

GROUP EXAMS: ARE THEY RELEVANT AND RELIABLE AS A LEARNING TOOL?

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ABSTRACT

This paper is primarily the front half of a larger experiential study on the role of group exams in educating student to have the skills to excel in the current dynamic environment. It provides an overview of the literature on the importance of groups and some studies that have investigated group evaluation instrument. The latter half of the paper provides a limited sample of some of the results which suggests that group exams may increase the performance and learning of students. A subsequent paper is intended to provide a much larger sample of data and then come up with hypotheses and results in this important area.

INTRODUCTION

This paper addresses the question of the relevance of group exams within the educational setting. In accomplishing this objective, the paper first reviews the need of groups and then answers the following questions:

- Are organizations becoming more dependent on group decision making?
- Do group exams have a function in today's educational climate? What are the strengths and weaknesses of group exams? How should they be administered and/or controlled?
- Are the results from group exams superior to those done by individuals?

Are organizations becoming more dependent on group decision making?

In the 17th century, research efforts were primarily conducted by creative individuals. In the early 1650's, the Italians formed a research group called the Accademia del Cimento where they collaborated on their research efforts. This new group outperformed the British Royal society which had hitherto been the leading research organization in the world (Osborn, 1953). This is one of the earliest examples of the importance of teamwork.

During the early part of the twentieth century, many researchers concluded that groups make better decisions than individuals (Bruce, 1935-1936; Gordon, 1924; Husband, 1940; Shaw, 1932). However, the methodology of much of the early research was flawed or didn't control for extraneous variables (Hill, 1982). In her review of the literature, Hill (1982) eliminated some of the studies that were influenced by extraneous variables and concluded that on complex tasks, group performance was superior to individual performance. When groups are cohesive and work together it can foster creativity (Osborn, 1953) and more reliable and complete decision making (Bessand & Tidd, 2007).

Hite (1996) conducted a study where students took an individual exam and then a couple of days later to a group exam. She found that performance on the group exam was statistically higher than the performance the students obtained on the individual exams. Gabbin and Wood (2008) replicated the study and found different results. These authors were concerned that the improvement found by Hite (1996) may be more appropriately ascribed to students increasing their study from one exam to another rather than being the result of students collaborating. In their replication Gabbin and Wood (2008) had the students take the group exam immediately following the taking of the individual exam. They did not find a significant improvement in scores and thus they refute the results obtain by Hite (1996)

However, the world is changing rapidly and organizations need to change and dynamically adapt if they intend to stay profitable (Christensen & Raynor, 2003; Price Pritchett, 1999). The Corporate Strategy Board determined that of the 50 largest companies on the Fortune 500 list from 1955 to 1995, 95% of the companies were not able to sustain the growth required to remain on the list (Christensen & Raynor, 2003). This statistic is very sobering as it shows that we now live in a very dynamic environment where to remain competitive we must think outside the box and complete tasks differently (Christenesen & Raynor, 2003). To be sustainable, organizations need to be constantly reinventing themselves which means that individuals are also required to reinvent themselves (Price Pritchett, 1999). Since new products and solutions to complex situations may best be accomplished by groups that complement each other, it is important that organizations have people that function well within group

settings and have the ability to learn from each other (de Waal, 2012).

Many organizations are now being organized on a team basis where employee compensation and rewards are linked directly to the performance of a store or a division (Barker, 1993; Manz & Sims, 1987). Nordstrom is one of the most profitable department stores and they derive their value through outstanding customer service (DeFelice, 2005). In the updated book "The Nordstrom Way to Customer Service, 2012" the authors claim that Nordstrom has made Fortune's list of the "best companies to work for" since Fortune developed the list (only one of five companies that can claim this honor) and Nordstrom has never made a quarterly loss even during this existing recession (Spector, & McCarthy, 2012). This is done through providing outstanding customer service and holding employees accountable for results. Nordstrom heavily utilizes organization stories to advance the culture they have developed.

Nucor, the steel company holds teams responsible for the performance of a plant and Nucor is constantly outperforming its competition. Instead of being organized where control comes from a bureaucratic top-down organizational structure, control is exercised within the work team. Employees work as a team and are rewarded based on team performance. Their financial reward at times is significantly greater than some of their colleagues at competing steel companies. Simply replicating what other companies are doing is not enough to remain competitive. Organizations need to empower workers and strive to make processes that work harder for competitors to replicated (Barker, 1993; Bessant & Tidd, 2007; Christensen, 2003; de Waal, 2012; Manz & Sims, 1987). Many of these capabilities reside within employees and their work groups.

To meet the needs of organizations, the authors believe that educational institutions must become more adept at churning out students that have skills in this area. One way this can be accomplished is through group activities, projects and group exams.

What are the strengths and weaknesses of group exams? How can the issues be controlled?

The advantages to group exams, is it helps team members better understand each question, it facilitates lively discussions and can be a good learning approach for how they will be required to resolve issues and come up with solutions within the business world. It also may allow students to retain information for a longer period of time as they have seen and analyzed the questions on multiple occasions. Another benefit is it provides them with some practice on how to resolve team problems and to develop team skills. The biggest disadvantage to group exams is that a student may become lazy and believe that he/she does not need to study as he/she has a team member that is brilliant and will carry the team.

Since there appears to be benefits of administering group exams, the authors felt that we need to resolve the situation where one team member is believes he/she is on a free ride. One way this is done is that individuals first take the exam as an individual and then they take it as a group.

