“Using Reflection Papers in Principles of Macroeconomics classes”

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Preliminary Copy - February 2011

Abstract

Teachers constantly try finding better ways to help students apply the material learned in “Principles of Macroeconomics” classes. Previous research (Powell and López, 1989) demonstrates deeper learning takes place when students recognize how course content directly relates to their daily lives and when they reflect on their own experiences, rather than memorize the content of textbooks. Facilitating students’ realization of how much the topics in “Principles of Macroeconomics” relate to their daily lives while giving them the chance to reflect on the material, we instructed students to write several reflection papers over the course of a semester. We compared exam scores of students who wrote reflection papers with students who did not write reflection papers to identify if writing reflection papers help students retain significant amounts of material covered during class.

Rationale

Positions available in economics increasingly require students to possess fundamental writing and critical thinking and discernment skills. Furthermore, writing in itself is an important assessment tool for higher-level learning. Hence, several authors suggest including writing as a means of assessment into economics classes to test higher-level learning skills while preparing students for the national job market (Becker, 1997; Emig, 1977; Walstad, 2001).

Incorporating writing assignments into the economics curriculum also has the additional objective of generally improving student learning. Research suggests writing benefits student learning (Bangert-Drowns et al., 1991; Butler and Winne, 1995; Langer and Applebee, 1987; Hayes and Flower, 1980; Hayes, 2000; Winne, 1997, 2001) and has been found to improve learning in economics classes, because of the active learning component involved with using writing (Crowe and Youga, 1986; Simpson and Carroll, 1999). Furthermore Chizmar and Ostrosky (1998), Dynan and Cate (2005, 2009), Greenlaw (2003), and Stowe (2010) identify various forms of writing assignments (one minute papers and more comprehensive writing assignments) actually improve the exam performance of students in economics classes.

Objectives

The study objective was determining if short reflection papers (150-300 words) had any effect on improving student learning as measured through exam performance. This study looks at reflection papers in the form suggested by Brewer and Jozefowic (2006). However, Brewer and Jozefowic (2006) also suggested students write six reflection papers during a 15-week course. Since in this study students were asked to write only three reflection papers, the objective of the study was also to
identify if effects on examination performance could also be achieved through fewer and shorter writing assignments than compared to the studies of Brewer and Jozefowic (2006).

Methods

Students were asked to write three reflective essays during the semester. For each essay students could choose a topic being covered on an upcoming exam. During the course of the study, two sections of “Principles of Macroeconomics” completed the reflective writing assignments. The study also included three sections of “Principles of Macroeconomics” as a control group. The study was conducted during Spring and Fall 2010 semesters.

Motivation:

Writing improved the learning of students in economics, and improved exam performance. However, empirical studies using one-minute papers were only done for one class as the treatment class and hence the results of those studies could potentially be spurious (Chizmar and Ostrosky, 1998 and Stowe, 2010). Furthermore, empirical studies using more comprehensive forms of writing required students to write several (up to 10) longer papers and were labor intensive for evaluation and grading by instructors (Dynan and Cate, 2005 and 2009; Greenlaw, 2003). This study used a smaller number of writing assignments (three) asking students to reflect on material covered in class. The study was conducted over two semesters, making the statistical analysis more rigorous.

Reflection Papers Guideline for Students:

The guidelines provided to the students participating in the Macroeconomics class are provided here. Students (You) are required to write three reflection papers during the semester. Each reflection paper is due the day after the review sessions for the exam. The papers should be 150-300 words long explaining how one of more of the just-completed textbook chapters relates to your life. There are no wrong answers, but a summary of the chapter is not acceptable. You are expected to reflect on the material from the chapter and determine the way(s) in which it is meaningful to you either for the past, present, or future. Your evaluation is based on the originality and insightfulness of your work and not the quantity. The reflection papers need to be submitted into the appropriate dropbox on D2L (submit a .doc or .docx file that includes your name and class section in the header — files that do not follow the rules will not be graded). The purpose of the reflection papers is getting you used to applying the language of economics, to creatively express your understanding of economic principles while developing written communication and higher-level critical thinking skills. Please, use an appropriate amount of time to finish the reflection papers (format for reflection papers derived from Brewer and Jozefowic, 2006).

Grading:

Three forms of grades were given for the reflection papers: good performance - appropriate example together with correct use of economic terminology; average performance - just providing example
Results:

Results of difference-in-means tests can be found in Table 1. The differences in means are calculated for the exam scores (scale of 30 points) between the two students groups who wrote reflection papers compared to students who did not write reflection papers. The tests show that writing reflection papers only had a significant effect in one particular case. Final exam (not comprehensive) scores for students who had lower scores than the class median had 1.25 points more on the final if they wrote reflection papers. On average an additional 1.25 points increases the grade by 0.3 GPA and makes the difference between a C- and a C. In no other case did the reflection papers have a measurable statistically significant impact on exam performance.

<table>
<thead>
<tr>
<th></th>
<th>Mean Reflection</th>
<th>Mean No Reflection</th>
<th>Difference in Means</th>
<th>Significance p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>exam 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>exam 1 below median (25)</td>
<td>21.70</td>
<td>21.68</td>
<td>0.02</td>
<td>0.97</td>
</tr>
<tr>
<td>exam 1 above median (25)</td>
<td>27.50</td>
<td>27.61</td>
<td>-0.11</td>
<td>0.97</td>
</tr>
<tr>
<td><strong>exam 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>exam 2 below median (26)</td>
<td>21.83</td>
<td>21.51</td>
<td>0.32</td>
<td>0.66</td>
</tr>
<tr>
<td>exam 2 above median (26)</td>
<td>28.06</td>
<td>28.15</td>
<td>-0.09</td>
<td>0.66</td>
</tr>
<tr>
<td><strong>exam 3</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>exam 3 below median (22)</td>
<td>18.25</td>
<td>17.00</td>
<td>1.25</td>
<td>0.05</td>
</tr>
<tr>
<td>exam 3 above median (22)</td>
<td>24.92</td>
<td>25.53</td>
<td>-0.61</td>
<td>0.21</td>
</tr>
</tbody>
</table>

Conclusions:

Writing reflection papers influences students’ exam performance. However, the positive influence of reflection papers in this study was limited to students who had lower than median scores on the final exam. It is unlikely that these writing assignments actually only have such a limited effect, as the literature has shown that writing influences exam performance positively. However, during this study students completed fewer writing assignments than in similar studies in the literature (Chizmar and Ostrosky, 1998; Dynan and Cate, 2005 and 2009; Greenlaw, 2003; and Stowe, 2010). Hence, it is possible that this study does not find a larger influence of reflection papers on students’ exam performance, because students did not write enough reflection papers. Thus, more research is needed to find a balance between writing enough papers to generate a positive effect on students’ exam performance and the time constraints faced by the instructor.
References:


