

Peer Correction and Short Presentation Questions in Microeconomics C

TLHE Project

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Abstract

A recurring challenge in the economics program at the University of Copenhagen is to make the exercise classes associated with many courses as effective as possible. In particular, we would like students to work actively on problem solving during the classes, and to spend more time preparing these problem sets outside of class. This article describes an innovation introduced into the 3rd-year course Microeconomics C in Spring 2014, with the main goal of increasing student preparation and active participation in exercise classes. The innovation consisted of adding two new types of questions into problem sets: peer correction questions, where students would correct each others' work with the help of a solution sheet, and short presentation questions, where students would present their solution to a problem in front of the class. Participation in these new types of questions was not compulsory. However, students were offered group tournament-style incentives, so that students in the exercise class with the highest overall participation throughout the semester would receive a small prize. The results show that student participation in these new questions was consistently low, but there were noticeable differences between the different groups, and between the different types of questions, with peer correction being more popular than short presentations. Overall, feedback from students suggests that they perceived the new types of questions in a broadly negative way. At the same time, the external course evaluation provides some evidence suggesting students spent more time working on the course than the cohort from Spring 2013, and were at least as satisfied with the way exercise classes were run.

1. Introduction

This article describes an innovation introduced into the 3rd-year course Microeconomics C in Spring 2014, with the goal of increasing the effectiveness of the associated exercise classes. Exercise classes form an important part of many undergraduate courses in the economics program at the University of Copenhagen.

Microeconomics C, which is an introductory course in game theory, is no exception. On a weekly basis, students spend an average of three hours in exercises classes, to complement the time they spend together in lectures. Each exercise class is led by a tutor, who is a senior student or graduate, and consists of approximately thirty students. The main task for each session is to work on and solve questions in the problem set prepared by the course lecturer, where questions relate to the topics covered in the last few lectures.

There are a number of reasons why it is important to make exercise classes as effective as possible. First, students spend a large amount of time in these classes. For Microeconomics C, this amounts to 42 hours per semester, which is just as many hours as students spend in lectures. Second, exercise classes are devoted to problem solving, which is a crucial part of the course. In the terminology of Biggs and Tang (2007), exercise classes allow students to build on the declarative knowledge acquired in lectures, in particular various solution concepts in game theory, and to build functioning knowledge by applying these concepts to solve problems.¹ Third, through their relatively small size, exercise classes are conducive to different teaching and learning activities than large lectures. The tutor can have students work individually, discuss problems in groups, come up to the board, and generally have a high degree of interaction with students, all of which can help in meeting the course intended learning outcomes.

At the same time, there are concerns that exercise classes in many courses have not worked particularly well. One concern relates to whether the teaching and learning activities that actually take place in exercise classes are appropriate. Traditionally, in many classes, tutors have simply solved problems themselves in front of the class, and students have copied down the solutions. The result is that students have difficulty learning how to solve problems, because they do not practice solving problems, but rather watch problems being solved. Although there has been a concerted movement towards active group work in many classes, including those for Micro C, many students still expect the class to function as a mini-lecture. Another concern relates to the time that students devote to working on problem sets. Many students only look at each problem set just before the start of the exercise class. They do little to no work preparing the questions beforehand. The result is too little time spent on task, with time that is spent concentrated during classes, rather than spread more evenly throughout the week.

Given this situation, I chose to introduce two new types of questions into the Micro C problem sets, with the goal of increasing time spent on task and encouraging appropriate teaching and learning activities in exercise classes, all in the perspective of helping students meet the course intended learning outcomes.

¹ See Biggs and Tang (2007), p.72.

Specifically, I introduced regular peer correction questions, inspired by the case study presented in Gibbs (1999). I also introduced regular short presentation questions, inspired by experiences at KTH Stockholm, as related in Crawley et al. (2014). Section 2 presents more details about peer correction and short presentation questions and the potential benefits of including them in problem sets. Section 3 describes the steps I took throughout the semester to implement these questions. Section 4 provides a discussion of my experience, evaluates to what extent the experience was a success, and comments on what lessons can be useful for the future.

2. Peer Correction and Short Presentations Questions

In this section, I provide more information about the two new types of questions introduced into the Micro C problem sets. I also explain where the procedures associated with the new questions differ from the experiences related in Gibbs (1999) and Crawley et al. (2014). Moreover, I discuss the potential benefits of peer correction and short presentations questions for student learning.

