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# A Study of Flipped Information Literacy Sessions for Business Management and Education

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# A Study of Flipped Information Literacy Sessions for Business Management and Education

SUNYLA Annual Conference 2016 - June 9, 2016

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# Introduction

The background features a series of overlapping, semi-transparent green polygons in various shades, ranging from light lime green to dark forest green. These shapes are primarily located on the right side of the slide, creating a modern, layered effect. The rest of the slide is a plain white background.

# So much to teach, so little time

- ▶ One-shot IL sessions
  - ▶ First, possibly only library session
    - ▶ General overview library resources
    - ▶ Off-campus access
    - ▶ Citation styles
    - ▶ Assignment specifics

# So much to teach, so little time

- ▶ Lecture / Demonstration
  - ▶ Benefit: Time-effective
    - ▶ Large amounts of information
  - ▶ Cons: No active learning components
    - ▶ Active learning
      - ▶ Greater rate of engagement
      - ▶ Greater retention of skills and knowledge
      - ▶ Two-way learning
        - ▶ Students
        - ▶ Librarian - observe and assess students

# Challenge - What to do?

- ▶ Find instructional method
  - ▶ Best use of limited time
  - ▶ Allow students to acquire basic information literacy
  - ▶ Engage students in deeper learning
    - ▶ Critical thinking
    - ▶ Reflection
    - ▶ Analysis

# Solution Found

- ▶ “Flipped Classroom Methodology”
  - ▶ What is it?
    - ▶ “A pedagogical approach in which direct instruction moves from the group learning space to the individual learning space, and the resulting group space is transformed into a dynamic, interactive, learning environment where the educator guides students as they apply concepts and engage creatively in the subject matter.”

Flipped Learning Network (FLN), 2014

# Flipped Classroom Instructional Model

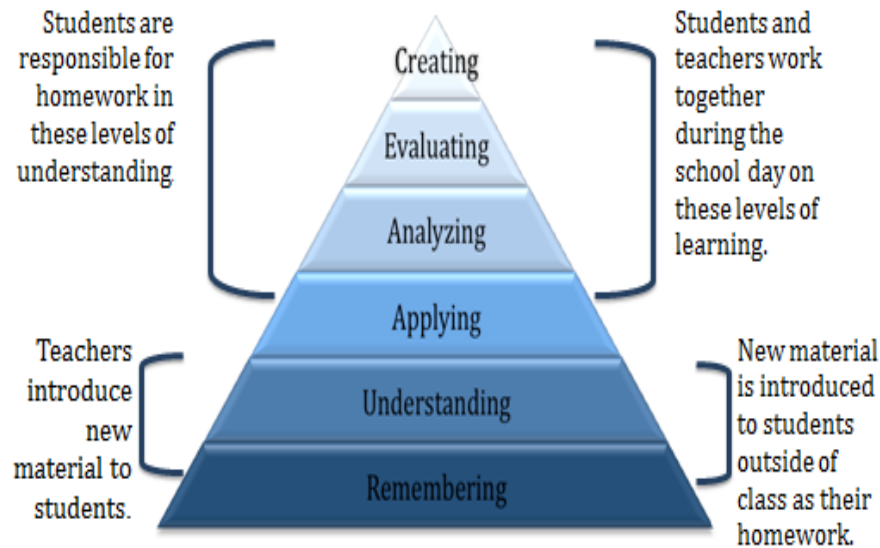
- ▶ Promise of maximizing allotted class time
- ▶ Allows for deeper learning through group interaction
- ▶ Moves instruction from in-class lecture to pre-class assignments



# Bloom's Taxonomy Applied to Flipped Learning

## Traditional Model

## Flipped Model



## Blooms Taxonomy

Image: Williams, Beth (2013). How I flipped my classroom. NNNC Conference, Norfolk, NE.

# Literature Review

- ▶ Past several years rapid increase in research on the flipped classroom in K-12 and higher education
- ▶ Much of the research focused on student and teacher satisfaction (qualitative studies)

# Literature Review

- ▶ IL Instruction and the Flipped Classroom
  - ▶ Quasi-experimental research
    - ▶ Brooks (2014)
      - ▶ Pre- and Post Tests
      - ▶ Feedback Surveys
      - ▶ Content Analysis of Student Bibliographies

# Research Questions

- ▶ Do students in a flipped session demonstrate greater pre-session knowledge compared to the students in a control session?
- ▶ Do students in a flipped session demonstrate greater positive pre- to post-session change compared to the students in a control session?

