

BCA Project Final Proposal

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Topic Statement

Our project will analyze the benefits and costs of introducing a course requirement to enhance the critical reading skills of undergraduate students at Florida Polytechnic University.

Importance

It has been found that STEM students at Florida Polytechnic University seem to be lacking in the development of their critical reading skills. Critical reading skills are invaluable to students among all disciplines to develop their literacy and proficiency in their discipline and form their own arguments on various topics. This presents a challenge to students looking to analyze complex texts or just to simply parse texts for increased comprehension. Outside of college, possessing good critical reading skills can mean the difference between landing a job or not. According to Newman University, the top skills that employers look for are critical thinking and problem-solving skills (Campbell, 2021). These findings present a need for a more focused approach to improving student's critical reading skills at Florida Polytechnic University. Since critical reading should be applied across a range of studies and disciplines in student's daily lives, I believe the best way to address this could be met by integrating a course requirement to develop more critical reading skills in Florida Polytechnic University's classes.

Analysis

For this analysis, we will be conducting a benefit-cost analysis to estimate and weigh the net monetary benefits and costs of integrating a course requirement to enhance the critical reading skills of students at Florida Polytechnic University. More specifically, we will be focusing on estimating the probability of increasing these students' critical reading skills to quantify the impact of implementing a critical reading course requirement. To accomplish this, we plan to survey professors at Florida Polytechnic University to determine their perception of the undergraduate students' critical reading skills to gather estimates for my data.

From this data, an analysis would be conducted to reveal the benefits to the students over their lifetime for introducing more critical reading into their courses and the costs incurred by Florida Polytechnic University to revise course curriculums and train professors to tailor their classes to focus more on developing their student's critical reading skills.

Possible Alternatives

- Benefit cost analysis of offering a critical reading class at Florida Polytechnic University.
- Benefit cost analysis of better equipping students with more soft skills and core competencies sought by employers such as work ethic, communication, critical thinking, teamwork, and leadership.

Figure 1: Employer vs. Student Perception of Proficiency in Career Readiness Competencies, by Percentage of Respondents

Competency	% of Employers That Rated Recent Grads Proficient*	% of Students Who Considered Themselves Proficient**
Professionalism/Work Ethic	42.5%	89.4%
Oral/Written Communications	41.6%	79.4%
Critical Thinking/Problem Solving	55.8%	79.9%
Teamwork/Collaboration	77.0%	85.1%
Leadership	33.0%	70.5%
Digital Technology	65.8%	59.9%
Career Management	17.3%	40.9%
Global/Intercultural Fluency	20.7%	34.9%

Source: Job Outlook 2018 (N=201 employing organizations) and The Class of 2017 Student Survey Report (N=4,213 graduating seniors), National Association of Colleges and Employers

*The percentages corresponding to "rated proficient" represent, among all responding employers, the percentage who, on a 5-point scale, rated recent graduates either "very" (4) or "extremely" (5) proficient in the respective competency.

**The percentages corresponding to "considered proficient" represent, among all responding graduating seniors from the Class of 2017, the percentage who, on a 5-point scale, considered themselves either "very" (4) or "extremely" (5) proficient in the respective competency.

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Literature Review

There appears to be a consensus among researchers, university faculty, and students that critical reading is significantly useful and applicable to all levels of education. However, it's not as present as comparable tools in a student's toolbox they develop over their time as university students, specifically undergraduate studies.

According to Shostya and Morreale, "Critical reading is fundamental to studying economics ... developing critical reading and thinking skills can make students more economics literate, and thus more proficient in economic principles, economic theory, and economic policy-making" (Shostya, 2020). It is important that students develop critical thinking skills to succeed not only in college, but in the workplace, and in life. I thought this was interesting because it addresses similar concerns as were noticed in our Contemporary Economic Issues course (ECO 3930) that economics students struggle to parse complex texts.

Though students are confident in their abilities to read and write as they go into their freshman year, however, they're shortsighted in their perception of their ability to create strong arguments. Booth makes a point in saying that "University history departments are concerned about the limitations of undergraduates in their construction of arguments and their critical reading skills ... Students beginning university, however, are generally confident of their ability to write essays, take notes from textbooks and work independently. By the end of their first year at university, undergraduates' understanding of what the study of history entails has changed dramatically. If teachers at school and university level can find ways to ease this transition, then surely this will enable further progression" (Booth, 2005). Booth continues with explaining that students are much more confident in their ability to collect information than in their ability to make arguments in great depth.

Campbell furthers the argument that critical reading and critical thinking are supplementary by saying "Employees need to be able to analyze evidence, question assumptions,

test hypotheses, observe and draw conclusions from any form of data. Critical thinking is not just a skill, but a habit formed to help with problem-solving” (Campbell, 2021).