Peer correction: Approximately every second week, I would include a question marked “Peer Correction” in the problem set for the exercise class. Students would have access to each problem set approximately one week in advance. They were asked to solve the peer correction question as best they could at home, to write up their solution on a paper with their name on it, and to bring this paper to class. At the start of the exercise class, the tutor would collect all the papers and randomly redistribute them amongst the students. Each student would then correct the work of another with the help of a suggested solution sheet that I had prepared. Students were asked to provide written comments to their peers, but there was no grading, and no impact on students’ final grades for the course. The tutor would then collect the papers with comments and return each one to the student who had brought it to class. In this way, students knew whose work they corrected, but not who had corrected their work.

Short presentation: In most problem sets, I would include one or two questions marked “Short Presentation”. As with peer correction, students were asked to work on these questions before the exercise class, and also to practice giving a short explanation of the key points in their reasoning. During the class, the tutor would call up one student to the front for each question. The student would then give a short presentation, of approximately five minutes, describing how they had approached the problem and the steps they had taken to solve it. The presentation would be followed by discussion from others students in the class. This discussion would be facilitated by the tutor.

One difference with the procedures described in Gibbs (1999) and Crawley et al (2014) relates to the number of peer correction and short presentation questions. In these two cases, the entire problem sets consisted of peer correction questions, or short presentation questions, respectively. In contrast, the majority of questions in Micro C still had the more traditional format. I opted for a gradual approach, where most of the time in each exercise class would still be spent on group work, after students had finished with the peer correction and short presentation questions.

Another difference is with regards to incentives. In Gibbs (1999), students were required to complete about three quarters of the total problem sets, in order to be allowed to sit the final exam. At KTH Stockholm, as described in Crawley et al. (2014), students had to tick off their names on a sheet of paper at the start of each exercise class, describing which questions they were willing to present. Student were required to tick three quarters of the total questions throughout the semester to be able to sit the exam. In contrast, for Micro C, participation in the peer correction and short presentation questions was voluntary.² I instead attempted to provide students with incentives by setting up a group tournament scheme. At the start of each exercise class, students would tick off their name indicating whether they were willing to present a short presentation question. Early in the semester, we also put in place the same procedure recording whether students had completed the peer correction question. The tutor would record the total number of ticks for the class and I kept a ranking of the three different groups throughout the semester. Students in the group with the highest cumulative ticks at the end of the semester would receive a prize: a drink provided by the Department.

I now describe some of the potential benefits of including peer correction and short presentation questions in problem sets. Many of these benefits apply to both types of questions. A more exhaustive discussion can be found Gibbs (1999), Gibbs and Simpson (2004), and Crawley et al. (2014).³

Peer correction and short presentation questions are meant to increase time spent on task, so the amount of hours students devote to working on the problem sets. By their very nature, both types of questions require students to come to exercise classes prepared, if they are going to participate. This pushes students to look at the problem sets before the class and to spend time preparing their solutions. Time spent preparing at home or with peers then adds to the time students spend working during the exercise classes

² As in previous semesters, there was a formal requirement to submit three take-home assignments throughout the semester, and to have these assignments approved by the class tutor, for a student to be eligible to sit the Micro C exam.

³ See also the video presentation by Per-Erik Hellström at KTH, regarding student presentations: <http://vimeo.com/27898717>

themselves. The idea is both to increase the amount of work carried out, but also to distribute this work more evenly throughout the week.

The inclusion of both types of questions are also meant to encourage appropriate teaching and learning activities during exercise classes. These questions require students to be active, either in expressing their ideas, discussing with peers, or evaluating the solutions of others. More specifically, students are active in a variety of different ways, compared to the more standard type of student activity during classes, which is group work. As argued by Biggs and Tang (2007), ensuring that students are active in different ways, involving different sensory modes, can improve the learning process.⁴

There is also the issue of constructive alignment between peer correction and short presentations with the course intended learning outcomes. Details on these intended learning outcomes are included in Appendix A. Increasing time spent on task should help students become more skilled in solving for the equilibria of different games and analyzing strategic situations. Preparing their work so it can be understood by others, either in a presentation, or in peer correction, should help students explain the relevant steps of their reasoning in a clear and concise way. Listening to others and discussing their ideas should also help students reflect on different ways to approach a problem.

Peer correction has the additional benefit of helping students internalize the standard of quality expected in the course. By carefully reading through solution sheets, and then evaluating the work of others, students begin to understand what constitutes a good solution. Students may then reflect on their own work and realize what is expected of them in the future. In this sense, it is not the quality of the corrections which are important, but the act itself of correcting, since that is where the most learning takes place. The main benefit therefore accrues to the student who is actually doing the correcting, rather than the student whose work is being corrected.

