

“Effects of cooperative writing activities in small learning teams on retention, peer response, and philosophical argumentation in a large online course”

Summary

Despite the centrality of Philosophy to general education curriculum, there has been relatively little research into effective methods of teaching Philosophy online. This research study investigated three interrelated and central issues in online education and the teaching of philosophy and writing: increasing student persistence in large online classes, improving philosophical argumentation skills, and improving student responses to writing by peers (aka peer review). To address these issues, a few key changes were made to the Academic Partnerships course PHIL 1370: Philosophy of Knowledge, and comparisons were made between student work in one section taught prior to these changes and two sections taught after the changes were implemented.

The research conducted with this grant was broken out into three separate sub-studies. By far the largest part of this research study involved the comparison of final, end-of-semester papers across three sections (1 pre-intervention, 2 post-intervention). A total of 364 papers were analyzed, 65 from Spring 2013, 165 from Fall 2014, and 134 from Spring 2014, comprising the total of student essays submitted in each of these sections. To prevent personal bias and ensure inter-rater reliability, three independent raters scored anonymized student essays using a rubric designed for this study. Data was compared using a t-test.

Papers were rated on a rubric consisting of the following categories: “Either the organizational structure or the language of the essay (or both) make the author’s points easy to understand and follow”; “The author clearly and succinctly states his or her position on a debatable issue, which is the focus of a unified paper”; “The author supports that position with sound, logical reasoning and with analysis of textual evidence”; “The author presents an opposing viewpoint or a potential critique of his or her own position in a fair and accurate way (ie. without making the opposing view or critique look weak or ridiculous)”; “The author responds to that opposing viewpoint or critique (eg. by refuting it, by adjusting the original argument, or by some other means that demonstrates engagement).”

The effects of two new types of assignments on student’s ability to make philosophical arguments, as assessed in the final paper, were measured. Argumentation skills, as defined in Philosophy, require the abilities to (a) succinctly state one’s position on a debatable issue, (b) support that position with sound reasoning (logic) and analysis of evidence (in this case, evidence from the assigned readings), (c) generously present an opposing view or potential critique of one’s own position (i.e. without ‘straw manning’ one’s opponent), (d) respond to the opposing argument.

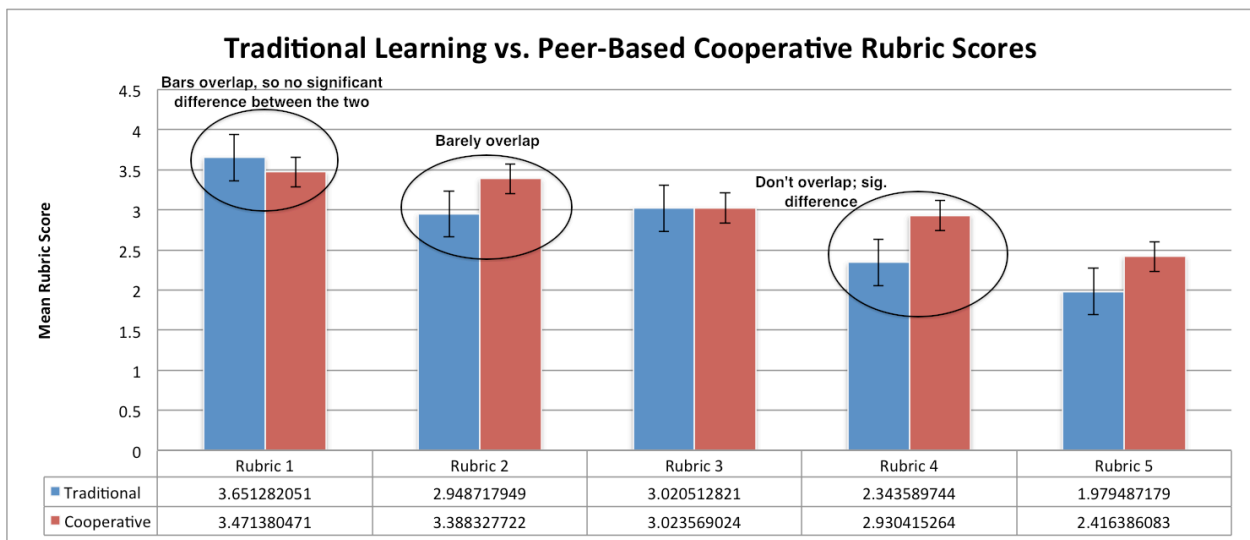
The redesigned course includes two new types of assignments: (1) discussion questions aimed at increasing comprehension and at getting students to engage with opposing viewpoints (differing answers to a discussion question) using argumentation and evidence from the weekly reading assignments, and hopefully coming to consensus about the right answer (practicing abilities b and d, above); and (2) two short essays that build on these comprehension and evaluation skills to train students in defending their own positions with evidence and reasoning (practicing abilities a and b) and generating and responding to opposing arguments (practicing abilities c and d). By having students break down and practice these four specific skills in structured cooperative activities, and then combine them in a final paper, it was anticipated that students would improve in all four components of

philosophical argumentation. By using scaffolding and repetition, it was hypothesized that this new course design would better prepare students to complete a complex and advanced form of written argumentation that is beyond what is ordinarily expected of students at the introductory level.

