To Cheat or Not to Cheat? The Effect of a Moral Reminder on Cheating

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Abstract

Decades of studies show that most students cheat at some point in their academic career. This has mainly been dealt with by surveillance and technical solutions. This paper shows that by signaling a reminder of moral conduct universities can create norms that lessen the chance of unethical behavior in tests. An experiment was conducted in a Finnish business school, where 99 students were tested with a mathematical quiz. All participants were given the opportunity to cheat by self-reporting the scores. Half of them received a reminder of moral conduct which decreased the reported math scores, thus indicating less cheating. The results indicate that male students cheat more than females. The findings support the use of primes to mitigate cheating. It is argued that reducing cheating in business schools has implications for graduates' future ethical business behavior.

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1. Introduction

Recent business scandals show that unethical business behaviors affect a large number of consumers and happen in well-reputed firms (Haapavaara, 2016; Herrala, 2016; McGee, 2016; Pietiläinen and Teittinen; 2016; Plungis, 2015). However, consumers also behave unethically towards businesses (Mazar and Ariely, 2006), and university students, as well as applicants, cheat (e.g., Giertz, 2016). Reports on student cheating have led to several calls for increased ethical awareness and behavior in education (Caldwell, 2010; McAlister, 2004), and to compulsory ethics courses. However, students who take ethics courses also cheat, and those at top universities are no exception. For example, in 2015 the Ivy League university Dartmouth College reported that 64 students were disciplined for cheating specifically in their ethics course (Richards, 2015). In 2012, 125 students were investigated for cheating on their final exams at Harvard (College announces investigation, 2012). Reducing student cheating is important not only for schools to uphold their standards, but also because of the suggested causal link between cheating in universities and future unethical behavior (Giacalone and Wargo, 2009).

The way in which universities typically combat cheating is with rigorous monitoring of exam situations, applying plagiarism checking programs, and informing students of the consequences of being caught. For example, in China, flying drones equipped with cameras are used to monitor students (Demetriou, 2015). New technologies can also be applied to cheating, as was discovered in a Swedish university entrance exam, where cheating with smart watches led to five students being expelled from Karolinska Institutet (Lövtrup, 2016).

Most studies on students' cheating behaviors have been survey-based and focused on self-reports of cheating activities (e.g., Owunwanne, Rustagi and Dada, 2010); more than half of students admit to cheating at some point during their university career (Barnett and Dalton, 1981; Bowers, 1964; Genereux and McLeod, 1995; Graham, 1994). Cheating is often reported as a spontaneous act aroused by the situation (Gino et al., 2009), or a contextual bending of the rules (Mazar, Amir and Ariely, 2008; Mazar and Ariely, 2006). There are, however, ways to reduce cheating. This paper contributes to that research by investigating if the addition of a moral reminder on a mathematical test reduces cheating among business students at a Finnish university. The study partly replicates the experimental research performed by Mazar et al. (2008) in the US, but adds to previous research by reporting gender differences on student reactions to the moral reminder.

The study contributes to research in three ways. First, the study contributes to previous research on the effect of ethical priming in the form of a moral reminder about cheating in a mathematical test situation. Previously published studies employing a similar method have been performed in a US context (Mazar et al., 2008), but to our knowledge, the effect of a moral reminder on cheating has not been investigated in a European setting. Finland is an interesting context, since the Finnish school system is considered to be among the best in the world. For example, OECD Pisa reports have ranked Finnish schools among the top performers in the world in science and mathematics (Pisa 2012 Results; Pisa 2015 Results in Focus). In addition, Finland is one of the least corrupt countries in the world, in second place after Denmark (Ellyatt, 2016). Thus both mathematical skills and moral standards should be high, making Finnish higher education an interesting case for testing if a moral reminder has the same effect as reported elsewhere on students' self-reported math scores. In addition, there is a paucity of studies on business students only, since most research has included students from other majors. This is interesting given that some studies claim that business students are more likely to cheat

than students in other disciplines (Chapman, Davis, Toy, and Wright, 2004).