Both types of questions also provide students with prompt and relevant feedback. With peer correction, students can immediately look at the work of others, which can provide perspective for their own work. The solution sheet they receive also provides information on a possible way of solving the problem. Moreover, students can read the comments on their own sheet, where this formative assessment helps them realize whether their solution was sufficiently clear for someone else to understand. With short presentations, students in the class hear directly how someone else has solved a problem, which may be different or similar to their own approach. The student who presents also receives immediate feedback in the form of comments from the tutor and discussion amongst the class.

⁴ See Biggs and Tang (2007), p.95-96.

Finally, peer correction and short presentations also both have a social dimension. Social pressure should ideally push students to prepare thoroughly and to perform well, since they know their work will be viewed by their peers. The choice of a group tournament scheme was also meant to build on this social pressure so as to encourage participation. A student who regularly takes part and prepares the questions will make it more likely for the entire group to win the tournament. In contrast, a student who consistently chooses not to participate will effectively punish his or her peers, and may be seen as letting down the group.

3. Practical Steps Throughout the Semester

In what follows, I describe some of the steps I took throughout the semester in order to implement peer correction and short presentation questions into the exercise classes for Micro C.

a) Introductory meeting with tutors. Before the start of the semester, I held an introductory meeting with the three tutors, to explain the new structure to the problem sets, and the motivation for making these changes. These types of questions were new to the tutors; they had little experience with short presentation questions and no experience with peer correction. The goal of the meeting was to make everything as clear as possible for the tutors and to convince them to buy into the changes. This way, they could help convince students in their classes who were skeptical or unwilling to take part.

b) Clarifying intended learning outcomes. The official intended learning outcomes for Micro C are quite general, stating that students should understand the various topics that we cover. I felt it would be helpful to provide students with more specifics about what they were expected to be able to do by end of the course. I could then point to these specifics as a way to motivate students to tackle all different parts of the problem sets, including peer correction and short presentation questions. In this way, I could demonstrate to students that the teaching and learning activities in the exercise classes were aligned with the specific intended learning outcomes for the course. I wrote up a short document providing more details on the intended learning outcomes, and presented it to students in the first lecture. I also uploaded the information to the course homepage on Absalon. This information that can be found in Appendix A.

c) Explaining the new questions to students. In the first lecture of the semester, I spent time describing the new types of questions, and the reasons for introducing them. I also prepared a document in “Question and Answer” style that went into more detail about the whole procedure. My goal was to provide students with as much information as possible about these new questions, which they were likely seeing for the first time, and to emphasize the alignment between teaching and learning activities and intended learning

outcomes. I uploaded the Question and Answer sheet to the course homepage and encouraged student to read it. This sheet can be found in Appendix B.

d) Writing up questions and solutions. From a practical point a few, one of the main tasks throughout the semester was to write the specific peer correction and short presentation questions to be included in the problem sets. I also put together the solution sheets for the peer correction questions and distributed them to the tutors. Many of the more traditional questions could be based on problem sets from previous years. However, I felt that the new types of questions should be somewhat different in their style. Rather than focusing on simple calculations, I spent time trying to make the new questions particularly interesting and engaging, to convince students to participate.

f) Maintaining rankings. After each exercise class, I collected the number of ticks from each of the tutors, and updated the rankings as to which group was in the lead for the tournament. I also put together graphs showing the rankings and how they had evolved over time. At various points throughout the semester, I would show these graphs to students, with the hope of increasing their motivation. I did this both by posting graphs on the course homepage and by showing them on slides during the lectures.

g) Making adjustments throughout the semester. I maintained contact with the tutors throughout the semester by holding regular meetings and responded to their feedback about the exercises classes. For example, when it became clear early on that students preferred the peer correction questions to the short presentation questions, we decided to include peer correction participation in the tournament standings. I also considered the feedback provided by students in the internal course evaluation and used it to make certain adjustments, for example regarding the provision of solution sheets, a point that I will return to in the following section.

h) Final debriefing with tutors. After the final exercise class, I met with the tutors to discuss how classes had gone throughout the semester. We specifically discussed the peer correction and short presentation questions, including whether or not the experience had been a success, and what could be learned from the experience.

i) Awarding the prize. Of course, once a prize has been promised, it must be delivered. At the end of the semester, just before the exam, I awarded the prize to students in the winning group, and joined them for a celebratory drink.

