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Empowering Students to Become Curious, critical learners: Evaluating “Information Searching and Analysis”

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Preliminary Report: Empowering Students to Become Curious, critical learners: Evaluating “Information Searching and Analysis”

This report presents a preliminary presentation of the data collected in the Winter 2019 offering of POLS 2700 *Information Searching and Analysis*. Both qualitative and quantitative data are presented from the reflection papers and the pre/post-tests completed by students respectively. Quantitative data are combined with data from a previous offering of the course in order to have enough cases to allow statistical analysis—combined the number of participants exceeds 30, making statistical analysis viable.

Qualitative Data

Class participants were asked several general questions to prompt student reflection on their experiences in the course. Two questions concerned “meaningful assignments” and “eye-opening experiences in the course. The summary data is presented below:

Meaningful Assignments		Eye-opening Experiences	
Confirmation Bias	11	Personalization/data privacy	6
Website analysis	10	Look at Websites differently	10
News Analysis	5	Confirmation Bias	8
Other meaningful: Discussion sessions		Readings	4
Research Question			
Annotated Bibliography			

Web personalization and data privacy were addressed in early video and readings from *The Filter Bubble*. The confirmation bias (CB) assignment showed up in both areas, signaling the importance it had for many students in the course. Another reflection paper question focused on whether the CB assignment helped students catch themselves when they engage in CB. Thirteen of 20 reflection papers indicated students in the course felt they were getting better at identifying their CB tendencies.

One of the goals of the course is to help students become more confident about navigating web search results. Students gave many responses in this area:

More questioning/skeptical of web content	6
Identify trustworthy news	5
Made me a better student/citizen	2
Can learn for myself	4
Seek out multiple sources	3

Most students indicated they were more information literate after the course. In terms of the position they had on the issue they studied over the semester, most students indicated they did not change their position. Many students said they saw their issue as more complex

and multi-faceted after the course. None of the assignments were seen as a waste of time. Ten students suggested the course was crucial for their university education and should be taken by all social science majors. Some students said all students would benefit from this course.

Quantitative Data

Information Searching and Analysis is an example of a “flipped classroom.” Flipped classroom approaches mean less lecture and more experiential learning in and out of the classroom. Flipped classrooms are meant to provide a setting for *student centered* learning and should help students become more independent learners. Three scales completed in the pre and post-tests are presented which attempt to measure the impact of the course on critical thinking, academic self-concept and perceived academic control. Research on other attempts at a flipped classroom have shown greater student learning and retention, enhanced critical thinking and more student empowerment. For each of the three scales, scores were expected to increase in the posttest over the pretest.

Three hypotheses:

H₁ Students’ academic self-concept will be enhanced as a result of this course.

H₂ Students will perceive greater academic control as a result of this course.

H₃ Students will become more critical thinkers as a result of this course.

The table below summarizes the results of the pre/post differences for each measure:

Academic Self Concept (n=30)

	Mean	Std Dev.	
Pre test score	32.43	9.380	
Post test score	36.77	.575	Sig.=.000

Perceived Academic Control (n=31)

	Mean	Std Dev.	
Pre test score	33.45	.686	
Post test score	34.29	.901	Sig. =.000

Critical Thinking and Information (n=31)

	Mean	Std. Dev.	
Pre test	15.42	.490	
Post test	16.58	.292	Sig.=.000

Academic self-concept scores increased at a significant level. How competent we feel in our higher education experiences can influence outcomes in any course, including how much

effort we give. This measure and the perceived academic control measure are used here as proxy measures for academic empowerment. The higher scores in the post test indicate students came out of the course more empowered.

How students perceive their ability to navigate their university experience is an important consideration as it indicates more student confidence/empowerment. The data show students came out of the course with a greater sense of control over their academic achievements. Thus, both measures of “empowerment” show change in the predicted direction.

Critical thinking is essential with respect to how we analyze and interpret information in the internet era. Given the inundation on the internet of “interested” sources of information, the course experience should result in a more critical approach to searching on the web and internet content generally. This is the case though many students had fairly high scores on the pretest. Similarly, two of the three measures saw lower standard deviations in the post-test, which indicates students who were lower on these measures in the pre-test, moved closer to those with higher scores in the pre-test.

There is more to be done with the data from the reflection papers which will show students found the course empowering. One additional scale used in the pre and post-tests focused on curiosity. This is the first time the scale was used for this class and the number of students who finished the course (21) is too small to be adequately analyzed statistically. These data will be added to data from future course offerings.

To summarize, both the qualitative and quantitative data illustrate the course was successful in helping students gain more knowledge and confidence about searching for news and information on the internet. As the course is designed to put students in the driver’s seat when it comes to learning, it reflects the success a flipped classroom approach can bring to higher education. Giving students the tools to confidently sort quality information from poorly documented claims is an important skill for all students’ development as students, consumers and citizens.