

Promoting Active Learning Through a Flipped Course Design

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Outline

1. What is blended learning?
2. What is flipped learning?
3. Theoretical foundations including PBLT & CTT
4. Advantages & disadvantages
5. Flipped Psychology Statistics Course: A field Experiment
6. Best practices for flipped classroom design
7. Application to other fields: examples & discussion

Distance Learning Courses

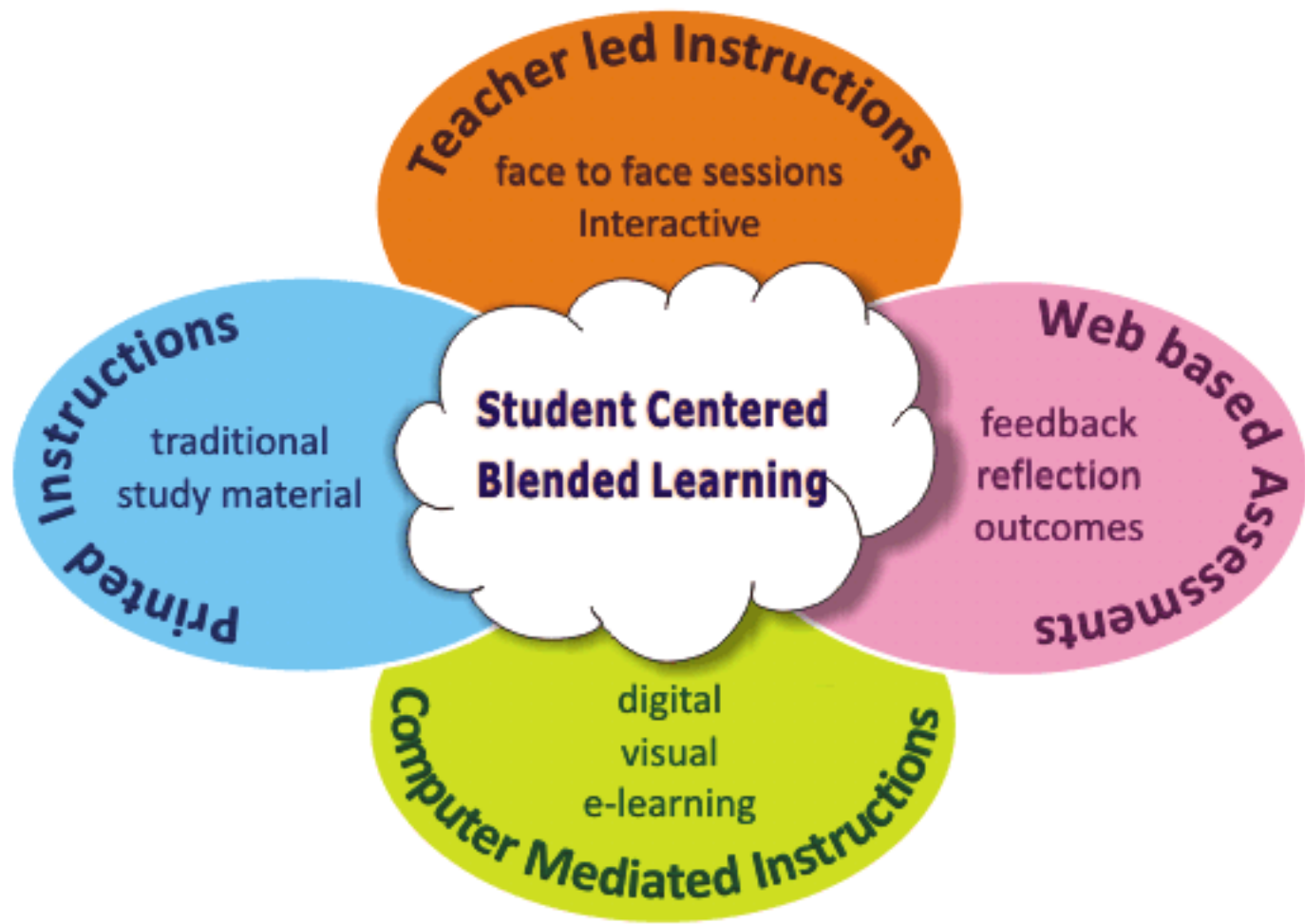
- * 9.6% increase in online enrollments from 2002 to 2012
- * “Digital natives” prefer autonomy
- * Faculty perceptions of distance learning courses are positive, but recognize increased work