Second, the study adds new knowledge about the effect of gender on cheating. Previous research on gender effects on ethical behavior has been largely survey-based (Whitley, 1998), and provides conflicting evidence from survey vs. observational data including business students (Whitley, Nelson, and Jones, 1999).

Third, there is a paucity of experimental research on cheating (Bing et al., 2012). Whereas an experiment can measure the level of cheating, all else being equal, surveys report only perceptions and intentions which are affected by factors such as memory, social desirability bias, and actual behavior not corresponding with intentions. The vast majority of studies on cheating in Finnish universities, if not all, are based on surveys (e.g., Aaltonen and Heikka, 1995; Björklund and Wenestam, 1999).

In what follows, the factors that influence cheating are briefly presented first, and ethical priming is introduced as a solution to reduce cheating. Second, hypotheses are constructed and tested in an experimental study of Finnish business students. Third, the results are reported and the paper concludes with a discussion of the results, limitations and future research directions.

2. Conceptual background

There are extensive studies on why people engage in criminal or unethical behaviors. Attention has been given in particular to rational agent theories (e.g., Allingham and Sandmo, 1972; Becker, 1968; Hobbes and Macpherson, 1968; Smith and Skinner, 1997), personal characteristics (Baird, 1980; Eisenberger and Shank, 1985; Perry et al., 1990; Ward, 1986; Ward and Beck, 1990), and the environment, including social norms (e.g., Bing et al.,2012; Canning, 1956; Henrich et al., 2001; Jendrek, 1989; Michaels and Miethe, 1989; Tittle and Rowe, 1973). Less attention, however, has been given to how cheating can be successfully reduced in practice.

In the rational agent model, also sometimes referred to as homo economicus concept (Hobbes and Macpherson, 1968; Smith and Skinner 1997), people are assumed to try to maximize their personal gain (Allingham and Sandmo, 1972; Becker, 1968). The potential gain is assessed by the agent by comparing the benefits of cheating with the costs, such as the potential risk of getting caught and punishment. People are assumed to calculate whether the gains, balanced by the risks, exceed the potential penalty (Hechter, 1990; Lewicki, 1983). Nevertheless, rational calculations of gains versus costs have not been able to explain cheating in universities. For example, Mazar et al. (2008) showed that a reduced risk of getting caught did not increase cheating, and although financial rewards increased cheating up to a point, larger rewards did not lead to more cheating (Mazar et al., 2008).

Regarding individual characteristics, a meta-study found little evidence that factors such as gender, self-esteem, or high academic success would be important in explaining cheating (McCabe et al., 2001). The findings support an earlier study by McCabe and Treviño (1997), which found that contextual factors, rather than individual characteristics, were influential in predicting students' cheating behavior. Nevertheless, personal characteristics have been found to explain cheating in certain situations, such as using public transportation without a ticket (Bucciol et al., 2013), and in specific cases of plagiarism (Marsden et al., 2005). In addition, younger students tend to cheat more than older ones—especially first and second year students in large classes, where personal motivation is low and cheating is easier (McCabe et al., 2001). Extreme personality traits have also been linked to cheating, but since these conditions are rare they do not overturn the general finding that personal characteristics have only a minor effect on cheating behavior

(Lee et al., 2013; McCabe et al., 2001; Paulhus and Williams, 2002).

By contrast, social norms seem to be a good indicator of cheating behaviors. Students cheat more if they feel that it is accepted by their fellow students, if they think that other students in their school cheat, or if they feel that the school does not pay much attention to cheating (e.g., Bing et al. 2012; Canning, 1956; Jendrek, 1989; Michaels and Miethe, 1989; Tittle and Rowe, 1973). Supporting results have been found, for example, by Henrich et al. (2001) who studied 15 culturally different small societies and found that peer norms guided people's choices to cheat in all societies.

