



Attitudes towards Multiple Choice Questions among Business Students

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Abstract

The choice of assessment design in higher education has been a topic of scholarly discussion for decades. This study is from a business school in Norway. In the introductory courses, there are more than 600 students with different instructors. The exam form has mostly been four hours of constructed response (CR) questions, but in some courses, multiple choice (MC) tests are included as a part of the assessment. There is currently a debate about whether to increase the use of MC. The purpose of this paper is to explore students' attitudes towards MC by asking 130 undergraduates. Results indicate that students prefer a combination of those two test formats. They want MC to be a complement to CR, but they do not want MC to replace CR completely. MC questions will reflect the students' knowledge of the subjects to a lesser degree. It will probably change the students' learning strategy, where one emphasises details more than understanding. Furthermore, there is a substantial gender difference. The males have a more positive attitude towards MC tests, and to a greater extent than females, they will adjust their behaviour if the exam format is changed.

Keywords: Multiple choice test, business school, gender, Independent - Samples T-test

Introduction and literature review

Multiple choice (MC) tests have been popular in recent decades and have partly replaced the traditional essay questions in many fields. There are advantages of MC questions, especially in the context of large enrolment (Simkin & Kuechler, 2005). This design requires fewer resources and ensures equal treatment of the students' performance. Therefore, the pressure is to substitute the traditional 4-hour final essay exam with a multiple-choice test among business students in Norway. Some of the disadvantages include the difficulty in constructing good questions, and that MC does not promote critical thinking and analytical skills. Furthermore, MC does not improve the students' written expression skills. The students can show more originality and go deeper in their understanding by writing essays. In the prior literature, a number of researchers have compared MC with CR (Becker & Johnston, 1999; Chan & Kennedy, 2002; Simkin & Kuechler, 2005). The discussion is linked to Bloom's taxonomy of educational objectives (1956).

The purpose of this paper is not to analyse if MC can replace CR, but to find out the attitudes among the students about the use of MC questions to determine their final written grade in business courses. The literature shows that the preferences among the students are mixed. Nield and Wintre (2007) investigate the psychology students' views of MC and other test methods. The majority of the students prefer short-answer questions instead of MC, since they are less frustrating and offer the opportunity to explain their answers. When asking high school students, Zeidner (1987) concluded that most of them preferred MC over CR exams. It gives less anxiety, is fairer, there is no need to explain the answers, and students expect higher grades. The study conducted by Birenbaum and Feldman (1998) concluded that the social sciences students' favouring of assessment tests depends on the students' academic skills. Those who perform poorly and have low confidence desire an MC test, and those with academic success and with high confidence wish to have a CR test.

There seems to be a gender gap depending on the test methods. It appears that MC questions are favoured by the male students (Becker & Johnston, 1999; Livingston & Rupp, 2004).

Methodology

The sample

The sample consists of 131 students (52% female and 48% male). The questionnaire was distributed among the students attending the last lecture in the second-year compulsory macroeconomics course in autumn 2019. The data might be slightly biased, since about 30% of the students were absent on the day of the survey. Nevertheless, the survey gives a picture of those who choose to attend the



lecture. For about 60% of those students, the data can also be mixed with administrative data (performance in macroeconomics, grade point average, etc.).

Instruments and test methods

In most business courses, the final 4-hour written exam consists of essay questions. In macroeconomics, 25% of the assignment includes multiple-choice questions. The students were asked in the questionnaire about which mix of MC and CR they prefer. Other questions were about how MC tests would affect their effort, knowledge, study habits, anxiety, motivation, and other factors. A 7- point Likert scale was used (from 1 = strongly disagree to 7 = strongly agree). The chosen statistical methods are comparing means by using independent sample t-tests and analysing correlation between two variables (Pearson correlation and chi-square test).

Findings and Discussion

Do the students want MC tests?

Most of the students prefer only a small part of the final exam to contain MC questions (see Figure 1). The participants wish to a lesser extent to have MC tests in mathematics than in management. There is not an obviously reason why there is a distinct difference between those two courses, since it might be more challenging to design proper MC questions in management than in mathematics.