(Allen & Seaman, 2011; Davis Deil-Amen, Aguilar, & Canche, 2012; Callaway, 2012; Muirhead, 2002; Ocak, 2012)

Blended Learning

- * Traditional: face-to-face
- * Online: internet delivery
- * Hybrid: combines face-to-face with online
- * Blended learning implies mingling together in ways that lead to a well-balanced combination, uniform, and harmonious mixture.
- * “At its simplest, blended learning is the thoughtful integration of classroom face-to-face learning experiences with online learning experiences” (p.96).



Flipped Learning



- * Utilizes blended learning to reorganize the structure of a typical classroom model
- * Using the internet to deliver content

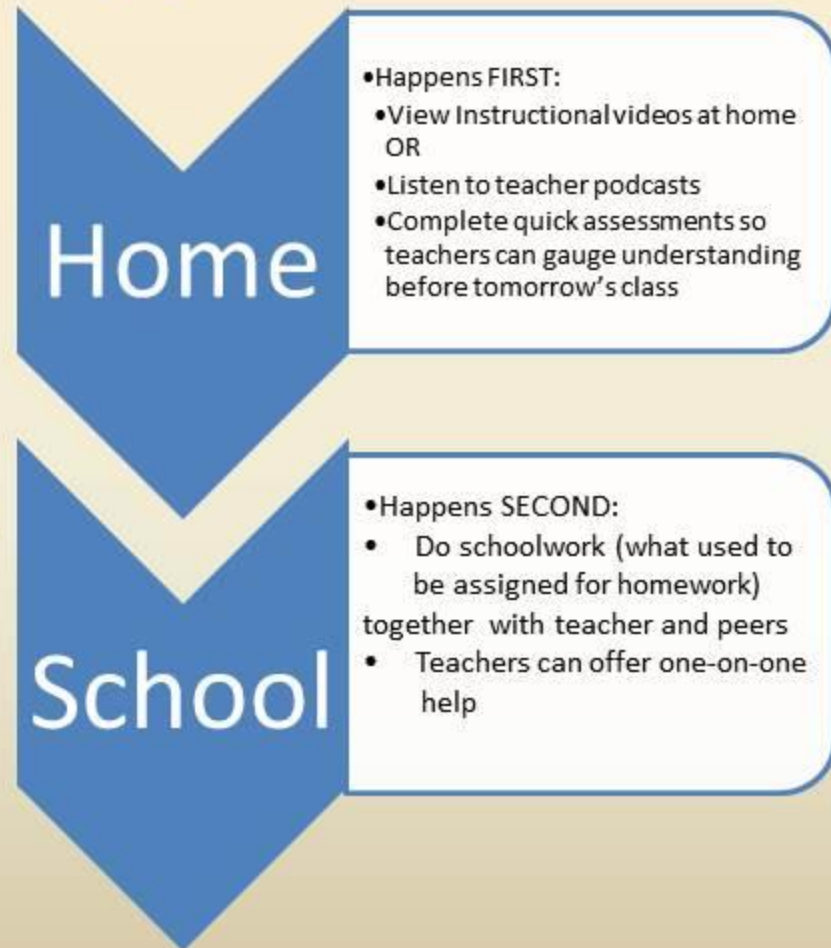
- * Motivated by problems with traditional lectures

Flipped Classroom Made Easy

Traditional Classroom



Flipped Classroom



Theoretical Foundation

Project based Learning Blended Learning Theory (PBLT)

- * Student Centered
- * Focused on a project that is experienced by the students as a means for instruction
- * Intrinsic motivation, collaboration, problem solving, self-directed learning
- * Teacher = facilitator
- * Flipped Classroom:
 - * Time to work collaboratively to solve problems
 - * Pharmacotherapy class

Theoretical Foundation

Cognitive Taxonomy Theory (CTT)

- * A way to categorize & identify types of cognitive processes
 1. Remembering
 2. Understanding
 3. Applying
 4. Analyzing
 5. Evaluating
 6. Creating
- * Flipped classroom:
 - * Build strong base outside of class & higher level in-class
 - * Application work in class

Pros

Cons

Students no longer struggle with challenging concepts alone outside of class time.	Making sure every student has a computer and Internet access.
Students can skip parts of the lesson they already understand and re-watch new or challenging ideas.	Students cannot ask questions for clarification during a recorded lesson.
Applied learning in the classroom.	Technology issues.
Differentiated instruction.	Designing and grading frequent quizzes.
Students are given ownership and responsibility for their own learning.	Students have trouble “buying in” to instruction, especially when it is not created by the instructor.
Students come to class prepped and ready to learn. No down time.	Determining how to handle students who do not complete the homework video.
Videos include links for deeper thinking and further learning.	Creating or finding quality videos for each lesson.
Teacher can spend class-time working one-on-one or in small groups with students.	