One way to affect norms and reduce cheating in universities is the use of honor codes. Generally, schools with honor codes have lower levels of cheating than schools without them (Bower, 1964; McCabe and Treviño, 1997). However, it has been argued that it is not necessarily the codes themselves but students' perceived attitude towards ethics, integrity and the perceived seriousness of cheating that affect behavior (McCabe et al., 2001). Schools without a formal honor code may create an informal code of conduct that decreases cheating. Signaling a school's adherence to integrity seems to be the key factor among these findings. For example, studies show that students must be reminded of the high ethical standards for the honor code to be effective (McCabe et al., 2001), and one way of reminding students is to use ethical primes in test situations.

2.1. Ethical priming

Ethical behavior has a subconscious as well as a conscious component (Reynolds, 2006), and priming affects behavior subconsciously through implicit memory functions (Meyer and Schvaneveldt, 1971). It refers to a psychological phenomenon where exposure to one stimulus has an effect on the reactions to another subsequent stimulus. For example, survey participants that were primed to focus on their relational self, cheated less compared with participants who were primed to focus on their independent self (Cojuharenco et al., 2012).

Mazar and Ariely (2006) suggest that people have a zone of tolerance for small amounts of cheating, where they do not update their self-concept with regard to honesty. Student perceptions of their own honesty and morality did not differ between those who cheated and those that did not (Mazar et al., 2008). People seem to rationalize small amounts of cheating so that they do not need to adjust their self-concept in a negative way (Mazar et al., 2008; Shalvi et al., 2011; Welsh et al., 2014). This leads to cheating that is categorized as bending the rules as opposed to breaking them. Ethical reminders, however, can reduce such cheating in tests. Two different types of moral reminders—listing as many of the Ten Commandments as the student could remember, or simply reminding students of a moral code—had a similar effect on reducing cheating (Mazar et al., 2008). Therefore, adding a university course ethics reminder can further reduce cheating on tests (Welsh et al., 2014).

2.2. Hypotheses

Mazar et al. (2008) showed that given the opportunity to grade themselves, the students solved significantly more math problems than those who were graded by the test giver. In addition, students who received a moral reminder at the beginning of a test reported significantly fewer solved problems than the students who received no reminder, even though students in both groups were asked to self-report the test results and to thereafter recycle (destroy) the test. Based on this, we hypothesize that this result will apply to business students also, and therefore our first hypothesis is:

H1. Adding a moral code to a test reduces cheating.

Previous research has provided conflicting results on the effect of gender on cheating.

Male students have been found to be more tolerant of cheating than female students (Ameen et al., 1996), and to score higher than females on extreme personality traits when questioned about their perceptions of moral actions (Arlow, 1991). A meta-study, however, found no gender effects on cheating in academic institutions (McCabe et al., 2001). Likewise, a recent experimental study of coin-tossing spanning 16 countries found no gender effects on cheating (Pascual-Ezama et al., 2015).

Findings from a related field of study, the gender perception of the ethicality of behaviors, however, provide conflicting results. There is support for females being more critical of unethical practices than men (e.g., Bateman and Valentine, 2010; Nguyen et al., 2008), but reports of insignificant findings also exist (e.g., Davis and Welton, 1991; Fredricks and Pauknerová, 2014). Similar to the majority of studies on cheating, the studies on ethical perceptions have been conducted as surveys in which participants are asked to state whether they dis/agree with ethicality statements or scenarios. These measurements are prone to social desirability bias, which has been shown to explain gender differences in self-reported ethical behaviors (Dalton and Ortegren, 2011).

One way to avoid social desirability bias is to perform an experiment. There are no reports on gender findings in Mazar et al.'s (2008) study on moral reminders, but personal communication with one of the authors revealed that no gender effects were found in that study, or in consequent studies (Ariely, 2012, p. 62). Because of the conflicting results on gender differences with regard to ethical behaviors, the concept was included in this investigation. Findings lean towards male students being more lenient towards unethical behavior, however, observational studies with small samples show that female students in business courses cheat more than men (Whitley, 1999). Because of this conflicting evidence we do not pose gender-specific hypotheses, but posit that:

H2. Gender has an effect on cheating.

3. Method

To investigate the hypotheses, an experiment was constructed and tested on a sample of Finnish business school students. The study replicates previous studies in that it includes a moral reminder and a mathematical test, but the test is different from the one used by Mazar et al. (2008).