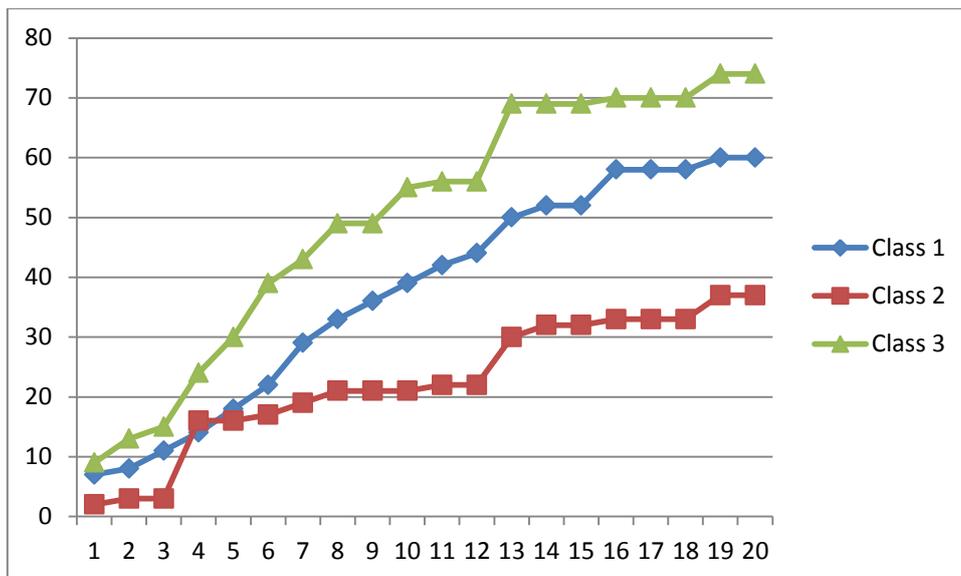
4. Discussion and Evaluation

In this section, I discuss the experience implementing the peer correction and short presentation questions into Micro C problem sets. I also comment on to what extent the experience can be evaluated as a success in meeting its main goals, which were increasing the time students spent on task, and encouraging appropriate teaching and learning activities in the exercise classes. To do so, I rely on the data collected throughout the semester on student participation, on student responses in the internal and external course evaluation, as well as on feedback from the tutors, both during and after the semester.

The following figure illustrates how many students participated in these new questions throughout the semester.

Figure 1. Cumulative number of students participating in peer correction and short presentation questions (“ticks”) throughout the semester

Source: communication with Micro C tutors.



The horizontal axis depicts time, where there were twenty exercise classes in the semester. The vertical axis gives the total number of ticks recorded for each of the three groups, up until a particular exercise class. Recall that a student would tick off his name if he was willing to go to the front for a short presentation question, or if he had prepared a solution to a peer correction question. This means that in principle, a single student could receive multiple ticks on a single day, by preparing multiple questions.

The first point to notice from Figure 1 is that all curves are relatively flat. This reflects the fact that overall participation was low throughout the semester. The mean cumulative number of ticks per group at the end

of the semester was just above 55. The total number of peer correction and short presentation questions over the semester was approximately 35. Thus, on average, each question was completed by fewer than two students, which is a terribly low number.

Feedback from tutors and students points to a number of reasons for such low participation. The internal course evaluation shows a generalized negative reaction toward the new types of questions, in particular the short presentations. Some students simply did not see the purpose of the new questions, as reflected in suggestions that we simply put an end to peer correction, and just hand out solution sheets instead. The tutors point out that the new questions were very different than those traditionally considered in exercise classes here in department, and so very different from what these 3rd year students had seen before, providing a reason why students might be skeptical.

Given this feedback, when considering changes to problem sets and exercise classes in the future, it might be most reasonable to begin at the start of the undergraduate program, rather than in the 3rd year. First year students would have little idea of what is considered normal in exercise classes, and so have less reason to be skeptical about new ideas, such as peer correction and short presentations. It would also be important to clearly explain to students the purpose of the various questions, for example by means of a Question and Answer sheet, such as the one I produced for Micro C. Such a sheet could be distributed to each student personally during the first exercise class to make it more likely that it is actually read.

A second point from Figure 1 is that participation was significantly higher in some groups than in others. For example, total participation in Group 3 was almost twice as high as participation in Group 2. These results suggest that tutors played an important role in convincing students to buy into the changes and to work on the new types of questions. Based on informal discussions, it seems that the relative ranking of participation in the three groups corresponds well to the relative level of enthusiasm each tutor expressed for the new questions. A comment from the internal evaluation also points to the important role played by tutors in promoting, or possibly discouraging, participation: *"The new structure in exercise-class is not that good - listen to the teachers"*. All of this suggests that in the future, it would be important to expend even more effort convincing tutors to accept the changes made to exercise classes, if these changes are to be accepted by students. One possibility for Micro C would be to hire tutors who themselves experienced the new questions when they were students.