# Lehman College - Background

- ▶ Senior liberal-arts college
- ▶ Part of City University of New York's 24-college system
- ▶ 12,000+ students
- ▶ 51 undergraduate majors and programs; 46 graduate programs
- ▶ Commuter School
- ▶ Very high proportion of transfer students
- ▶ Very diverse: racially, ethnically and age-wise

# Class Design

The background features a series of overlapping, semi-transparent green polygons in various shades, ranging from light lime green to dark forest green. These shapes are primarily located on the right side of the slide, creating a modern, abstract design. The text 'Class Design' is positioned on the left side of the slide in a clean, sans-serif font.

# Business Management

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# Class Design - Business Management

- ▶ Research study of IL instruction in Business and Education
- ▶ Business Management instruction for Introductory and Advanced Undergraduate Courses
  - ▶ IL instruction covered the same resources for finding information on companies in both course levels
- ▶ Taught 13 classes over 3 semesters in 2014-2015:
  - ▶ Flipped (8) and Control (5 lecture/demo)



# IL - Learning Objectives

- ▶ Course requirements: complex team-based research projects on companies
- ▶ IL sessions attempted to cover 6 essential business resources for finding company information
  - ▶ Prior lecture/demo one-shots were rushed and could not cover all 6 resources completely
  - ▶ Little, if any, time for interaction with students to assess comprehension, answer questions
  - ▶ No assessment of IL instruction
- ▶ Evidence of students' need for more effective instruction
  - ▶ After IL instruction, students visited reference desk multiple times needing instruction on basic concepts and resources
  - ▶ Students need tutorials to review

# Learning Objectives

- ▶ Learning Objectives of IL (Flipped and Control)
  - ▶ Students will be able to find various types of company information using 4 resources:
    - ▶ Lexis-Nexis Company Dossier
    - ▶ Business Insights Essentials
    - ▶ Business Source Complete
    - ▶ SEC reports

# Flipped--Assignment

- ▶ Learning objective for 1 resource (Lexis-Nexis) transferred to homework assignment:
  - ▶ Watch 7.5 minute screencast video on Company Dossier
  - ▶ Answer questions on Worksheet
  - ▶ Submit completed Worksheet on Blackboard
- ▶ Librarians visited class one week prior to assign homework with print instructions as well as link to LibGuide on Blackboard
- ▶ Business faculty gave students participation credit for completion of assignment

# Face-to-Face Instruction

- ▶ Decision to cover 4 resources in IL instruction to have enough time to cover these
- ▶ Flipped One-Shots: Active Learning
  - ▶ 1 Resource as Homework; Group Activities on 3 resources
- ▶ Control One Shots:
  - ▶ Lecture/Demo on 4 resources

# Assignment Video and Worksheet

► Posted on Blackboard

<http://libguides.lehman.edu/BBA204assignment>

# Education

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# Class Design--Education

- ▶ Spring 2014 Graduate Students
  - ▶ Teaching English to Students of Other Languages (TESOL)
- ▶ Spring 2015 Undergraduate Students
  - ▶ 300 Level—Childhood Education
  - ▶ 300 Level—Middle School/High School Education

# IL—Learning Objectives

- ▶ Participants will be able to:
  - ▶ Identify the stages of inquiry and apply the first four elements of the inquiry model to their own research
    - ▶ Flipped/ Experimental—homework
    - ▶ Control—in class
  - ▶ Construct searches using keywords and subject terms
    - ▶ Flipped—homework and review in class
    - ▶ Control—in class
  - ▶ Assess search results and determine most appropriate next steps to limit or expand their results
    - ▶ Flipped—homework (assess search results) and in class
    - ▶ Control—in class



# Flipped--Assignment

- ▶ Introduced conceptual framework for inquiry through video (<http://youtu.be/FkiW-1ph588>)
  - ▶ Teachers could apply the same framework in their own classrooms
- ▶ Students applied their own research topics to engage with framework and document work on assignment sheet
- ▶ Conducted searches in Education Source database
  - ▶ Tip sheet offered search strategies
    - ▶ Boolean AND, OR, NOT, “phrase searches,” and wild card character\*
- ▶ Reflected on effectiveness of searches and strategies they applied

# Face to Face Instruction

- ▶ *Active learning employed in both control and experimental sections*
- ▶ Inquiry wheel—Topic, analysis, and questions
  - ▶ Flipped/Experimental: Shared topics; Control: Developed topics
  - ▶ Both: Analysis and Questions discussion using student topic
- ▶ Search strategies—Limit or expand search results
  - ▶ Flipped/Experimental: Small group discussion; Control: lecture
  - ▶ Both: Applied strategies to own topics
- ▶ Education Source search demonstration
  - ▶ Used their topics and strategies
- ▶ Individual searching—Consultations

