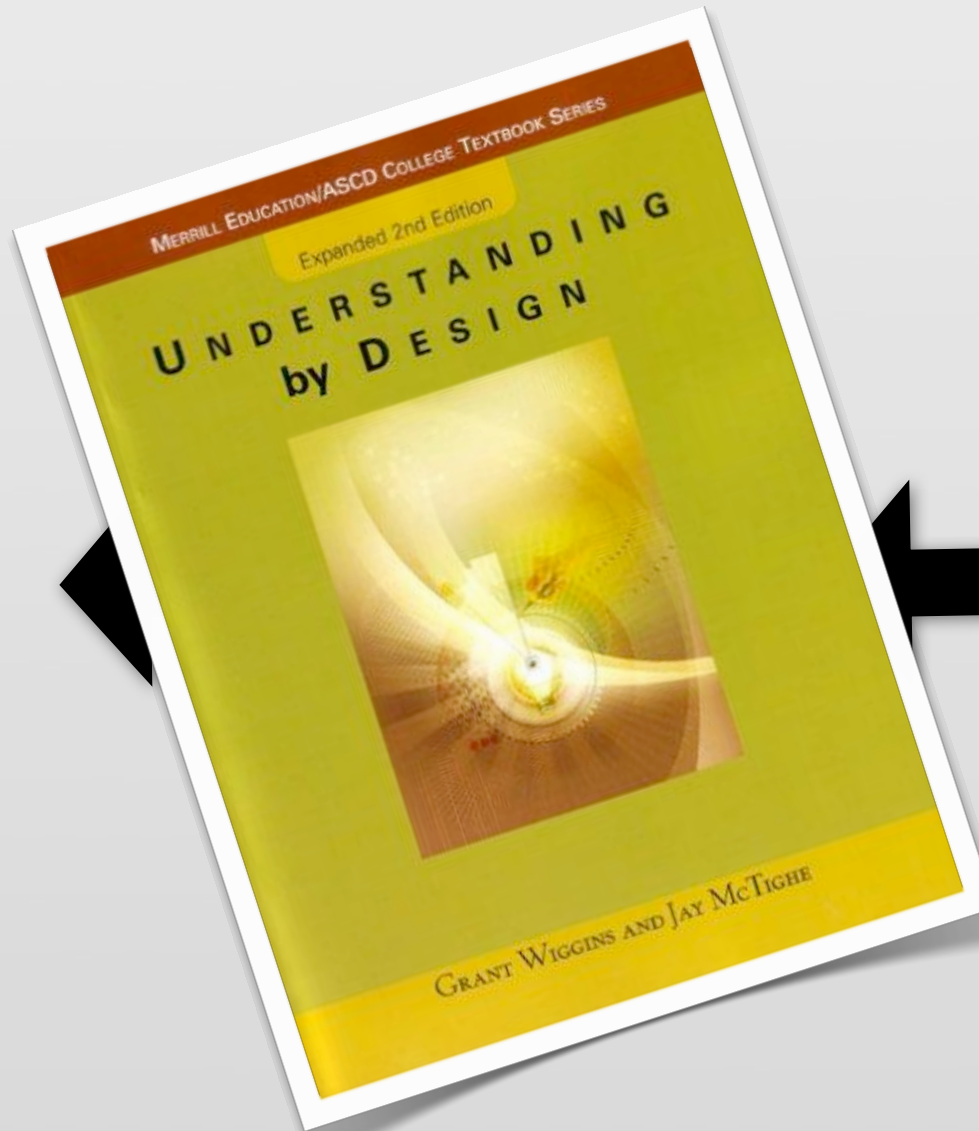
1

Desired Outcomes

What is Backward Design?

3

Instruction

2

Evaluation

1

Focused
Outcomes

What is Backward Design?