The third point to notice from Figure 1 is that participation became progressively lower throughout the semester. The figure actually understates the level of participation in the first three lectures, since only

participation in short presentation questions was recorded.⁵ One comment from the internal evaluation addresses this decline in participation: *"The first few weeks the system on the problem sets worked to motivate me. Then the old habit of preparing kicked in"*. The tutors also suggest that the first sets of peer correction and short presentation questions were too difficult, leading some students to give up on the idea of completing them in later problem sets, even after I had adjusted down the level of difficulty. The lesson here may be that it is better to begin the semester with new questions that are relatively easy and that become progressively more difficult over time, rather than the other way around. In the beginning, it may also be better to limit the number of questions that the lecturer finds interesting and engaging, but that students simply view as "trick questions" that are too difficult.

The low and declining levels of participation suggest that in a broad sense, introducing peer correction and short presentation questions into Micro C was not a success. However, Figure 1 masks the fact that participation was markedly higher for peer correction than for short presentations. By the later part of the semester, participation in short presentations had dropped to close to zero, and I decided to remove these questions from the final weeks' problem sets. In contrast, participation in peer correction regularly reached over five students in Groups 1 and 3 – not enough to carry out the correction exercise as planned, but enough for tutors to divide students into groups, and for each group to examine one piece of work, with the help of the solution sheet. Thus, in quite some sessions, students in these groups were able to take part in teaching and learning activities close to those intended by peer correction.

One reason for higher participation in peer correction appears to be that students were more comfortable sharing written solutions than they were standing in front of the class and explaining their work orally. But a major motivation for participation in peer correction questions also seems to be related to receiving the suggested solution sheet. As a rule, students in Micro C are not provided with official solutions to the questions in problem sets. Early in the semester, the tutors and I realized that few students were bringing in their work for peer correction, but many were interested in the solution sheet, which they would receive for this one question. To a great deal of displeasure, I decided that only students who brought in a paper for peer correction should receive a solution sheet, since the purpose of the sheet was to allow for peer correction. I later softened the rule so that all students would receive a solution sheet if and only if there was sufficient participation in the class for some type of peer correction to take place. My conclusion from this experience is that, when organized properly, it is possible to use students' desire for solutions to encourage participation in peer correction.

⁵ The figure also understates participation in the last half of the semester, where I progressively reduced the number of short presentation questions, based on student feedback. However, the overall pattern was still one of declining participating over time.

One of the main goals of introducing these new types of questions was to increase the amount of time students spent working on problem sets, in particular with regards to preparation. I now present survey results from the external course evaluation showing the self-reported time students spent on the course outside of teaching hours. I also compare these survey results with those from previous semester. The comparisons are merely suggestive, since multiple factors have changed over time, including new tutors and a new course lecturer in Spring 2014. The most instructive comparison is likely with Spring 2013, which had a similar curriculum, and also a similar number of registered students.

Figure 2. Mean hours per week devoted to Micro C, outside teaching time.

Source: External Evaluations, Micro C.