# Research Design

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# Research Questions

- ▶ Do students in a flipped session demonstrate greater pre-session knowledge, compared to the students in a control session?
  - ▶ Hypothesis: students in the flipped condition would score significantly higher on the pre-test compared to those in the control condition
- ▶ Do students in a flipped session demonstrate greater positive pre to post session change, compared to the students in a control session?
  - ▶ Hypothesis: students in the flipped condition would demonstrate significantly greater change from pre-test to post-test compared to those in the control condition;

# Research Questions

- ▶ Do students who complete homework assignments come to class better prepared?
- ▶ Is active learning more effective than lecture/demo for library sessions?

# How We Tested the Method

## ▶ Homework

- ▶ Pre-test taken by all students at start of class
- ▶ How does average student come to class?  
(control group)
- ▶ What was effect of homework? (flipped group)

## ▶ Active learning vs. lecture/demo

- ▶ Post-test taken by all students at end of class
- ▶ What was effect of lecture? (control)
- ▶ What was effect of active learning? (flipped)

# Pre- and Post-Tests

- ▶ Business
  - ▶ 10 multiple choice questions
- ▶ Education
  - ▶ 7 multiple choice questions
  - ▶ 3 narrative questions
- ▶ Business and Education
  - ▶ 3 questions to gauge student perceptions (post-test only)
  - ▶ Demographic questions (pre-test only)

# Participants

## ▶ Business:

- ▶ 8 flipped and 5 control classes
- ▶ 245 business students in 13 classes with 5 instructors
- ▶ All undergraduates; 84% full time

## ▶ Education:

- ▶ 3 flipped and 3 control classes
- ▶ 44 education students in 6 classes with 3 instructors
- ▶ 10 graduate students, 34 undergrads; 72% full time



# Results

## ▶ Homework

- ▶ Business flipped classes did a lot (significantly) better on the pre-test than the control group
- ▶ Students in Education flipped classes had higher mean scores on the pre-test than students in the control group

# Results

*Homework?*

*Yes!*

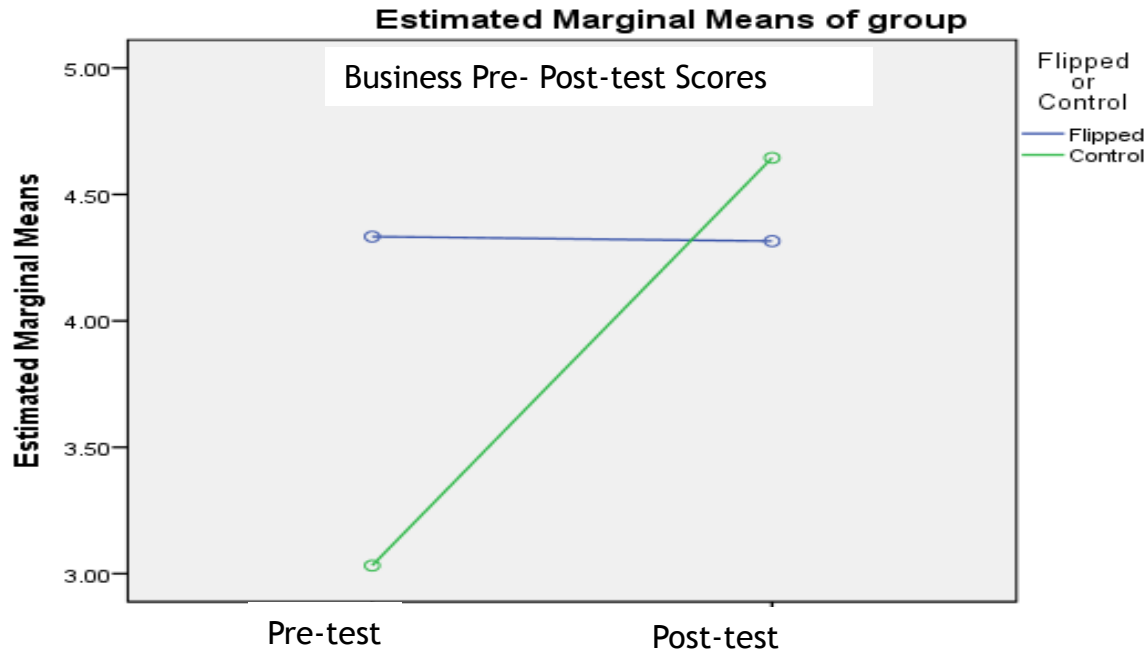
# Results

How helpful was the homework assignment?	
Business	Education
48.8% very helpful	25.0% very helpful
35.5% helpful	43.8% helpful
14.0% neutral	18.8% neutral
0.8% not helpful	0.0% not helpful
0.8% not helpful at all	0.0% not helpful at all
0.0% no answer	12.5% no answer