At this point, the findings are not conclusive. As the graph below demonstrates, a statistically significant difference was only found in the fourth category of the rubric, *The author presents an opposing viewpoint or a potential critique of his or her own position in a fair and accurate way (ie. without making the opposing view or critique look weak or ridiculous)*. There was nearly a statistically significant difference in the second category of the rubric, *The author clearly and succinctly states his or her position on a debatable issue, which is the focus of a unified paper*.

Despite these disappointing preliminary results, the improvement in category number four, which students report to be the most challenging and counter-intuitive aspect of philosophical argumentation, is encouraging. Additional analyses will be performed to determine if any more useful conclusions can be mined from this data. It is anticipated that additional research may be necessary. See the appendix for a full report of the data associated with this part of the project.

However, as chart 1, below, shows, students identified “sequential building of skills through course design” as the largest factor in their success in the course, above even “instructor and/or instructional associates supportive & attentive.” This suggests that this course design, which utilizes scaffolding and repetition of writing skills, may have an impact on student persistence.



Graph 1: Comparison of Mean Rubric Scores in Traditional (pre-intervention) and Cooperative (post-intervention) course design.

The second sub-study involved collecting data, in two semesters following the intervention (Fall 2013, Spring 2014), on student persistence in the course and students’ perception of the impact of various factors on their ability to overcome challenges. Results of this study are not conclusive at this point. Student persistence does not appear to clearly track in relation to the interventions made in this course. Specifically, there was no clear upward or downward trend in persistence that could be clearly related to the implementation of small discussion groups (learning communities), which were designed to increase persistence by increasing immediacy, a factor hypothesized by Hutchins (2003) to help persistence. It

was hypothesized that feeling ‘lost’ in a massive crowd of faceless strangers, as can happen in a class of 100+ students, increases the risk of dropout, and that moving to a smaller, more intimate and personal learning community would increase student persistence in the course. However, as can be seen in chart 1, out of eight possible options students rated “isolation in a large course” as the factor that interfered *least*, not most, with their ability to succeed in the course.

The data is not currently conclusive because other factors cannot be controlled for. For instance, in the Fall 2013 semester, Lamar University servers had technical limitations that created frequent and significant problems in Blackboard connectivity for students and instructors. Students in that semester rated “technical difficulties with Blackboard” as interfering with their success at a rate nearly three times higher than did students in the spring semester when the servers had been fixed. The situation is further complicated by the fact that student perception of the factors that contributed most to their success and ability to overcome challenges in our course did not identify ‘small discussion sections’ as the most significant factor. See chart 1 for more information.

Question 1 On a scale of one to five, please rate your thoughts about dropping this course during the semester.	Fall 2013 % (164/32)	Spring 2014 % (135/35)
1.1 (almost/wanted to drop)	4.27	6.67
1.2 (considered dropping often)	11.59	11.11
1.3 (considered dropping, but not seriously)	3.66	5.19
1.4 (didn't consider dropping but frustrated)	48.17	39.26
1.5 (didn't consider dropping, can easily handle work)	32.32	37.78
1.6 (unofficially dropped/not participating)	0	0
1.7 (unanswered)	0	0
Question 2 Please select all that apply from the list below. Which of the following have gotten in the way of your success in this course?		
2.1 (amount of work too much)	18.90	10.37
2.2 (type of work too hard)	26.22	28.89
2.3 (technical difficulties w/BB)	26.83	3.70
2.4 (personal life interfering/less attention for school)	45.12	42.96
2.5 (isolation in a large course)	3.66	3.70
2.6 (no problems with success)	25.61	36.3
2.7 (grading unfair and not enough feedback to succeed in writing)	9.15	8.15
2.8 (other)	18.29	14.82
Question 3 Please select all of the following choices that apply. If you have not dropped or stopped participating in the course, what factors have helped you overcome frustrations or challenges in this course, helping you continue to get your work done?		
3.1 (instructor and/or instructional associates supportive & attentive)	46.34	46.67
3.2 (sequential building of skills through course design)	56.10	57.04
3.3 (small discussion section, help with challenges)	35.37	37.04
3.4 (feedback from peers on essay drafts)	38.42	46.67

3.5 (other)	27.44	23.71
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Chart 1: Student Perception of Persistence Survey Fall 2013, Spring 2014

The situation is further complicated when persistence data are compared across multiple semesters. Chart 2 reports enrollment and attrition rates for the course between Spring 2011 and Spring 2014. The chart may indicate an increase in attrition when the enrollment of the course reaches 100 students; however, given that the attrition rate in Spring 2014 (170 students) is very close to that in Spring 2013 (99 students) and Fall 2011 (67 students), more data is required to draw any firm conclusions. Attrition was extremely high in Fall 2013, which may suggest that technical difficulties play a large role in student persistence.