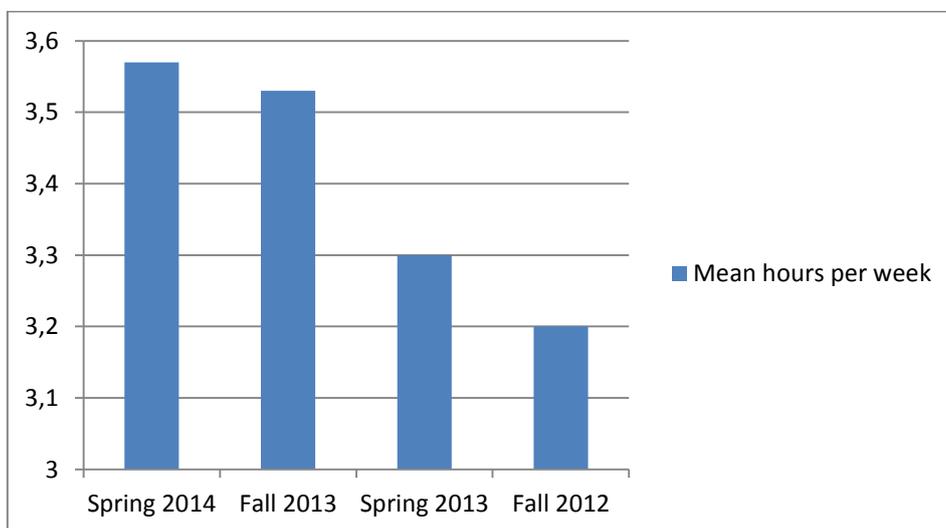
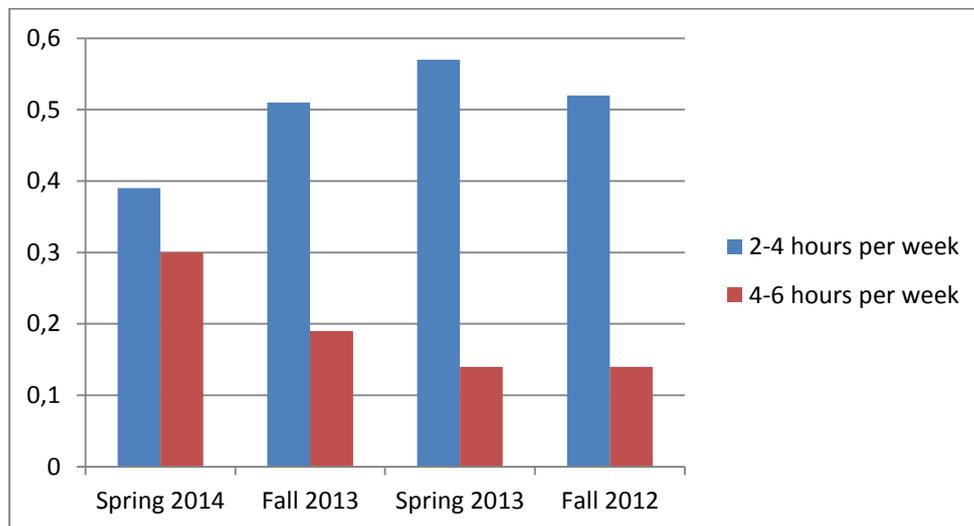


Figure 2 shows that on average, students reported spending more time on Micro C in Spring 2014 than other students did in the recent past. In particular, there is a noticeable difference in the number of hours reported compared with Spring 2013. Figure 3 below shows that most of this difference is due to an increased proportion of students devoting 4-6 hours per week to the course, rather than 2-4 hours per week.

Figure 3. Proportion of students devoting 2-4 and 4-6 hours per week to Micro C, outside teaching time.

Source: External Evaluations, Micro C.



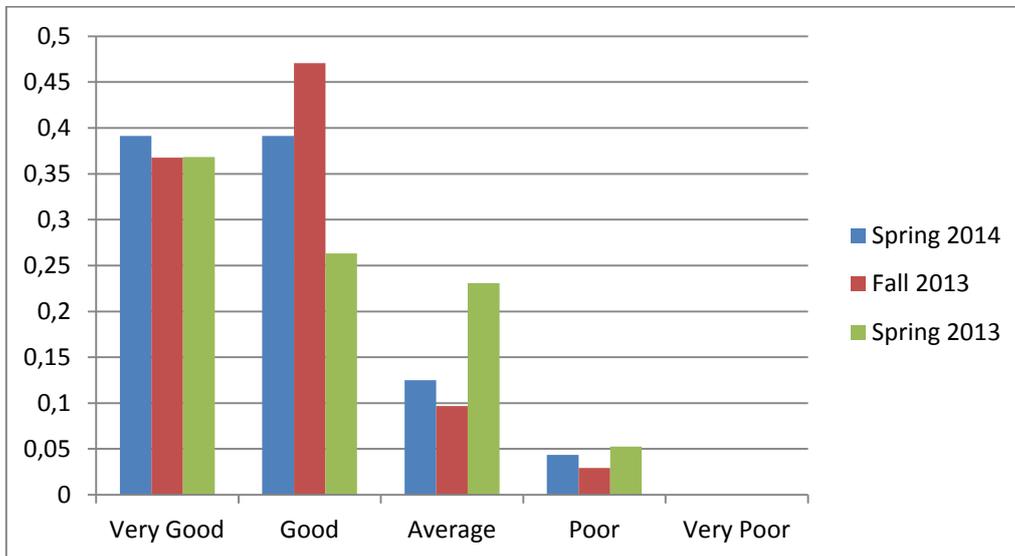
These survey results are encouraging, not only because students appear to be working slightly more than before, but also because of the type of students who may be working more. Without overstating the result, it may be that this applies to students near the average, who in past years have devoted approximately three hours per week to the course, and who are now devoting somewhat more time. These results do not establish a causal relationship between the increase in time and the introduction of peer correction and short presentation questions, but at the very least they move in the right direction.

