

Using More Than One Grader To Evaluate Student Class Participation: Controlled Experiments (Full Paper)

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Abstract

The business classroom has changed dramatically from a passive to an active learning space and as such it is now common practice for instructors to include class participation as a significant portion of a student's overall grade. While the responsibility for assigning participation grades first resided with the course instructor, a number of other methods have been introduced for assessing participation (e.g. peer-evaluation, self-evaluation, etc.). As class sizes increase and students demand more feedback on their performance, some of the top business school such as Harvard, have opted to use second graders – usually a PhD student, new instructor, or teaching assistant, to help determine participation grades. This practice has the potential to increase fairness in grading processes and also provide students with the opportunity to receive timely feedback. Thus, the objective of this study was to explore these benefits by employing a second grader in two MBA courses and making comparisons between the participation grades awarded by the professors of each class and the second grader. The results indicate that there was a high correlation between the participation grades of each of the two professors and the second grader as well as between the two professors, and the second grader in each course. Additionally, the study found that students had a positive response to having the second grader in the classroom. While there are a number of factors to consider before employing a second grader in a classroom (e.g. class size, cost, experience of instructor), this study shows some benefits of utilizing a second grader and its findings are relevant for the teaching of courses in a variety of disciplines where class participation marks constitute a substantial proportion of the course grade.

Introduction

Student class participation, namely the extent to which a student participates in class discussion and analysis, is a common component of Master's of Business Administration (MBA) courses at business schools and particularly in less quantitative courses such as marketing (e.g. Avery, 2014). In most MBA programs, class participation accounts for a significant proportion of the final grade for the majority of courses (e.g. up to 50% of a student's final grade at schools such as Harvard). It has been common practice for the course instructor to be responsible for determining each student's participation grade, usually in a process of recording a grade for each individual class and averaging or adding them up to make a final grade. However, in recent years some schools have introduced the concept of a second grader to help with this process. Second graders are usually PhD students and/or teaching assistants, who are responsible for attending each class and recording participation grades to be later compared with the instructors own evaluation of each student's participation grade in order to determine a fair grade for each student. The demand for second graders has been the result of both an increase in the number of students in the business classroom as well as an increase in requests from students for feedback on their performance. This is not surprising considering the importance that employers place on

strong communication and problem-solving abilities, skills that have the potential to develop through class participation (Ward and James, 2015).

This paper presents the results of a study exploring the impact of a second grader in two MBA courses that had previously not used a second grader. The fundamental objectives of the study were: 1) to verify the reliability and external validity of the professors in marketing and Management Information Systems (MIS) courses on an MBA program by having a second grader independently grade and record student participation in each class; 2) to make four comparisons between the grades independently assigned by: the marketing professor versus the second grader; the MIS professor versus the second grader; the marketing professor versus the MIS professor; and the second grader versus the second grader; and 3) to determine student attitudes towards having a second grader record class participation marks in the classroom.

The paper is structured as follows: first, the literature on class participation and evaluation methods is briefly reviewed. Then the study using the second grader is described. Next, the results are discussed and the paper concludes by acknowledging limitations, future avenues for research, and managerial implications for business schools interested in utilizing a second grader to aid in determining participation marks in the classroom.

Class Participation and Evaluation: A Brief Review of the Literature

Student participation in class is an important way for students to develop a number of skills deemed important in MBA graduates who will go on to become executives in organizations (Ward and James, 2015). For example, the National Association of Colleges and Employers ran a survey in late 2014 where it asked hiring managers what skills they plan to prioritize when they recruit business students at colleges and graduate schools. Most of the respondents were large companies like Chevron, IBM and Seagate Technology. Rather than the ability to remember facts, the top three skills these employers were seeking were: 1) the ability to work in a team environment (tie with #2), 2) the ability to make decisions and solve problems (tie with #1), and 3) the ability to communicate verbally with people inside and outside an organization (NACE, 2015).