1. Identificación del curso

División	Instituto de Estudios en Educación
Departamento	Educación
Nombre del curso	Seminario de Investigación III
Código del curso	INV 4120
Nivel del curso (Pregrado, Postgrado, CEC)	Pregrado
Requisitos (Código y nombre del curso)	Seminario de Investigación II
Co – requisitos (Código y nombre del curso)	Ninguno
Número de créditos del curso	2
No. de horas teóricas por semanas	2
No. de horas prácticas por semanas	NA
No. de horas por semana de trabajo independiente del estudiante	4
Número de semanas	16
Idioma del curso (Español, Inglés, Alemán, francés, otros) Parcialmente en segunda lengua (Inglés, Alemán, Francés, otros)	Español
Modalidad del curso (Presencial, Virtual, Parcialmente virtual, otros)	Presencial

Outline

Focused Outcomes

Stage 1

Focused
Outcomes

Established Goals	
Understandings	Questions
Knowledge	Skills

Focused Outcomes

Stage 1

Focused Outcomes

6. Resultados de aprendizaje

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Focused Outcomes

Introduction to Statistics

Forward Design	*I need to cover the mean, median and mode*	**Coverage driven, evaluation afterthought**
Backward Design	*After taking this course, students will be able to critique statistical arguments for when it is appropriate to use the mean, median or mode in reporting data.*	**Outcomes driven, content rich, evaluation built in**

Focused Outcomes

	For this workshop	

Forward Design	*I need to cover backward design*	**Coverage driven, evaluation afterthought**
Backward Design	*Write a focused learning goal in relation to one important concept in your course.*	**Outcomes driven, content rich, evaluation built in**

Outline

goal in my head: help students develop problem solving skills so they are better equipped when they go into the field to solve problems

goal on syllabus: develop an intricate understanding of what it means to be a reflective practitioner in American higher education with **a heavy emphasis on problem solving**

ORLH 5241
Observation and Supervised Fieldwork in Higher and Postsecondary Education
Fall 2008-Spring 2009

Select Fridays*, 3:00–5::00 pm.

Higher and Postsecondary Education

tructor, Higher and Postsecondary Education
ge, Columbia University
W. 120th St., New York, NY 10027   212.678.3750
umbia.edu

ice Hours

Office Hours
intment

*COURSE MEETINGS

08, 3:00-5:00PMFRIDAY 9/12
AY 10/17
AY 11/14 – GUEST LECTURE and POST-CLASS DINNER*
AY 12/12
ring 2009 TBA

COURSE PURPOSE

he purpose of this seminar is to provide students with opportunities for reflection on both theory nd field practice in American higher education. We will strive in this course to fulfill the following overarching learning goals:

• Develop an intricate understanding of what it means to be a reflective practitioner, **with a heavy emphasis on problem solving** and reflection on your own practice as a higher icipate in critical analysis of and reflection on your own practice as a higher titioner

ing reflective practitioners in higher education ve practice in higher education to be passed

Pitfalls of learning outcome development

I honestly thought I was being a good and an innovative teacher

In what ways was the instructor MOST effective? Please give examples.