Flipped Psychology Statistics

A field Experiment

Objectives

1. Examine students' perspectives on the new teaching methodology
2. Compare students' statistical knowledge between the two courses
3. Compare students' attitudes toward diverse groups between the two courses

Diversity in Stats?!



- * Application Days
- * Students read guest speakers research articles
- * Class time was spent dissecting the articles research methods and statistics
- * Final course project collecting & analyzing data on a social justice issue of the students choice

Participants

Table 2. *Participant Demographics*

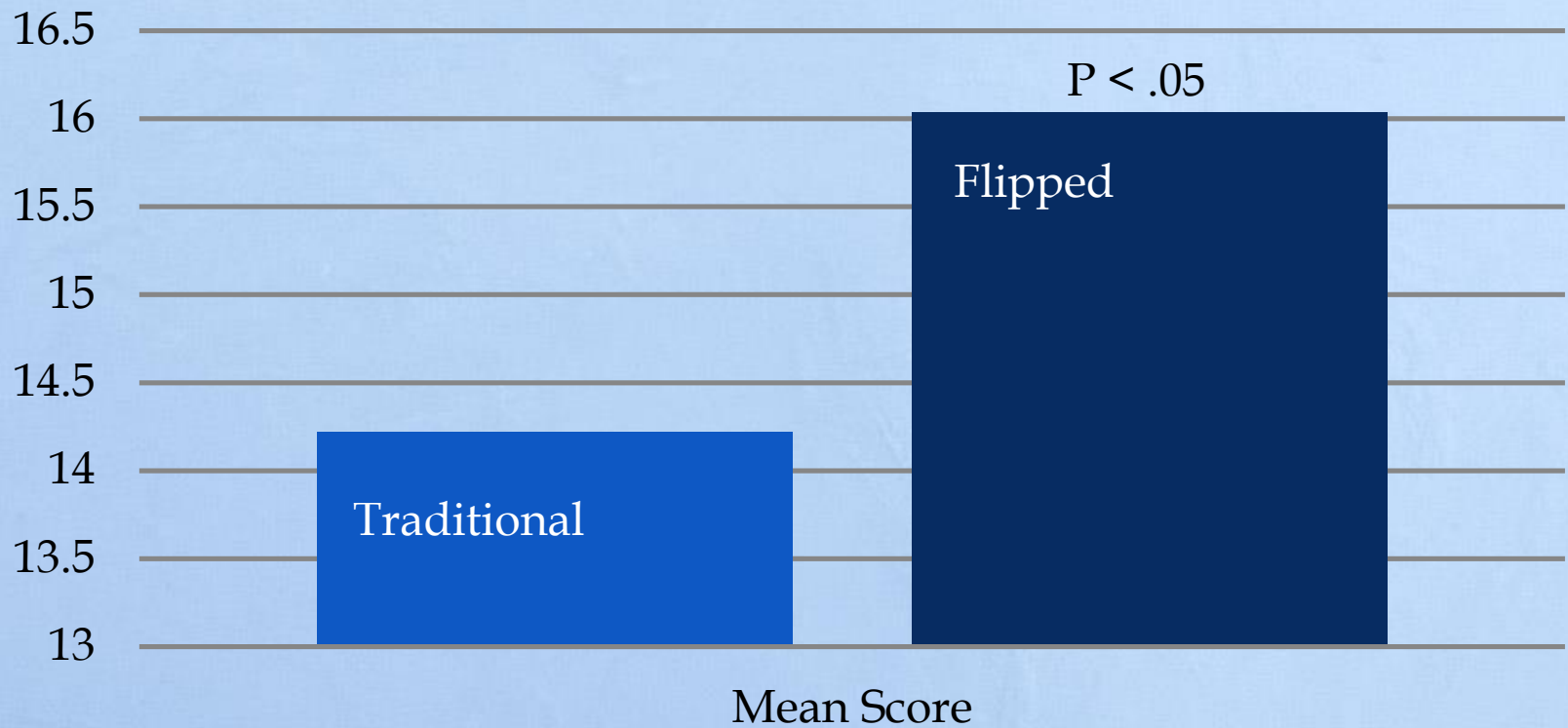
	Hybrid ($n = 50$)	Traditional ($n = 59$)
Mean Age (<i>SD</i>)	19.04 (.90)	19.44 (2.46)
Gender (%)		
Male	16	15.3
Female	84	84.7
Year in School (%)		
First	42	49.2
Second	36	32.2
Third	18	11.9
Fourth	4	6.8
Race (%)		
African American	4	0
Asian	2	3.4
Latino/a	4	0
Caucasian	84	94.9
Other	4	1.7