# Results

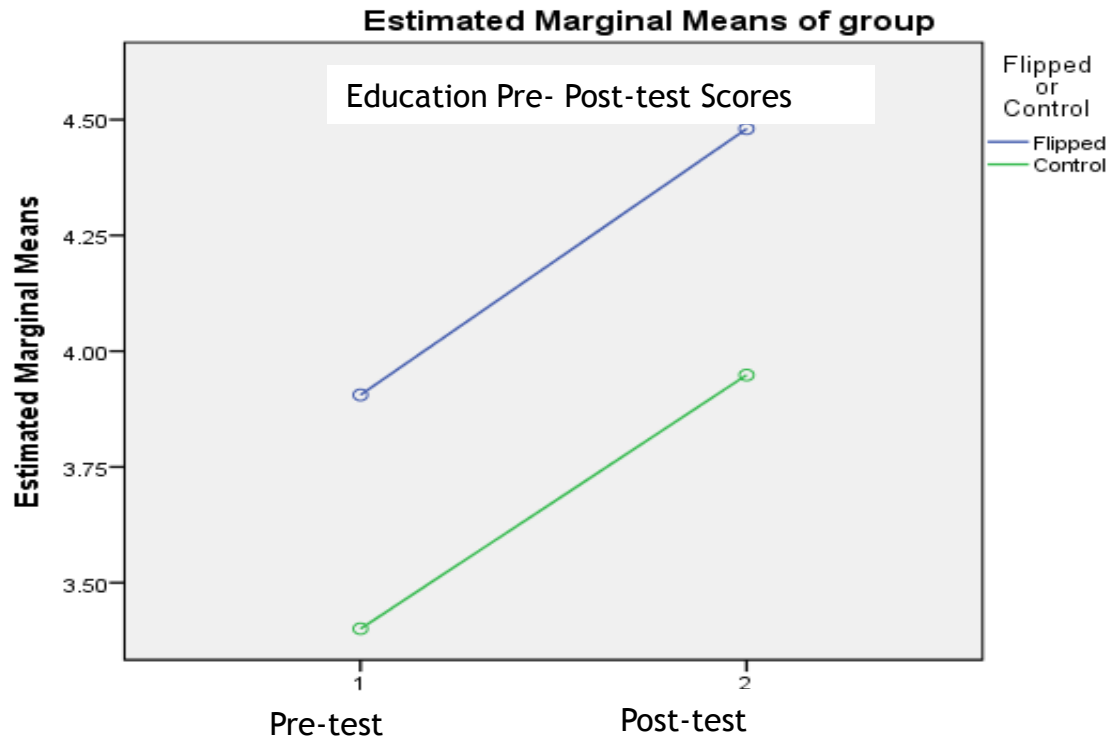
- ▶ Active learning vs. lecture/demo
  - ▶ Business control group improved a lot (significantly) between pre- and post-test...
  - ▶ But business flipped group did not!
  - ▶ Mean scores of Education flipped and control groups improved at a similar rate.

# Results



Covariates appearing in the model are evaluated at the following values: Professor who taught class = 2.49, Sem\_Year = 2.23, Day or evening class = 1.46, Full or part-time student = 1.16, Number of semesters completed (here or at any college) = 2.88, Number of business courses completed = 1.69

# Results



Covariates appearing in the model are evaluated at the following values: Professor who taught class = 7.20,  
Full or part-time student = 1.43

# Results

*Active learning or Lecture/demo?*

*Uhhhh....?*

# Results

Did You Enjoy the Session?			
Business		Education	
Flipped	Control	Flipped	Control
35.5% liked a lot	22.1% liked a lot	6.3% liked a lot	45.8% liked a lot
41.3% liked	42.6% liked	50.0% liked	33.3% liked
22.5% neutral	30.9% neutral	31.3% neutral	8.3% neutral
0.8% disliked	1.5% disliked	0.0% disliked	0.0% disliked
0.0% disliked a lot	1.5% disliked a lot	0.0% disliked a lot	0.0% disliked a lot
.8% no answer	1.5% no answer	12.5% no answer	12.5% no answer



# Future Practice & Research

The background of the slide is white with abstract green geometric shapes on the right side. These shapes include overlapping triangles and polygons in various shades of green, from light lime to dark forest green. The shapes are layered, creating a sense of depth and movement. The overall aesthetic is clean and modern.