- Julie does a great job of fostering a sense of unity within the cohort. She s very open and inviting and you feel accepted immediately.
- Julie is the most effective in the sense that she really cares about how develop personally and professionally. She really wants us to go out into the world well prepared.
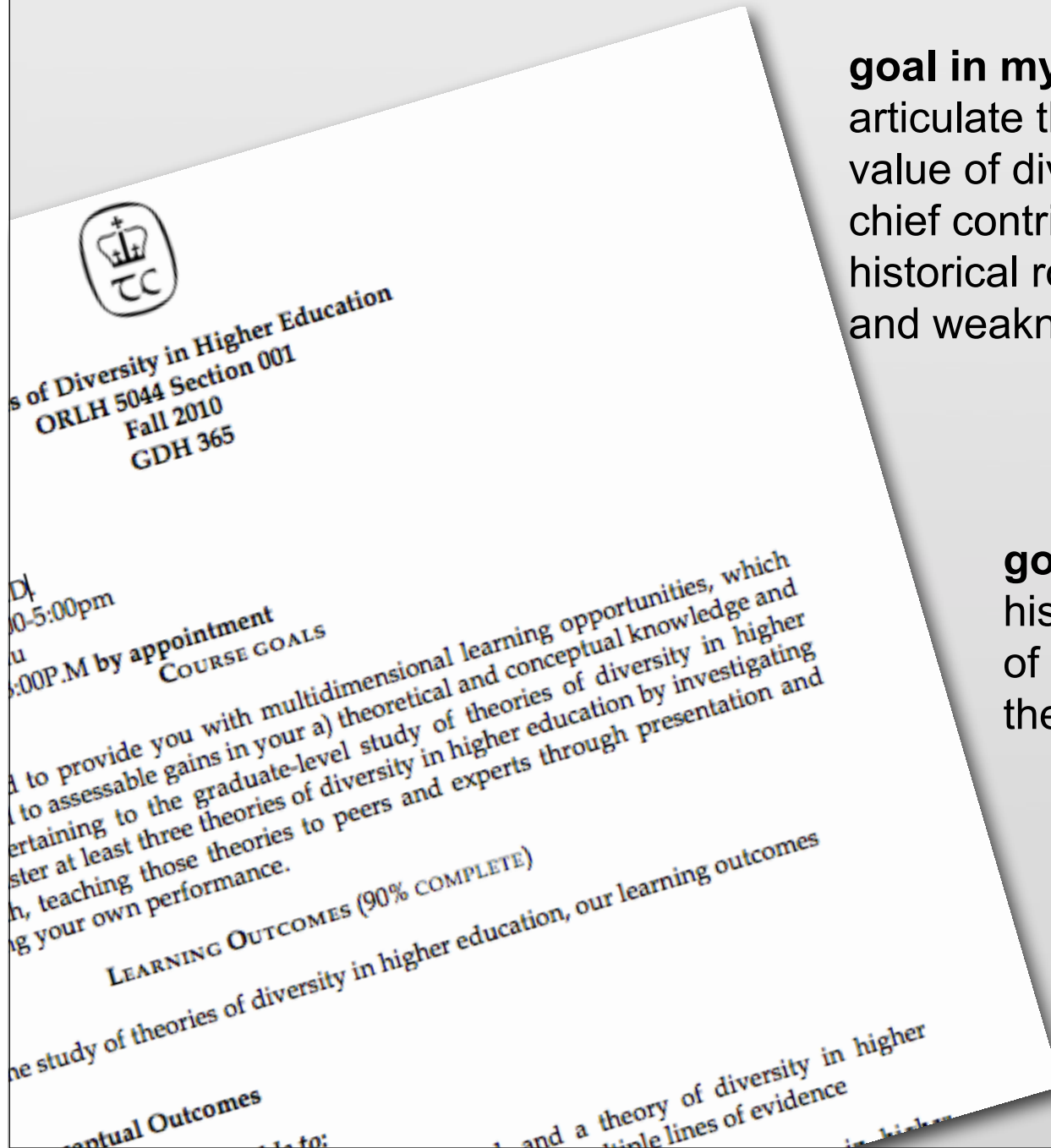
problem with this course design: it was activity *not* outcome driven

Pitfalls of learning outcome development

goal in my head: students will be able to articulate the meaning of the educational value of diversity theory, identify chief contributors, articulate the theory's historical roots, it's importance and strengths and weaknesses.

MISMATCH

goal made explicit: Summarize key historical events and empirical roots of educational value of diversity theory

TC

...s of Diversity in Higher Education
ORLH 5044 Section 001
Fall 2010
GDH 365

...0-5:00pm
...:00P.M by appointment

COURSE GOALS

...d to provide you with multidimensional learning opportunities, which ...d to assessable gains in your a) theoretical and conceptual knowledge and ...ertaining to the graduate-level study of theories of diversity in higher ...ster at least three theories of diversity in higher education by investigating ...h, teaching those theories to peers and experts through presentation and ...ng your own performance.