The final figure shows that despite general dissatisfaction with the peer correction and short presentation questions, students were generally satisfied with how classes were run from a practical point of view.⁶

⁶ The question from the external evaluation was as follows (in Danish): "Hvordan vurderer du øvelsernes praktiske gennemførelse?"

Figure 4. Evaluation of Practical Running of Tutorials

Source: External Evaluation, Micro C.



The proportion of students who answered “Very Good” and “Good” was 0.78, compared to 0.84 in Fall 2013 and 0.63 in Spring 2013. It seems that students remained quite satisfied with the exercise classes, despite having new types of questions that they did not particularly appreciate, and despite these questions being introduced by new tutors, and for the first time.

5. Final Discussion and Conclusion

Overall, it would be difficult to qualify the introduction of peer correction and short presentation questions as a success, given the low participation rates, general student dissatisfaction, and all the challenges described in the previous sections. At the same time, I believe there are some valuable lessons learned during this process that can be useful in the future. These include the fact that students were more receptive to peer correction than to short presentations, that they are partly motivated by the desire for solution sheets, that a motivated tutor can make a difference, and the importance of pitching the questions at the right level from the start. There is suggestive evidence that students worked at least as much in Spring 2014 as in previous semesters, and that overall satisfaction with the exercise classes remained high.

The final discussion with the tutors also revealed two rather unexpected benefits to the new questions. The first benefit relates to framing. Because students focused their dissatisfaction on the peer correction and short presentation questions, they appeared more willing to work actively in groups on the remaining

questions, rather than asking tutors to simply write down solutions on the board. The second benefit relates to the way that the new questions limited the options available to tutors. For peer correction and presentation questions, there is simply no way around the fact that students must do the work, rather than the tutors. This means that tutors who have a tendency to write solutions on the board rather than to facilitate group work are constrained to have at least a few questions per class where students are active.

For these reasons, I believe that peer correction remains an idea with high potential, that could be fruitful to apply more generally in the economics program. But if peer correction questions are to be used in the future, it would be helpful to provide more formal incentives to increase participation. While social pressure and tournament-style incentives can play a positive role, they can also be a double-edged sword. If few students participate in the new questions at the start of the semester, then an atmosphere may develop where there is pressure not to participate, so as not to show up other students. A way to change this would be to make a certain amount of participation mandatory, so that students have to prepare at least some proportion of questions to be able to sit the exam. A variation on this idea is that sufficient participation in peer correction might replace one of the take-home assignments that students must currently pass to be eligible for the exam.

Appendix A

Details on Intended Learning Outcomes – Micro C

Students should be able to:

Formally state the definition of a game and **explain the key differences** between games of different types (static games of complete information, static games of incomplete information, dynamic games of complete information, and dynamic games of incomplete information).

Describe in detail the equilibrium concepts that are relevant for these games (Nash Equilibrium, Subgame Perfect Nash Equilibrium, Bayes-Nash Equilibrium, Perfect Bayesian Equilibrium) and **evaluate the crucial assumptions**.

Explicitly solve for the equilibria of these games, **explain the relevant steps** in the reasoning, and **interpret the outcomes**.

Analyze strategic situations by modeling them as formal games.

Appendix B

Question and Answer for Micro C Exercise Classes, Spring 2014

Q: Is it true that the exercise classes for Micro C will be organized differently than before?

A: The majority of time in each exercise class will be spent just as it was last year. You will get a list of problems about one week in advance, where problems will be labelled as either A or B. You are expected to solve all A problems before coming to the exercise class. You should also read through the B problems at home, start thinking about how to solve them, and maybe write down a few steps of the solutions. In the exercise class, you will have the chance to work out these B solutions in more detail, under the guidance of your tutor. But it's also true that some time in each class will be set aside for something new: peer correction and short presentations.

Q: Could you be more specific about peer correction? What does it mean?

A: Peer correction basically means that students will correct each others' work. On the list of problems for a particular class, there will be one problem clearly marked for peer correction. You are expected to fully work out this problem at home, write the solution on a sheet of paper with your name, and bring it to the exercise class.

Q: How will peer correction work in practice? Isn't it a bit difficult to correct someone else's work if I'm not sure about the correct solution?

