

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

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Introduction

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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

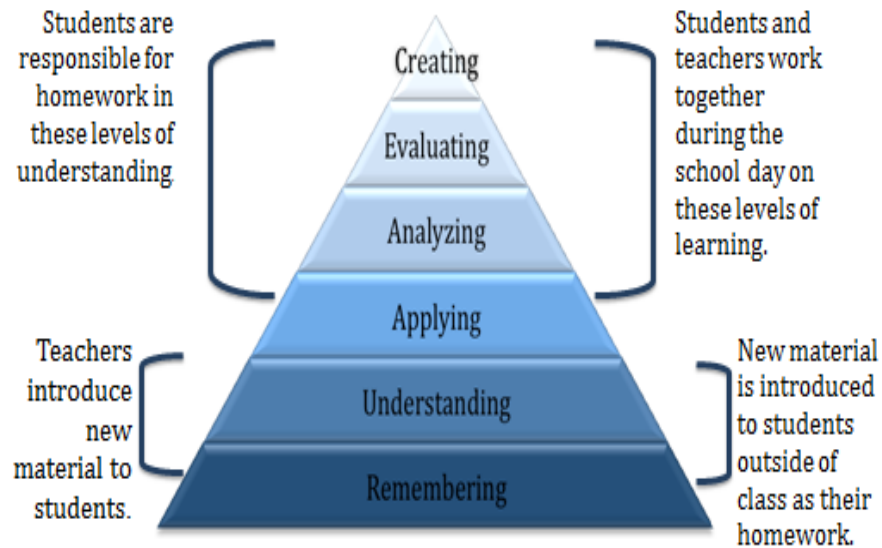
Flipped Classroom Instructional Model

- ▶ 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

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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!

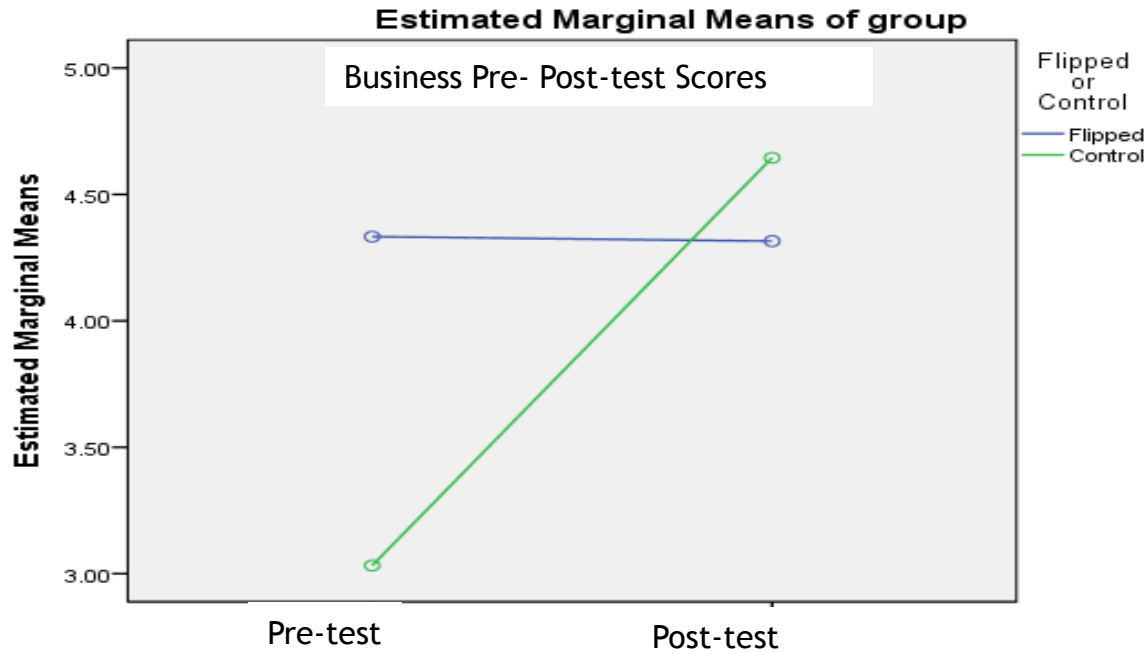
Results

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

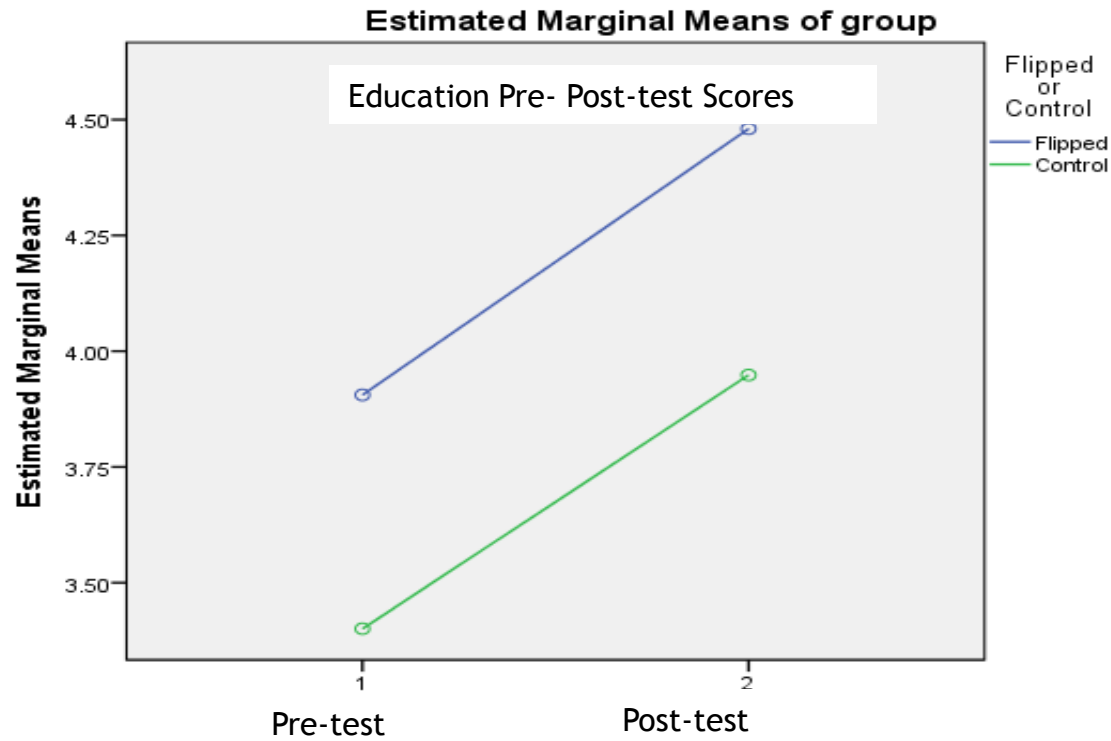
- ▶ Active learning vs. lecture/demo
 - ▶ Business control group improved a lot (significantly) between pre- and post-test...
 - ▶ But business flipped group did not!
 - ▶ Mean scores of Education flipped and control groups improved at a similar rate.

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

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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)

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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- ▶ Prince, M. (2004). Does active learning work? A review of the research. *Journal of Engineering Education*, 93(3), 1-10.
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