Class participation, it can be argued, contributes significantly to skills 2 and 3 above. It requires students to think on their feet, and to make decisions on the fly, as well as giving them practice in communicating verbally with their peers. Class participation allows students to practice developing an opinion, or a point of view, and then to articulate this point of view. Stated differently, it gives them practice communicating intellectual ideas, before a group of peers and a critical but constructive teacher, all in a low risk environment. The penalties for saying the wrong things in a formal organizational environment can often be severe; in the typical MBA class the consequences of articulating a point of view that is ill-considered are at most a tiny bit of peer ridicule. Furthermore, an emphasis on active class participation cultivates more critical thinking and creativity as diverse opinions and backgrounds are often present. Quite simply, it is an excellent way of preparing students for the real problems they will face in today's complex and global world. While it does require a mind shift from instructors who need to give greater attention to how they teach than what they teach (Chandler and Teckchandani, 2015), it is clear that the payoffs warrant the efforts.

Traditionally, grading for class participation has been completed by the course instructor. While alternatives and supplements to this method have been explored in the management education literatures, including peer grading (Avery, 2014); student-generated strategies (Dallimore, Hertenstein and Platt, 2004); and a host of other alternatives (Gopinath, 1999; Whalen and Coker, 2016), in most classrooms instructors have resisted the temptation to engage students in any form of self- or peer grading for class participation because it detracts from their learning focus on the course itself and their own participation in it. Similarly, while it is the practice of many MBA instructors to cold call (Dallimore, Hertenstein and Platt, 2006) on students (i.e. require them to participate even when they do not indicate a willingness to do so), many business schools do not follow this practice.

Skilled instructors become very effective at allocating class participation marks, with practice, and there are surprisingly few student complaints about the marks or the fairness with which they are awarded. However, in recent years some of the leading case-instruction business schools have resorted to the use of a second grader in the MBA classroom. This has been driven both by a desire to drive out as much subjectivity as possible as it has been by the increase in class sizes. For example, at Harvard Business School, the MBA class size has risen to 95 students, and this alone makes the instructors task of going back to the “mugshot” list at the end of each class a lot more difficult than it once was. Harvard now avails each instructor of a second grader for class participation, and each class is also filmed. The second grader grades while class is taking place, and the instructor grades independently at the end of the class. Then these two grades for each student can be compared and reconciled. Second graders are usually doctoral students, and on rare occasions a new member of faculty who is “learning the ropes.”

Study and Methodology

The purpose of this study was to examine the impact of having a second grader present in two classes at a graduate business school that does not presently use this practice. The two classes were: 1) Marketing Management and 2) Managing Information Systems (MIS), which were taught by two different professors and attended by the same 49 full-time MBA students. These courses were taught in tandem, and have a common final project counting toward the final grade and a case study and oral exam (with questions covering both disciplines). Class participation accounts for 25% of the marketing final grade and 20% in MIS. However, for the purpose of comparison across the courses, the analysis reported in the results section was scaled up to 25% for each course.

The same PhD student was employed to be the second grader for each of the two classes. Students in each class were made aware of the presence and purpose of the second grader, and were also informed, and reminded on numerous occasions in both courses that the second grader was available to discuss their class participation with them on an individual basis if they wished to. The second grader recorded class participation by means of marks and comments during each class, so that by the end of each course a final class participation mark could be computed for each. The professors each compiled their class participation marks separately and independently. At the end of both courses, all the marks were combined into a single spreadsheet and this allowed four comparisons of the class participation grades to be made: 1) the marketing professor versus the second grader; 2) the MIS professor versus the second grader; 3) the marketing professor versus the MIS professor; and 4) the second grader versus the second grader

for each course. For each of the four comparisons, correlation statistics were performed and scatterplots were generated using JMP statistical software.

Additionally, this study aimed to determine the impact that the second grader had on student learning. To facilitate this, the second grader was made available to students for three hours following each class, in each course. Students were informed that this was an opportunity for them to discuss their performance with regard to class participation, and to receive feedback on how they may improve their class participation. Students that sought feedback from the second grader were required to complete an open-ended questionnaire in which, in around fifty words, they are asked to comment on the usefulness of the feedback, the extent to which it enhanced their learning, and how they felt about having a second grader in the classroom.

Results

Comparisons Between Graders

The main purpose of this study was to determine the extent of agreement between the two professors and the second grader for each course, the extent of agreement between the two professors, and agreement between the second grader's marks allocated for each course. The results of these analyses are summarized in table 1. It should be emphasized at this point, that the professor's mark was the one that was awarded, not the second grader's, or a combination of the two grades; and students were made aware of this at the start of each course.