LEARNING OUTCOMES (90% COMPLETE)

...he study of theories of diversity in higher education, our learning outcomes

...ceptual Outcomes

...and a theory of diversity in higher ...ltiple lines of evidence

Pitfalls of learning outcome development

Physics 191/247 — Advanced Laboratory

Learning Goals

In the most general terms, the goal of Physics 191/247 is to engage you in the practice and discussion of experimental scientific research. After this course, you will have a diverse set of experimental skills and knowledge that will allow you to think more critically about the physical world. Experimental physics requires studying and measuring the world around us in a quantitative way. We model these observations and measurements and develop theories that can explain the observations and make new predictions. In the best of worlds, theory and experiment complement each other, sometimes one leading and the other lagging, but it is experiment that has the final word.

goal assessed is unidimensional: scientific writing

Pitfalls of learning outcome development

Physics 95 — Fall 2008
Modern Research Tutorial

Course objectives:

After completing this course you should be able to:

- participate in discussions on a broad variety of leading-edge research topics
- immerse yourself in an unknown subject
- research and then present material with which you are initially unfamiliar
- give effective presentations
- better evaluate your own work and that of others

Short writing assignment

At the end of the semester you must submit a brief, 500-word piece on a subject of modern research (the topic of which is to be determined) aimed at a general, non-specialist audience, suitable for publication in the news media. The piece will be due by January 8, 2009 and is followed by a Calibrated Peer Review of the pieces submitted by you and your peers.

goal assessed not made explicit: research and evaluation toward scientific communication in presentations, ***not writing***

Pitfalls of learning outcome development

Course Objectives

Upon completion of Physics 191/247 you will be able to:

1) Develop adequate physics background knowledge for carrying out novel experiments
2) Establish and communicate the purpose of an experiment
3) Operate and troubleshoot complex physical apparatus
4) Devise a procedure for achieving the goals of an experiment
5) Evaluate the effect of experimental errors and assumptions
6) Explain, follow, and ensure lab safety
7) Detail and analyze observations and make predictions about a variety of physical processes

Pitfalls of learning outcome development

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goal in head: better prepare grad students for doing experiments
goal made explicit: devise a procedure for achieving the goals of an experiment
goal emphasized: follow the procedure outlined for your in developing an experiment
goal assessed: ability to write up an experiment

Pitfalls of learning outcome development

Pitfall 1: Goals made explicit and goals desired do not match or are content driven

Pitfall 2: Goals assessed are unidimensional or not made explicit

Pitfall 3: Desired goals, even when made explicit, not emphasized through instructional activities