A: Your tutor will first collect the sheets of paper and randomly redistribute them amongst everybody who has submitted a solution. This means you will receive somebody else's paper but you won't know who has received yours. Your tutor will also distribute another page that describes an outline for a suggested solution to the problem. Based on this outline, and also your own thoughts about the problem, you will then spend some time correcting the other student's sheet. Remember to write short comments about what is good and what needs improvement. Remember also there can be more than one way to solve a problem! When everybody is done, your tutor will collect the sheets and hand them back to the students who originally wrote them.

Q: Instead of using peer correction, wouldn't it make more sense to just give us the correct solution?

A: We could do that, but then you would lose out on a number of benefits from peer correction. Another student may come up with new ideas that are useful in thinking about a problem. Most importantly, practicing to correct someone else's work will make you more comfortable in evaluating the key steps in an argument, and more familiar with the standard of proof expected in this type of course. You can then use these insights to help improve your own work, which in turn makes it easier to correct the work of others, and so on. We hope this process will lead to a virtuous circle that will help everyone meet the intended learning outcomes of the course.

Q: What about the short presentations? We tried that last year and it ended up taking a lot of time.

A: Your tutor will keep track of the time to make sure the presentations don't drag on. Also, the more time you spend preparing these presentations, and the more often you practice giving them, the faster and smoother they will go.

Q: How will I know which problems to prepare for a presentation?

A: The short presentation problems will be marked with the letter P on the problem sheet. They will be presented in the next class, although your tutor may leave some out due to time constraints.

Q: How exactly should I prepare these problems before the exercise class?

A: Here's one way to prepare. Write down the solution on paper, being clear about the steps in your argument. Then think about which steps are most important, what are the tricky bits, and perhaps what are the key assumptions. You can also think more broadly about why you approached the problem in the way you did. Finally, practice giving a presentation of about 5 minutes that explains your reasoning and your approach, and that highlights the key steps. You can practice the presentation by yourself, but it's often more useful to practice together with other students.

Q: How will the short presentations work in practice?

A: For each P problem, your tutor will randomly select one student who has prepared it to explain their solution. If you are selected, then you should go up to the board and go through what you practiced – writing out the key steps in your reasoning but also explaining it in words to the whole class. Other students may start a short discussion, and your tutor may have questions and comments.

Q: What is the point of these presentations?

A: Just like with peer correction, these presentations should help everyone to achieve the intended learning outcomes of the course. These include the ability to explicitly solve for the equilibria of different games, to explain the relevant steps in the reasoning, and to interpret the outcomes. Preparing short presentations will help you become more skilled in finding the key steps to solve different problems. Making presentations will help you explain the relevant steps in a way that is clear and concise. Listening to others and discussing their ideas should also help you reflect on different ways to approach a problem. Not to mention that this practice will help you in other courses when the time comes to take an oral exam!

Q: You said that my tutor will pick someone who has prepared a solution. How will the tutor know who has prepared and who has not? Will somebody force me to present?

A: Most people get a bit nervous when they present, but it gets easier with practice. Still, nobody will force you to present if you really don't feel comfortable. At the start of each exercise class, your tutor will have a sheet with a list of student names and a box to tick off for each P problem. If you have prepared these problems, and are willing to present, then you should put a tick in the relevant box. Your tutor will not pick a student to present unless they have ticked that box. But if you chose to tick the box, and your tutor selects you, then you are expected to go up and present.

Q: Are these ticks somehow connected to a prize at the end of the course?

A: Yes, indeed! Micro C is a course in game theory, so we will run a tournament between the three different exercise groups. After each exercise class, your tutor will add up the total number of ticks from that day, and post this number on Absalon. You will be able to see which exercise group has the most ticks so far in the semester. The group that finishes the semester with the highest total number will win a prize: details to be discussed in the first lecture! Some groups may be larger than others, so we may divide the ticks in each group by the number of students registered.

Q: What if I present a solution that turns out to be incorrect? Will I lose my ticks?

A: No, you won't lose any ticks. That is just fine - nobody should feel bad about making a mistake. Discussing mistakes can help everyone think about why they occur and help avoid them in the future.

Q: I am highly rational but also amoral, and I would like to manipulate this game to my advantage. Couldn't I just refuse to prepare, tick off all the boxes, and make a joke if I'm called upon to present?

A: That would be a bad idea. First, you will lose out on all the learning benefits that come from preparing and making presentations. Second, you will look foolish in front of your peers, and they will probably laugh

at you behind your back. Third, this scheme violates the spirit of honest competition. Fourth, if you are called up but have obviously done no preparation, then the whole group will suffer a penalty: the total number of ticks on that day for the entire group will be set to zero.

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