From table 1 it would appear that the second grader marks "slightly harder" than the professor in both courses, and that the MIS instructor marks "slightly harder" than the marketing professor. Of greater importance to this study, however, was whether there was strong agreement between the professor and the second grader on both courses, and to a lesser extent, whether there was a reasonable level of agreement between the professors on the two courses, and between the second grader's scores for each course. In order to explore these questions a series of simple correlation analyses were run.

Table 2 reports the results of a correlation analysis between the class participation grades awarded by the professor and the second grader for the marketing course. As can be seen, the correlation is a very high 0.93, significant at $p < 0.0001$. The scatterplot matrix in the figure also shows a very similar distribution pattern for the marks awarded by the two graders. Table 3 reports the results of a correlation analysis between the class participation grades awarded by the professor and the second grader for the MIS course. As can be seen, the correlation is a very high 0.86, significant at $p < 0.0001$. The scatterplot matrix in the figure also shows a very similar distribution pattern for the marks awarded by the two graders.

Table 4 reports the results of a correlation analysis between the class participation grades awarded by the two professors for each of the two courses. As can be seen, the correlation is a high 0.67, significant at $p < 0.0001$. However, this correlation is not as high as those between each of the professors and the second grader in the results presented above. The scatterplot matrix in the figure also shows a similar distribution pattern for the marks awarded by the two graders, but the points are more spread out than in the scatterplots presented in tables 2 and 3. Table 5 reports the results of a correlation analysis between the class participation grades awarded by the second grader for each of the courses. As can be seen, the correlation is a high 0.65, significant at

$p < 0.0001$. However, this correlation is not as high as those between the professors and the second grader as presented in tables 2 and 3, and more in line with the correlation between the instructors shown in table 4. The scatterplot matrix in the figure also shows a similar distribution pattern for the marks awarded by the two graders, but the points are slightly more spread out. In summary, the statistical analyses presented lend support for the fact that the grades awarded by the professors in the courses are fair and consistent when judged against those awarded by an independent second grader. Students would have good assurance that the class participation marks that they are awarded are reasonable and reliable, and in line with the criteria made clear to them in the course outlines and in the first class. As would be expected, the correlations between class participation marks awarded by the professors, while still positive and significant, are lower. This would indicate that a student awarded a high class participation mark in one course might not necessarily get a high mark in the other. This is realistic, and can be explained by a number of factors, including interest in the course, prior knowledge and experience of the course material, and a desire to specialize in a particular field after graduation. The same can be said for the lower class participation marks awarded by the second grader.

Students' Opinions on the Second Grader

Although students were made aware, and reminded, that the second grader was available to them for an extended period of time after each class to give them feedback on their class participation and to answer their questions, surprisingly few students took advantage of the opportunity. Only four students in the marketing course, and only two students in the MIS course sought feedback, and it was also surprising to note that these were all above-average students who received a high participation mark at the end of the courses. The second grader requested written feedback from all of these students (all of which was very brief), and these, along with their final class participation mark are reported in table 6.

Table 7 describes the findings regarding students' opinions or feelings about having a second grader in the room. The majority of the students were very positive about having a second grader present, even though most of them never availed themselves of the opportunity to meet with, and seek feedback from, the second grader. About a third of the students were indifferent to the presence of a second grader, and thought that it didn't impact on them positively or negatively. And finally, a small number of students had either forgotten that there was a second grader in class, or hadn't even been aware in the first place.

Discussion

The findings of this project shed some light on the question of whether there should be a second grader with the expressed purpose of grading class participation. On the positive side, the study confirms the external validity of the class participation by the two professors responsible for teaching two MBA courses – Marketing and MIS. The very high correlations between the professor's class participation grades and those awarded independently by the second grader give an indication of the objectivity and fairness of the professors. The lower, albeit significant correlations between the two professors and the two sets of grades of the second grader indicate that there are inter-course differences that cause students to score well in one course while not always achieving the same levels in another. This confirms something that most good teachers know: not all students are good at everything, and a range of different courses such as those in an

MBA programs does allow students to shine in some areas and in so doing make up for where they under-perform in others.