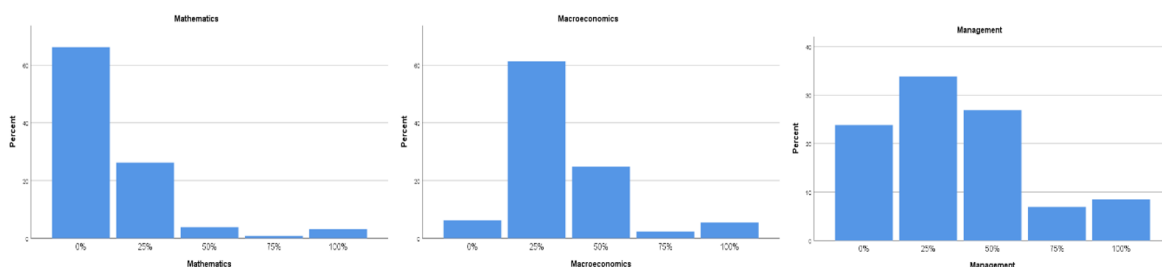


Figure 1 Students' preferred percent of MC questions in the final exam

In macroeconomics, the majority of the undergraduates gives the combination of 25% MC test and 75% CR test the first priority. This is identical to the actual distribution of the written exam for the last 10 years. According to Van de Watering and colleagues (2008), the students' choice seems to depend on what they are used to. Unlike Nield and Wintre (1986), Watering et al. did not find any link between success in MC tests and the desire for more MC questions. Our data suggest that there is no significant correlation between the preferred share of MC questions and performance in MC (Table 1). Note also that the link is negative, and not positive as expected. However, there is a significant negative relationship between success in essay questions and the total score and level of preferred MC questions. Undergraduates achieving high scores in essay tests and CR-designed exams tend to dislike MC exams. This result is to some degree in line with the study conducted by Nield and Wintre (1986).

Females tend to have less success than males in MC questions and accomplish more in CR tests. Still, Table 2 does not indicate any significant gender difference in the preferred assignment form.

Students' preferred percent of multiple choice		
Performance	Pearson Correlation Coefficient	Significant level
MC	-0.180	0.119
Essay only	-0.238	0.037**
Total score	-0.327	0.004***
N = 77, respectively		

Notes: *, ** and *** denote significance at the 10%, 5%, and 1% level, respectively

Table 1 Preferences and performance



Preferred percent of multiple choice test at the final exam		Performance		
		Female	Male	All
0 %		5	3	8
25 %		42	34	76
50 %		16	14	30
75 %		0	3	3
100 %		2	5	7
		64	59	124
Pearson chi-square value 5.48, Significance level:0.24				

Table 2 Preferences and gender

Attitudes towards MC exams

Table 3 presents the attitudes among the students towards introducing only MC exams. This will influence their study habits. Most of the respondents report that they will emphasize more details (mean = 5.03), will acquire the knowledge differently (mean = 5.14) and change how to prepare for the final exam (mean = 5.48). This is in the line with previous literature. Zeidner (1987) suggests that it is easier to prepare for MC exams than for essay exams. Simkin and Kuechler (2005) verify that MC-based exams will change students' learning styles.