3.1. Study design

The mathematical test constructed was similar to that of Mazar et al. (2008), who determined that the test was not perceived as an intelligence test. In their test, students received a number of numerical matrices (the number varied across studies) and a limited time to calculate for each matrix which combination out of twelve values added up to 10. Students were given four minutes to solve as many matrices as they could. In our experiment students were also given four minutes to solve as many mathematical equations as they could, for which the object was to solve what number X represents for the equation to be true (a full list of the 108 math problems can be found in Appendix 1). It can be argued that our equations were simpler to solve and even less of an intelligence test as Finnish school children are taught these kinds of problems from the third grade on. The score could theoretically vary between 0 (no problems solved) and 108 (all problems solved).

As a temptation to cheat, Mazar et al. (2008) promised the students a cash reward for each solved matrix. In our study the 25% top-scoring students could take part in a draw for a movie ticket. Two versions of the test paper, identical except for the moral reminder, were constructed. The moral reminder was placed at the end of the instruction sheet that the students had to read before taking the test. The single extra line in the instructions read as

follows: "Even though this test does not affect your grade, please observe the honor code of [School] and show the same moral standard you would for any given test." The business school where the test was conducted does not have an official honor code, but only ethical guidelines regarding plagiarism and cheating in general.

The test paper included a cover sheet which displayed the school's logo and instructions not to open the test (stapled paper set). Under the cover letter was a separate "report card" which had a place for filling in the student's matriculation number, gender, age and total score from the test. The test was printed on a separate sheet of paper, following the report card. Similar to Mazar et al. (2008), the test itself was not handed in, thus providing students with an opportunity to cheat on the report card. The report cards were marked by a single extra dot signifying whether the student had received a moral reminder or not.

3.2. Data collection

The experiment was conducted at the beginning of class in a business school in Helsinki. The instructions and the test were randomly distributed to the participants in the class. The test started by asking for total silence as is a usual for test conditions in general. The students were instructed to have only a pencil and paper in front of them. Two experimenters monitored the proceedings and made sure all students acted in the same manner as in any test situation.

One of the experimenters read the general instructions aloud, after which the students were instructed to open up the test and to carefully read the detailed written instructions on how to answer the math questions, how to transfer the calculated score to the report card, and how to dispose of the test paper (Mazar et al., 2008). After 2 minutes allotted to read the instructions, the students were allowed to start the test so that everyone started at the same time.

The participants wrote down the correct answer for as many equations as they could in four minutes, after which "pencils down" was announced. Students were then asked to check their own answers and write their total number of correct answers on the report card. The equations were simple to check without an answer key and they were allowed to use calculators at this point if needed. When the report cards were completed, the examiner went around the class with a box into which the students deposited the cards. Students were then asked to recycle (destroy) the test sheets.

The sample consisted of 99 participants: 49 in the moral reminder group and 50 in the non-reminder group. There were 43 female and 56 male participants with a mean age of 21. The data were analyzed using IBM's SPSS statistics program version 24. A chi-square test showed that there was independence between the two experimental conditions and gender ($\chi 2(1) = 0.85$, $p = 0.771$), supporting a random assignation of gender between the moral reminder and non-reminder groups. To further ascertain that the participants' mathematical skills were random across groups, students' grades from a basic mathematics and a basic financial investment course were analyzed and no significant difference in grades between students in the reminder and non-reminder groups for the mathematical ($F = 0.276$, $p = 0.600$) or financial investment courses ($F = 0.832$, $p = 0.365$) were found.

4. Findings

It was possible to cheat in both experimental conditions because all students were asked to recycle their test papers and only to hand in their report cards. Both treatments included report cards with very high scores. The experiment does not answer the question of exactly who cheated and who did not, but answers rather how a moral reminder affects the reported scores. First, the hypotheses were tested on the whole data, without removing

outliers, similar to Mazar et al. (2008). Thereafter three outliers were removed and the results are reported in brief.