Pitfalls of learning outcome development

The Best Practices Triangle for Effective Learning Goals
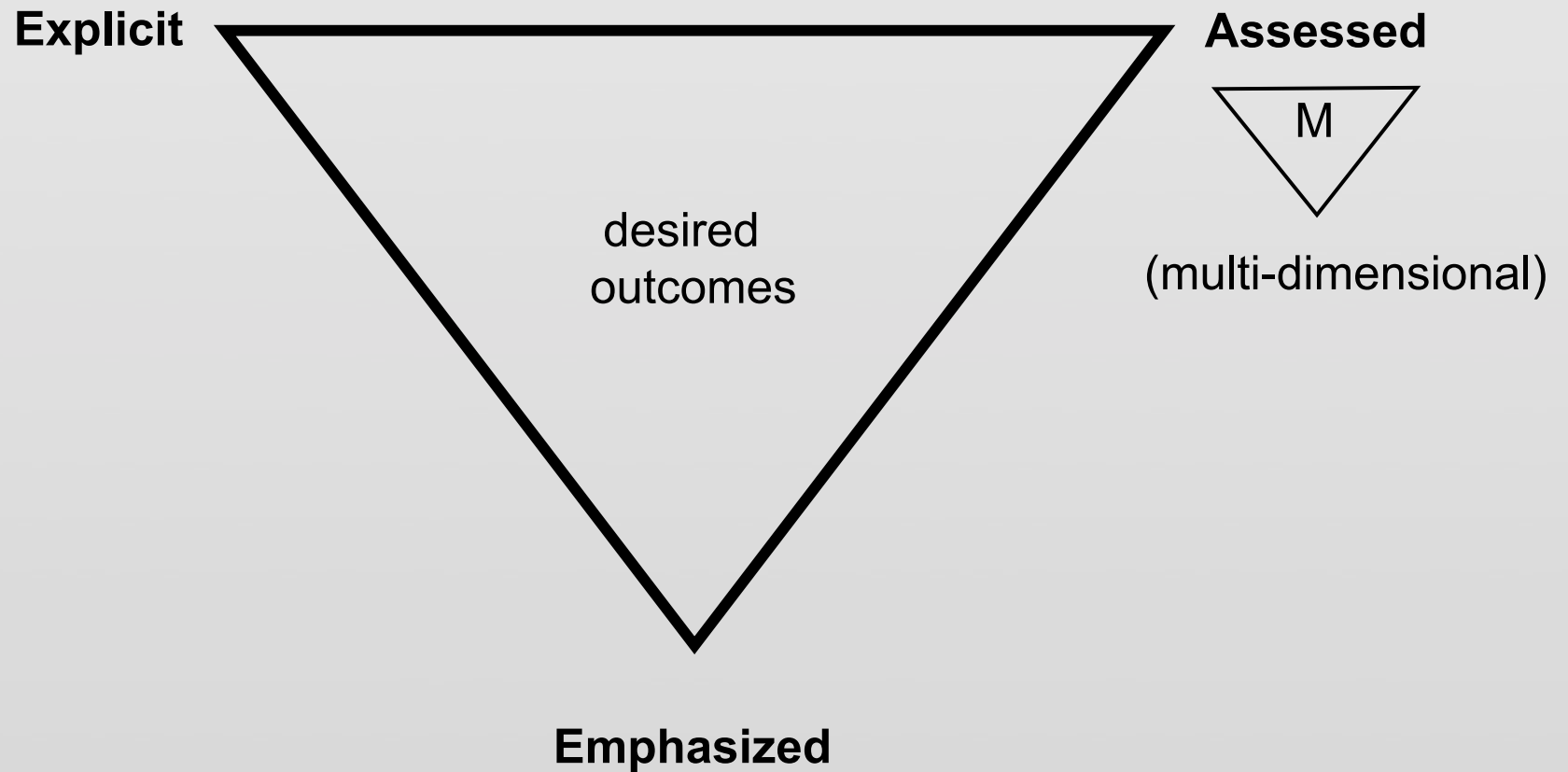
Explicit

Assessed

M

desired
outcomes

(multi-dimensional)

Emphasized

Quick Tips for Formulating Learning Goals

1. Activate your learning goals with action verbs

6. *Resultados de aprendizaje*

Al finalizar el curso, los estudiantes deben estar en capacidad de:

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Quick Tips for Formulating Learning Goals

Respond to the prompt:

Knowledge	Under-standing	Application	**Analysis**	**Synthesis**	**Evaluation**
List Recall Repeat	Explain Discuss Review	Solve Illustrate Apply	Analyze Contrast Compare	Create Predict Develop Design	Judge Assess Validate Infer

Bloom's Taxonomy, 1956; Wilson, 2006

Quick Tips for Formulating Learning Goals

1. Activate your learning goals with action verbs

2. Keep Stage 2 - How will I know that my outcome has been achieved?

3. Respond to the prompt:

6. *Resultados de aprendizaje*

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Acknowledgments

Dr. Eric Mazur

Mazur Group

mazur-www.harvard.edu