Semester/Year	Census Enrollment	Final Enrollment (completion)	State drops in Banner	“drop course” in Banner	Percent lost (attrition)
Spring 2014	170		13	0	7.6%
Fall 2013	207		24	0	11.59%
Spring 2013	99		5	1	6.06%
Fall 2012	Not taught				
Spring 2012	67		1	1 (personal withdrawal)	2.9%
Fall 2011	67		4	0	5.97%
Spring 2011	72		1		1.3%

Chart 2: Student enrollment and attrition rates 2011-2014

The third sub-study funded by this grant involved students’ ability to provide constructive and substantive feedback on a peer’s paper draft. Substantive feedback was defined as *specific* feedback based on the peer-reviewer’s experience as a reader (eg. I learned a lot in this part of your paper, this was confusing to me, you seem to be missing this part of the assignment) that provided either guidance for how to improve the paper during revision or a report on what the student was doing well in the paper, with the aim of increasing self-awareness in the author.

The intervention in this area of the course design involved replacing an open-ended forum for student peer-review that was coupled with general advice and modeling of how to provide good feedback on peer writing. This was replaced by targeted, assignment-specific questions that students were asked to answer. Chart 3 shows the questions asked for the two short essays in the post-intervention course design.

First Short Essay Peer Review Questions	Second Short Essay Peer Review Questions
<ol style="list-style-type: none"> 1. State the author’s full name. 2. Is the author’s position clearly stated? Rewrite it in your own words (so that the author can check that s/he is getting his or her point across as intended). 3. Is the entire essay actually defending that view? (In other words, does it 	<ol style="list-style-type: none"> 1. State the author’s full name. 2. Is the author’s position clearly stated? Is it brief or does it take up too much of the essay? Rewrite it in your own words (so that the author can check that s/he is getting his or her point across as intended). 3. How plausible is the opposing

<p>stay on topic or get distracted?) If it gets distracted or off topic, point out where that happens.</p> <ol style="list-style-type: none"> 4. List any evidence provided in defense of the author’s position. 5. Evaluate the effectiveness of that evidence. Is it sufficient or would more evidence help strengthen the author’s case? Is it being interpreted accurately or does it feel like the author is making a bit of a stretch? Point out where there are problems with this. 6. Evaluate the logic of the author. Identify any logical fallacies that cloud the reasoning of the argument. (See the list of logical fallacies in this module.) 7. How easy is it to follow the argument? Identify any confusing passages where things could be reorganized or explained more fully to be clearer. 	<p>position? Is it being presented in a strong and compelling way or undermined by the author? Is it genuinely different from the author’s position?</p> <ol style="list-style-type: none"> 4. Does the author present reasons to support the opposing position? Are they strong and appropriate? List them and evaluate how effectively they support the opposing position? Try to generate stronger reasons or evidence in support of the opposing position. 5. Can you come up with some more refutations of the opposing position? Help to strengthen the author’s response to the opposing position. 6. Evaluate the logic of the author. Identify any logical fallacies that cloud the reasoning of the argument. (See the list of logical fallacies in this module.) 7. How easy is it to follow the argument? Identify any confusing passages where things could be reorganized or explained more fully to be clearer.
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Chart 3: Assignment-specific, targeted peer review questions in post-intervention course

Data from week five of Spring 2013 and Spring 2014 was collected. Because of changes in the course design, assignments in week five were not identical. Students in the pre-intervention course completed “discussion board essays” and provided feedback on other students’ written work with the stated aim of helping the student author to revise and expand a discussion board essay into the final paper in the course. They completed this assignment five times during the semester. Students in the post-intervention course completed two short essays and provided peer reviews of the first draft of each essay within their small discussion sections; papers were revised the following week for a grade and peer-reviews had the stated aim to help the author revise the paper for a grade. Because of the inevitable inconsistencies created by the course redesign, week five was selected for comparison because in both semesters, students had already completed the peer review assignment (and been graded on their peer reviews) and because student participation rates could be expected to be similar at that point in the semester.

To prevent personal bias and ensure inter-rater reliability, three independent raters scored anonymized student essays using a rubric designed for this study. Data is currently being analyzed using a t-test and I will provide results as soon as they are available. What is currently available is the percentage of students in each section completing a peer review of another students' draft. In Spring 2013, only 34% of students who went on to successfully complete the course completed this assignment; in Spring 2014, 81% of students who went on to successfully complete the course completed this assignment. Thus, while we do not yet have data regarding the quality of peer review, this data provides clear evidence of greater student participation in the activity. This indicates a greater commitment to the process of peer review. Several factors may have influenced students' level of completion of this assignment. One possible factor is the change in grading structure for peer review. In the pre-intervention course design, peer review was part of the weekly discussion board grade, while in the post-intervention course design, peer review was part of the short essay grade. Another possible factor is the introduction of small discussion groups. While introducing small discussion groups, learning communities, may not significantly impact persistence rates or students' perceptions of the reasons for their persistence, it may positively influence students' willingness to complete academic assignments that will benefit members of their learning community. Building a sense of camaraderie and social obligation may increase students' willingness to take the time to read one another's work and provide substantive feedback. Given the documented benefits to both the student whose work is reviewed and the student who conducts a substantive peer review of another student's writing, this increase in participation alone indicates an improvement in student learning.