Materials & Procedures

1. Survey of Attitudes Towards Statistics Scale
 - * Affect, cognitive competence, value & difficulty
2. Statistical Content Knowledge
 - * MC items
 - * Developed by a third party (faculty member)
3. Cultural Sensitivity Scale
 - * self-esteem, self-monitoring, open-mindedness, empathy, interaction involvement, & suspending judgment.

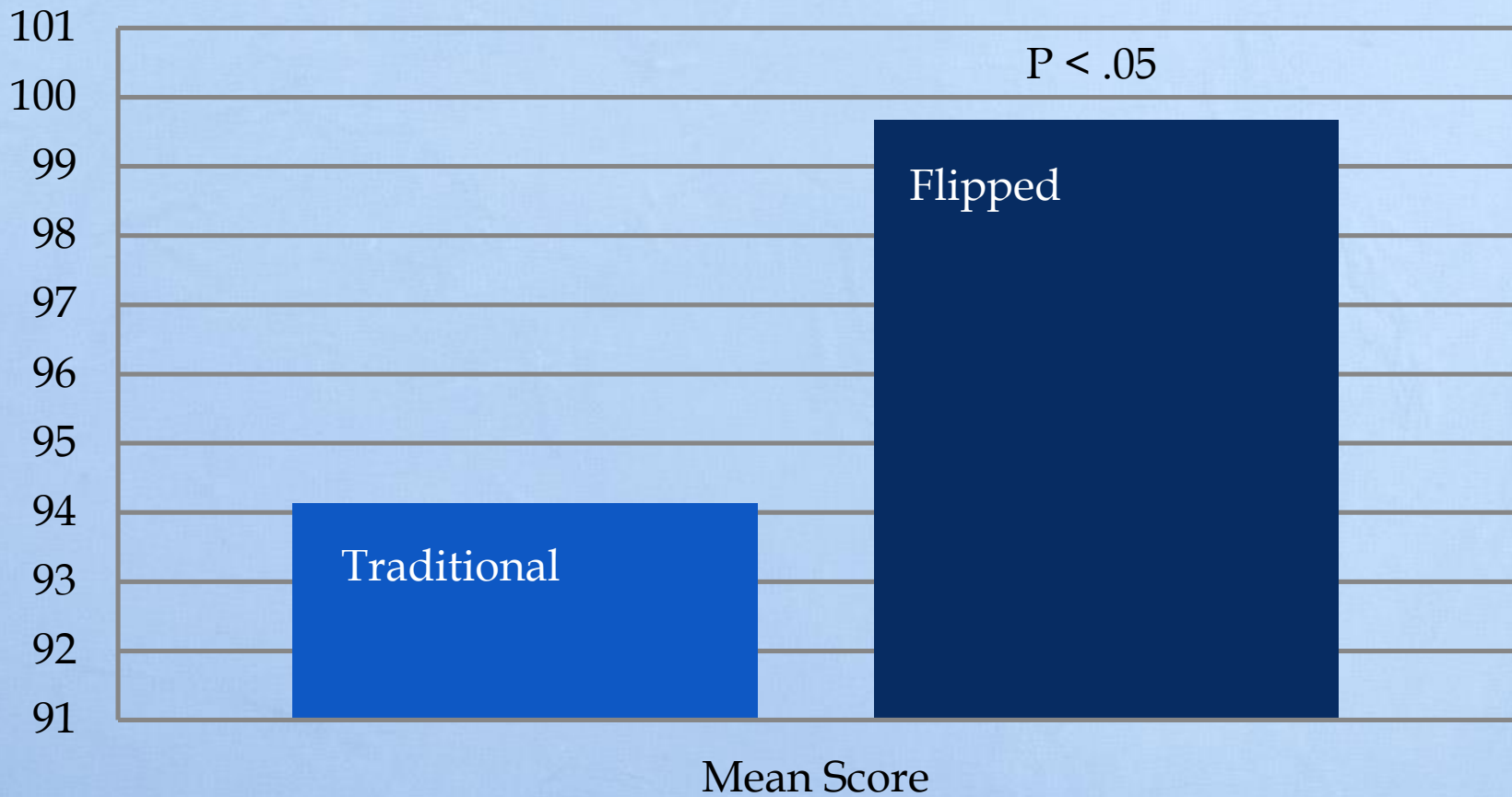
Results

Statistics Knowledge



Results

Cultural Sensitivity



Results

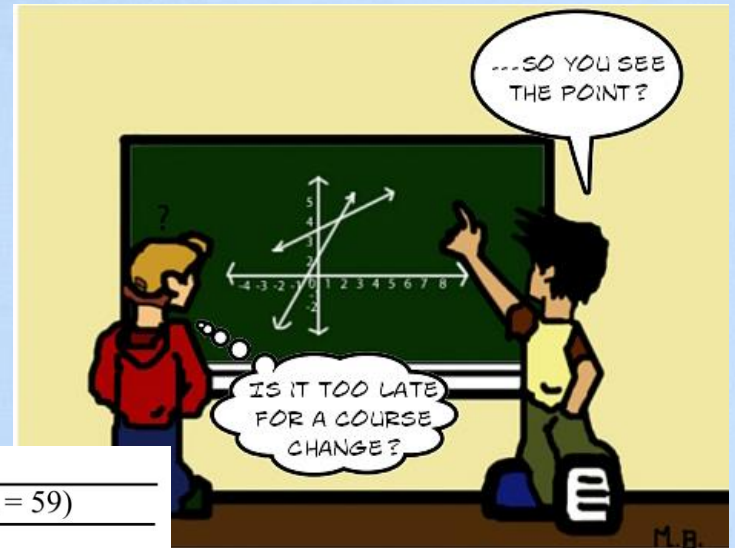


Table 2. Mean Scores on Pretest and Posttest Measures for Each Statistics Course

	Flipped (n = 50)	Traditional (n = 59)
Stat Knowledge		
Pre	9.12	8.22
Post*	16.04	14.22
Stat Attitudes		
Affect		
Pre	28.22	26.85
Post	26.34	26.63
Competence		
Pre	32.30	30.24
Post	29.80	29.36
Value		
Pre	43	43.27
Post	41.72	40.03
Difficulty		
Pre	29.88	29.07
Post	28.2	28.32
Cultural Sensitivity		
Pre	77	72.71
Post	99.68	94.14

Note. (*) denotes $p < .05$.

- * 1st & 2nd year students' attitudes toward statistics become negative
- * 3rd & 4th years' attitudes became more positive

Conclusions

- * Flipping the class offered more opportunities for active learning as well as infusion of diversity topics. Although this did not significantly affect attitudes toward statistics, students in the hybrid class appear to have retained more information and increased cultural sensitivity.
- * The blended & flipped classroom might be best suited for older students

Best Practices in Flipped Classroom Design

1. Determine blend that meet class needs.
2. Audio & visual materials help but both parties have to know how to work the technology.
3. Establish community & expectations
4. Assignments and Learning objectives should match with online or face-to-face portions and should be based on student learning.
5. A high level of faculty involvement necessary.

(Brothen & Wambach, 2007; Gecer & Dag, 2012; Masalela, 2009; Osguthorpe & Graham, 2003; Stacey & Gerbic, 2007; Strayer, 2012; Tao, Fore, & Forbes, 2011).

Application to other courses and fields

- * Any course can be flipped!
 - * Consider use of new technology such as echo360
- * Small group discussion:
 - * What are other ways that you could flip the classroom?
 - * Are there specific technologies within your content domain that could help?

Thank you!

- * Additional questions or discussion?
- * Chapter copies are available via email upon request.
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 - * Consulting & Support for SoTL projects available