	Mean All	Female	Male	Difference	T-value Assuming equal variance)	Significance Level
Effort:						
More effort	3.33 (1.63)	3.09	3.69	-0.61 (0.29)	-2.11	0.037**
Knowledge:						
Catching up knowledge	3.05 (1.64)	2.70	3.54	-0.84 (0.29)	-2.94	0.004***
More learning outcomes	3.45 (1.52)	3.03	3.98	-0.93 (0.26)	-3.67	0.000 ***
Emphasizes more details than understanding in the subject	5.03 (1.60)	5.12	4.79	0.33 (0.25)	1.15	0.25
More knowledge and I will remember more	3.48 (1.63)	3.13	3.92	-0.78 (0.29)	-2.74	0.007***
Study methods:						
Changing how to acquire knowledge	5.14 (1.46)	4.63	5.75	-1.12 (0.24)	-4.72	0.000***
Change my preparation for the final exam	5.48 (1.34)	5.31	5.63	-0.32 (0.19)	-1.33	
Anxiety:						
Less Anxiety	3.97 (1.74)	3.60	4.41	-0.82 (0.30)	-2.69	0.08 *
Fairness:						
More fairness	3.17 (1.66)	2.79	3.68	-0.89 (0.29)	-3.08	0.003***
Motivation:						
Increased motivation	3.60 (1.68)	3.36	3.97	-0.61 (0.30)	-2.03	0.045**
Success:						
Unchanged success	3.39 (1.57)	3.21	3.58	-0.36 (0.28)	-1.29	0.2
N	131	66	59			
Notes: *, ** and *** denote significance at the 10%, 5%, and 1% level, respectively						

Table 3 Values, gender difference and independent sample t-test, using 7-point Likert-scale



For many of the items, the mean value score is between 3 and 4. The respondent's view is divided. Some of the students agree, while others disagree, see for instance figure 2 of the impact on anxiety and motivation of more MC-questions. Linking this to the students' desire for MC exams, there is a strong significant connection for the courses in macroeconomics and management (Table 4). Undergraduates who are more anxious about MC questions prefer other types of exams. This confirms the findings of Birenbaum and Feldman (1998).

This study shows a significant connection between motivation for the MC questions and the desire for more of this kind of exam design (Table 4). The result is consistent with a rational student's behaviour and choices.

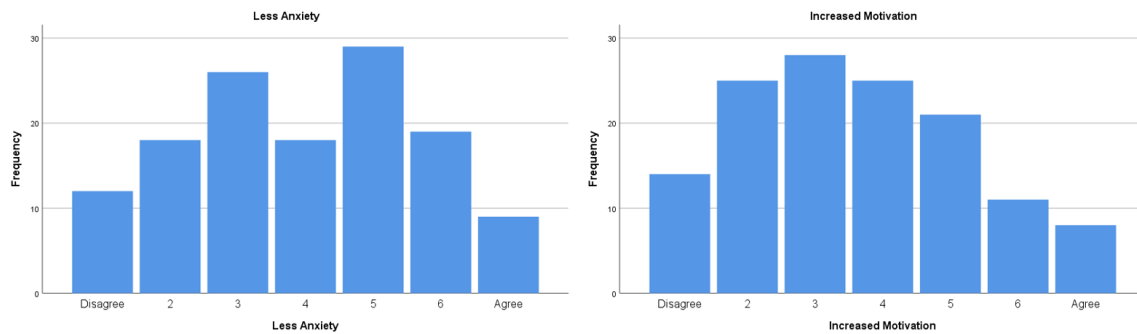


Figure 2 Effect of more MC questions

Students' preferred percent of multiple choice				
Macro Economics				
		Management		
Attitudes towards multiple choice	Pearson Correlation Coefficient	Significant level	Pearson Correlation Coefficient	Significant level
Less Anxiety	0.561	0.000***	0.189	0.032**
Increased motivation	0.640	0.000***	0.347	0.000***
N = 129, respectively		Notes: *, ** and *** denote significance at the 10%, 5%, and 1% level, respectively		

Table 4 Pearson correlation coefficient

Similar to the research of Nield and Wintre (2007), this study indicates a significant gender difference in the attitudes towards MC exams. There is almost a strong gender gap for all factors presented in Table 2. Males are obviously more positive about MC-oriented exams than females. This is in line with previous investigations. This is probably connected to personality characteristics and preferences.

Concluding comments

The students report changes in their methods of learning with introducing of MC-type exams. Secondly, there is definitely a gender gap. Thirdly, the undergraduates are pleased with CR questions, and most of the students do not push for more MC questions in courses like mathematics and macroeconomics.

Further research could investigate whether changes in study patterns can affect the qualifications of the undergraduates. More investigation is needed to find out why the students report differently, and especially why there is a gender difference.

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