Norwood and Henneberry focus on critical reading skills in the workplace. Their paper states that employers are willing to pay for specific intangible competencies such as critical thinking and communication skills. (Norwood & Henneberry, 2006).

Kulkarni, Anuttama, and Vartak examine the specific benefits of critical reading and potential reasons why it hasn’t been as popular thus far among undergraduate courses. Traditionally, reading scientific literature has not been introduced in university until the end of or after undergraduate studies because “reading and comprehending a good piece of primary literature requires considerable background knowledge that includes familiarity with experimental techniques, statistical methods, and expert terminologies” (Kulkarni, 2019). However, the arguments in favor of undergraduate students being given primary sources from industry researchers include enhancing students' understanding of the process of scientific inquiry, appreciating the methodological work that goes into making a piece of primary science literature, and humanizing the view of science and scientists, making students aware of the effort, debates, and excitement the scientific community goes through before a scientific theory is established (Kulkarni, 2019)

Technical Plan

As was mentioned in the feedback on my initial project proposal, this project is a lot to take on by myself. Therefore, I decided to reach out to a fellow classmate, Logan Miller, who is in both Contemporary Economic Issues and Benefit Cost Analysis with me. For this paper, we intend to conduct a very thorough analysis such that this paper can be used in both classes.

Our plan is to start off by collecting our data for the analysis. To do this, we came up with ten questions to ask in a survey to the professors at Florida Poly. The survey questions that we are planning on asking the professors are listed below.

1. What percentage of students at Florida Polytechnic University would you say have excellent critical reading skills?
What percentage of students at Florida Polytechnic University would you say have above average critical reading skills?
2. What percentage of students at Florida Polytechnic University would you say have average critical reading skills?
3. What percentage of students at Florida Polytechnic University would you say have mediocre critical reading skills?
4. What percentage of students at Florida Polytechnic University would you say have poor critical reading skills?

(** NOTE The professor’s responses to the first 5 questions should add up to 100%)

5. Of the students in the above average category, please indicate what percentage of them display the motivation to improve into the ‘excellent’ category.
 - a. Improve to Excellent

- i. Approximately 0%
 - ii. Approximately 25%
 - iii. Approximately 50%
 - iv. Approximately 75%
- 6. Of the students in the average category, please indicate what percentage of them display the motivation to improve into the following categories.
 - a. Improve to Excellent
 - i. Approximately 0%
 - ii. Approximately 25%
 - iii. Approximately 50%
 - iv. Approximately 75%
 - b. Improve to Above Average
 - i. Approximately 0%
 - ii. Approximately 25%
 - iii. Approximately 50%
 - iv. Approximately 75%
- 7. Of the students in the mediocre category, please indicate what percentage of them display the motivation to improve into the following categories.
 - a. Improve to Excellent
 - i. Approximately 0%
 - ii. Approximately 25%
 - iii. Approximately 50%
 - iv. Approximately 75%
 - b. Improve to Above Average
 - i. Approximately 0%
 - ii. Approximately 25%
 - iii. Approximately 50%
 - iv. Approximately 75%
 - c. Improve to Average
 - i. Approximately 0%
 - ii. Approximately 25%
 - iii. Approximately 50%
 - iv. Approximately 75%
- 8. Of the students in the poor category, please indicate what percentage of them display the motivation to improve into the following categories.
 - a. Improve to Excellent
 - i. Approximately 0%
 - ii. Approximately 25%
 - iii. Approximately 50%
 - iv. Approximately 75%
 - b. Improve to Above Average
 - i. Approximately 0%

- ii. Approximately 25%
 - iii. Approximately 50%
 - iv. Approximately 75%
 - c. Improve to Average
 - i. Approximately 0%
 - ii. Approximately 25%
 - iii. Approximately 50%
 - iv. Approximately 75%
 - d. Improve to Mediocre
 - i. Approximately 0%
 - ii. Approximately 25%
 - iii. Approximately 50%
 - iv. Approximately 75%
9. On a scale from 1 to 5, where 1 is highly unlikely and 5 is highly likely, how likely do you think it is that implementing a critical reading requirement would significantly benefit Florida Poly students?
10. Do you think a critical reading requirement would be a useful addition to certain courses to better prepare Florida Poly students?

With the answers to these questions, we will then conduct a data analysis to determine the costs and benefits associated with implementing a critical reading requirement in courses at Florida Poly. After calculating the net benefits of this, we will then conduct a sensitivity analysis to determine how sensitive our final results are to small changes in the parameters of the study and how much change in the parameters would it take to change in the final recommendations and conclusions of the study. In this way, sensitivity analysis will be used to help us determine just how confident we are in our results.

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