Their final result is the average of the individual and the group score. However, even this intervention may not be significant enough to motivate all students in the group to take the exam seriously enough and to take the time to really study so they can help their group perform better. Consequently, another intervention is for students to provide a peer evaluation of each of their team members. We let students know that their team mates may give them a lower score, which in turn can reduce their grade. However, the authors found that students still exist that don't seem to prepare and consequently score significantly less than other team members or the overall team score (See Table 1). Also, within our institution, students appear to be reluctant to identify team members that are not performing. Perhaps, the offending team member mentions that he/she was sick and that he/she will do better next time, so we may not be obtaining accurate and reliable peer evaluations. Our experience is that peer evaluations will only identify individuals that have been some of the worst offenders.

To resolve this issue, one of the authors has placed a statement on the syllabus that states that in order to obtain the benefit of the team score, an individual's score must be within 35% of the team score. If an individual doesn't score at least 65% of what was obtained by the group, then the individual will only obtain the individual score. This final intervention has appeared to work as only a few individuals are now scoring significantly less than what they have scored on the group exam. More information on the results is shown in the following section.

Are the results from group exams superior to those done by individuals?

Group exams are administered for our Management Fundamentals class. This study only includes the Fall 2011 results from two group exams for one class. A subsequent paper will address the result of group exams over a period of years for two professors.

The students take the individual exam at the beginning of class and then complete the group exam during the latter half of the class. The purpose of this study is to provide another study during a different time period to determine if there is value in administering group exams.

Table 1 provides a summary of the group averages for that section and Table 2 provides that same data by student. Forty-two students took Group exam 1 and Thirty-eight students took group exam 2. For exam 1, the individuals scored an average of 78% for the first exam and the groups scored 94%. This would have resulted in an average of 86% for the class if all students benefitted from the group grade. However, since 5 students failed to score at least 65% of the team score, these individuals had to content themselves with only the individual score. This resulted in the average for the class being reduced by 2% to 84%. The individual scores ranged from 51% to 96% and the group scores ranged from 84% to 99% where only one team scored below 90%. It was interesting to note that the group that scored the least receiving only 84% on the group portion of the exam did not have any high individual performing individuals. In fact the three individuals in that team scored 57%, 57% and 60%. It is interesting that

when they examined the questions as a group, their performance on the exam significantly improved.

In Exam 2 the averages were lower. The average for the individual effort was 72% and for group effort was 86% and the overall average for the exam was 79%. In this exam 3 students failed to score within 65% of the group exam and consequently only received the individual score. One of these students was a repeat as he/she also did not obtain the benefit of the group exam score on the first exam either. What is fascinating on this exam, is the group that scored 100% on the group exam scored a maximum of only 88% on the individual exam. It was interesting to watch this group, as they had a great deal of deliberation.

CONCLUSION AND LIMITATIONS

There are only two cases where individuals scored higher on their individual test than they scored on the group exam. The results on the group exams are more than 20% higher than what is achieved individually. The students find the group exam experience to be a valuable experience and once the individual and group exams are finished are anxious to go to the text to determine if they got the correct answer.

This study only includes one class during one semester and may not be indicative of the population. Additional studies will examine further statistical data and will determine if the results are significantly significant. However, the preliminary investigation suggests that it is a good learning experience.

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Table 1
Group Average Exam Results for Exam 1 and Exam 2 for Section 1211 – Fall 2011

	Gr1 Ind 100	Gr1 Grp 100	Gr1 Total 100	Gr2 Ind 100	Gr2 Grp 100	Gr 2 Total 100
1	83	93	87	82	85	84
2	78	96	83	73	86	76
3	80	90	85	77	80	79
4	77	99	78	83	92	87
5	89	99	94	81	100	91
6	73	93	83	75	88	82
7	80	93	86	73	80	77
8	86	96	91	70	92	77
9	75	96	80	57	80	64
10	62	84	73	62	86	69
Average	78	94	83.6	72	86	78

Table 2 – Individual Exam Results for Exam 1 and Exam 2 for Section 1211 – Fall 2011

Group	Gr1	Gr1	Gr1	Gr2	Gr2	Gr 2
	Ind	Grp	Total	Ind	Grp	Total
	100	100	100	25	25	100
1	69	90	80	68	80	74
1	72	90	81	80	80	80
1	87	90	89	80	80	80
2	57	99	57	56	88	56
2	84	99	92	80	88	84
2	96	99	98	80	88	84
3	66	90	78	72	80	76
3	81	90	86	72	80	76
3	84	90	87	84	80	82
3	87	90	89	80	80	80
4	57	99	57	76	92	84
4	60	99	60			
4	93	99	96	96	92	94
4	96	99	98	76	92	84
5	81	99	90	84	100	92
5	90	99	95	88	100	94
5	90	99	95	72	100	86
5	93	99	96			
6	63	93	78	88	88	88
6	63	93	78	64	88	76
6	78	93	86	72	88	80
6	87	93	90	76	88	82
7	66	93	80	80	80	80
7	81	93	87	60	80	70
7	81	93	87	72	80	76
7	90	93	92	80	80	80
8	72	96	84	72	92	82
8	84	96	90	56	92	56
8	90	96	93	64	92	78
8	90	96	93			
8	93	96	95	88	92	90
9	51	96	51	52	76	64
9	78	96	87	48	76	48
9	84	96	90	56	76	66
10	57	84	71	56	88	56
10	57	84	71	60	88	74
10	60	84	72	76	88	82
	78%	94%	84%	72%	86%	77%