On the negative side, the extent of student engagement with the second grader, even when this availability had been communicated extensively on a number of occasions, was disappointing. Not only did this preclude a deeper analysis of the value of a second grader's feedback and student opinions thereof, the fact that the better students were the ones that sought feedback means that those who needed it most didn't choose to obtain it. On the one hand, the findings suggest that it might be desirable to formally require underperforming students to seek feedback. On the other, MBA students are usually mature adults who should know when to avail themselves of resources and look after their own learning.

As mentioned above, MBA programs such as those at Harvard Business School (HBS) now use second graders to mark class participation in all courses. However, it should be noted that not only are these schools incredibly well-resourced, the class sizes are far larger than the classes examined in this study (i.e. HBS MBA class size is now >90), all courses are case-based which necessitates student discussion and participation, and the class participation mark always represents a substantial proportion of the final grade (>30%).

So, should all business schools seek to incorporate a second grader to assess and independently grade student class participation? Some considerations are obvious; others, we have learned from this project. The first obvious consideration is class size – having a second grader present in a very small class (e.g. fewer than 12 students) is probably not that effective or efficient use of business school resources. However, where class size exceeds 30, and the instructor needs to give special attention to individual participators and remember names, a second grader can be very valuable.

Another obvious consideration is whether a course has a high proportion of the grade allocated to class participation. If this is relatively low (i.e. below 15%), it is probably not worth having a second grader in the class. In these circumstances, often students are awarded marks simply for “showing up.” However, where the class participation mark represents a substantial proportion of the final grade (i.e. above 20%), and where participation is judged not only on the frequency but also on the quality of contributions, then a second grader's presence is ideal. Finally, it is important to consider whether the financial and human resources are available to a course. Obviously, funds need to be available to pay a second grader, and even if the grader is only paid for class time, it can still be quite expensive. Additionally, the second grader needs to be skilled not only in the subject matter, but also in being able to evaluate class participation and discussion. It is not always easy to find such an individual.

Some of the less obvious lessons that have certainly been learned from this this study are: First, having a second grader present in a class in which a large proportion of the final grade is accounted for by a class participation mark, provides a very accurate assessment of external validity of the instructor's grading. Second, the majority of students appreciate the presence of a second grader for class participation as an indication of the rigor of the grading process, as well as a signal of fairness. The majority of students, however, do not view feedback from a second grader as particularly useful or as a resource that can be called on. Third, it would seem that the need for a second grader may depend on the experience and skills of the instructor in assessing

class participation. Where the instructor is skilled and experienced in this, the presence of a second grader is probably convenient, but not entirely necessary, particularly if resources are constrained. It might be feasible to simply correlate inter-instructor class participation grades on simultaneously taught courses as a check on fairness. However, where instructors are new to learning devices such as case teaching, or are allocating substantial class participation grades for the first time, the presence of a second grader will serve multiple purposes. It will provide a check for the instructor on the marks they allocate. Next, it will assure the students of fairness, and finally, the second grader can provide a sounding board to the new instructor that will assist in their grading of class participation. While the conclusions reached above are particularly relevant to the assignment of participation marks in an MBA classroom, we believe that they hold equally for the teaching of courses at all levels in all disciplines where class participation marks constitute a substantial proportion of the final grade. However, further research is warranted to assess the impact of using a second grader in other classrooms and a larger study may provide additional support to the findings presented here.

Conclusion

The findings of this study shed light on the impact of a having second grader in the classroom – both in terms of the fairness in allocating participation grades by instructors and the usefulness of a second grader from a student perspective. The results confirm the external validity of the grading of two instructors in two courses, and this provides an indication of the fairness of the grading. Although some students were indifferent to the presence of a second grader, and others even oblivious to it, no students were negatively disposed to the second grader's presence. Indeed, the majority of the students were positively disposed to the presence of a second grader as an indication of the seriousness with which class participation is regarded and as a reassurance of fairness. While a number of considerations are identified in determining the appropriateness of using a second grader (e.g. class size, resources, experience of instructor, etc.), this study demonstrates some benefits of using a second grader to evaluate participation grades in a medium-sized classroom.