# Business Flipped Results - What We Learned

- ▶ Giving Assignment is Highly Advantageous
  - ▶ Even better to assess homework before class
  - ▶ Maximize in-class time
  - ▶ In-class activities could begin at a higher level
- ▶ Flipped Could Potentially Benefit from Active Learning that emphasizes higher-level learning
  - ▶ Flipped students maintained scores from pre- to post-tests
  - ▶ Content of class or active learning activities didn't raise scores to a higher level than pre-test

# What We Learned About Giving Assignments

- ▶ High level of assignment completion in both Business (91%) and Education (80%)
  - ▶ Visit class to explain assignment, grading and due date
  - ▶ Give active learning exercise with video to foster learners' engagement
  - ▶ Tutorials and exercises help students to remember, understand and apply factual, conceptual and procedural knowledge (lower-order learning)\*
  - ▶ Qualitative data showed students felt they benefited from assignment (so they will do a well-designed assignment)

\*Source: Shank, J. (2014). *Interactive open educational resources: A guide to finding, choosing, and using what's out there to transform college teaching*. San Francisco: Jossey-Bass, p. 119.

# Takeaway for IL Instruction

- ▶ Even if you don't flip your IL one-shot, try to give an assignment
  - ▶ Interactive Video tutorial
    - ▶ Provide assessment and feedback prior to class
  - ▶ Post on LMS (Blackboard or other)

# Education Flipped Results - What We Learned

- ▶ Education Learning Objectives--Participants will be able to:
  - ▶ Identify the stages of inquiry and apply the first four elements of the inquiry model to their own research
    - ▶ **Bloom's Taxonomy: Remembering→Applying**
    - ▶ Flipped/ Experimental—homework
    - ▶ Control—in class
  - ▶ Construction searches using keywords and subject terms
    - ▶ **Bloom's Taxonomy: Applying**
    - ▶ Flipped—homework and review in class
    - ▶ Control—in class
  - ▶ Assess search results and determine most appropriate next steps to limit or expand their results
    - ▶ **Bloom's Taxonomy: Analyzing→Evaluating**
    - ▶ Flipped—homework (assess search results) and in class
    - ▶ Control—in class

# Takeaway: Assignment

- ▶ Review student work prior to class
  - ▶ Adjust lesson plan based on assessment of search strengths, weaknesses, and questions
- ▶ Provide written feedback on search strategy
  - ▶ Students use feedback to adjust search strategies in class
- ▶ Librarian has time to meet with students in small groups—everyone has something on which to work

# Future Practice: ACRL Framework and Flipped IL

- ▶ Fall 2015—Flipped Classes
  - ▶ Science Education and Literacy
- ▶ Time for summary reflection activity inspired by ACRL Framework Inquiry Frame
  - ▶ Reflect on inquiry knowledge practices and dispositions
  - ▶ Discussion
  - ▶ Exit ticket

# Future Practice: Inquiry Frame - Dispositions

## Student Responses:

*Good habits of mind for inquiry include:*

**Thinking** about what I want on a **daily basis**; **reflecting** on my search techniques and **reading** about the topic

Set a time to search; **be open minded to changes**; take your time;  
**Keep an open mind, adapt your searches** as you go along;

**Keep trying; don't give up**, try not to get frustrated. Be prepared to spend a reasonable amount of time researching;

**Help from a peer** was really helpful when you feel stumped.

## Inquiry Frame:

*Learners who are developing their information literate abilities:*

Consider research as **open-ended exploration** and **engagement with information**;

**Maintain an open mind** and a critical stance;

**Value persistence**, adaptability, and flexibility and recognize that ambiguity can benefit the research process;

**Demonstrate intellectual humility** (i.e., recognize their own intellectual or experiential limitations).



# Questions for Future Research

- ▶ Will flipped model result in greater *retention* of learning?
  - ▶ Assessment at mid- or end of semester
- ▶ Will students in flipped classes improve learning in-class from activities involving higher-level learning? (analyzing, evaluating, creating)

# Background Reading

- ▶ Arnold-Garza, S. (2014). The flipped classroom teaching model. *Communications in Information Literacy*, 8(1), 7-21.  
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[http://www4.ncsu.edu/unity/lockers/users/f/felder/public/Papers/Prince\\_AL.pdf](http://www4.ncsu.edu/unity/lockers/users/f/felder/public/Papers/Prince_AL.pdf)

# Questions? Contact:

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