Tables and Figures:

Table 1: Summary Statistics

Grader	Mean Class Participation Mark (/25)	Standard Deviation	Maximum	Minimum
Marketing Professor	20.85	2.13	24.5	16.5
Second Grader	20.38	2.36	24.5	16
MIS Professor	19.75	1.60	23.125	17.5
Second Grader	19.32	1.68	24	16

Table 2: Correlation Analysis – Marketing Class Graders
Correlations

	Marketing Professor	Second Grader
Marketing Professor	1.00	0.93
Second Grader	0.93	1.00

Correlation Probability

	Marketing Professor	Second Grader
Marketing Professor	<.0001	<.0001
Second Grader	<.0001	<.0001

Scatterplot Matrix

Table 3: Correlation Analysis – Managing Information Systems (MIS) Class Graders
Correlations

	MIS Professor	Second Grader
MIS Professor	1.00	0.86
Second Grader	0.86	1.00

Correlation Probability

	MIS Professor	Second Grader
MIS Professor	<.0001	<.0001
Second Grader	<.0001	<.0001

Scatterplot Matrix

Table 4: Correlation Analysis – Marketing and MIS Professors

	Marketing Professor	MIS Professor
Marketing Professor	1.00	0.67
MIS Professor	0.67	1.00

Correlation Probability

	Marketing Professor	MIS Professor
Marketing Professor	<.0001	<.0001
MIS Professor	<.0001	<.0001

Scatterplot Matrix

Table 5: Correlation Analysis – Second Grader Marks for Marketing and MIS Classes

Correlations

	Second Grader (Marketing)	Second Grader (MIS)
Second Grader (Marketing)	1.00	0.65
Second Grader (MIS)	0.65	1.00

Correlation Probability

	Second Grader (Marketing)	Second Grader (MIS)
Second Grader (Marketing)	<0.0001	<0.0001
Second Grader (MIS)	<0.0001	<0.0001

Scatterplot Matrix

Table 6: Student Opinion on the Usefulness of Second Grader Feedback

Student Number	Course	Request	Written Feedback	Final Class Participation Mark/25
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1	Marketing	“How am I doing?”	“Nice to confirm that I am doing OK. I was pretty sure I was, but good to have that confirmed.”	22
2	Marketing	“Am I participating enough in class”	“I thought I was, and its good to know that I am. I am enjoying this. And its nice to know we can get feedback if we want it. This is also very fair”	22
3	Marketing	“How am I doing, and is there anything I can improve on?”	“Good to know I am doing well. I’d be interested to know how well my final marks correlate between yours and the professor’s. But I do appreciate you being in the class and listening carefully and watching us. I think we all do. I’m also interested in doing a PhD in marketing, so I’d like to talk to you about that some time as well.”	24.5
4	Marketing	“How am I doing?”	“Thanks for the positive feedback. Sometimes I don't want to seem like I’m hogging the airtime. But I figure if I have my hand up and the prof asks me its other people’s problems if they aren't taking the opportunity.”	21.5
5	MIS	“Am I doing enough to get a good mark?”	“Thank you, its good to know you think I am doing OK. I’ll keep at it. And by the way, its really nice to have you in the class.”	21
6	MIS	“How am I doing?”	“Thanks for the feedback. Good to know I am on track.”	21.5

Table 7: Second Grader Presence – Opinions and Feelings

Category of Response	Number of students	Typical comment

Very positive	27 (55.1%)	<p>“It was nice having a second opinion if we needed it”</p> <p>“I enjoyed speaking with Emily, and she confirmed I was on the right track.”</p> <p>“Its reassuring to know the program cared about this”</p> <p>“I didn't seek advice, but its good to know I could have”</p> <p>“I liked Emily sitting in the back, it was like she was watching over us!”</p> <p>“It's a very good idea, I'd like it if all classes would do this, especially when there are nearly 50 students in the class.”</p> <p>“This is a good indication of how seriously you guys take fairness”</p>
Indifferent	16 (32.7%)	<p>“It made no difference to me”</p> <p>“I didn't really mind, one way or the other”</p> <p>“I always try to participate, so I don't really need advice on this”</p> <p>“I think my participation is pretty good, I don't think feedback would have made it better”</p> <p>“I didn't care really. I enjoyed the classes so I participated in any case”</p>
Unaware	6 (12.2%)	<p>“I had forgotten that Emily was there!”</p> <p>“Only now I remembered that there was a second grader.”</p> <p>“Gee, it completely slipped my mind. Sorry. Never even thought about it”</p>

References Available Upon Request