4.1. Hypothesis testing

Higher scores on average between the two groups with randomly allocated participants is an indication of cheating. Table 1 shows the mean test scores for each circumstance.

Homogeneity of variance was ascertained between the moral reminder and non-reminder groups (p = 0.922). The mean score of the non-reminder group (M = 47.660) was significantly higher (F (1, 97) = 3.74, p = 0.056)—often a sign of cheating, as affirmed in previous studies (Mazur et al., 2008)—than the moral reminder group (M = 41.367).

Analysis of gender for the whole sample showed that females, on average, had lower scores (M = 39.326) than males (M = 48.524) and that the difference was significant (F (1, 97) = 8.268, p = .005). Table 2 shows the gender mean scores separately for the two experimental conditions. In the moral reminder condition there was no significant difference between male and female scores. In the non-reminder condition, however, males (M = 52.828) scored significantly higher than females (M = 40.524).

Both hypotheses were supported. Adding a moral reminder reduced the reported math scores (H1) in a situation where cheating was made possible by the self-reporting of scores. All participants had an equal chance of being allocated a test with or without a moral reminder, and allocation of participants to groups was independent of gender and of past scores obtained in mathematical and financial courses. It can therefore be assumed that the reported findings are a result of the treatment. Similar to Mazar et al. (2008) we assume that a significantly higher score in the non-reminder group is indicative of cheating; hence, with regard to H1, the results show that adding a moral reminder to a test reduces it.

With regard to H2, the findings support a gender effect on test scores. On average, male participants reported significantly higher

Table 1. One-way ANOVA effect of treatment on test scores

TREATMENT	N	MEAN TEST SCORE	ST. DEV.	ST. ERR.	MIN. SCORE	MAX. SCORE	F	P-VALUE
Moral reminder	49	41.367	15.869	2.267	16	100	3.744	0.056
No reminder	50	47.660	16.477	2.330	20	108		

Table 2. Gender effects on test scores for each experimental treatment

TREATMENT		N	MEAN SCORE	ST. DEV	ST. ERR.	MIN-MAX	F	P-VALUE
Reminder	F	22	38.182	18.503	3.945	16-100	1.630	0.208
	M	27	43.963	13.146	2.530	21-72		
No reminder	F	21	40.524	12.114	2.644	20-67	7.723	0.008
	M	29	52.828	17.448	3.240	23-108		

F=Female, M=Male

scores than female participants, however, separate analyses of the experimental conditions showed that male participants reported significantly higher scores than females only in the non-reminder group.

Similar to Mazar et al. (2008), no outliers were removed from the analysis. Exceptionally high scores were treated as instances of probable cheating, which was the focus of the study. However, since outliers affect the statistical analysis, additional analysis were performed also without them.

4.2. Additional analysis without outliers

Three outliers were detected in the data and subsequently removed: one female outlier in the reminder group (Score: 100) and two males in the non-reminder group (Scores: 93; 108). Reanalysis of the data showed a significant effect of the treatment on math scores ($F(1, 94) = 3.991$, $p = 0.049$), with a higher score for the non-reminder group ($M=45.458$, Std. dev= 12.526) than the reminder group ($M=40.146$, Std. dev.= 13.510), supporting H1.

Confirming the findings from the total data, gender had a significant effect on math score. Females, on average, had lower scores ($M = 37.881$) than males ($M = 46.630$) and the difference was significant ($F(1, 94) = 811.469$, $p= .001$). However, contrary to the total data, the difference was significant in both treatments. First, in the non-reminder group, female participants had significantly ($F(1, 46) = 6.468$, $p = 0.014$) lower scores ($M=40.524$, Std. dev.= 12.114) than males ($M=49.296$, Std. dev.=11.651). Second, in the reminder group, female participants had significantly ($F(1, 46) = 5.387$, $p = 0.025$) lower scores ($M=35.238$, Std. dev.= 12.621) than males ($M=43.963$, Std. dev. 13.146). The results provide additional support for H2.

Additional analysis was performed to test for gender differences in the basic math course, but the grade difference was not significant ($p= 0.496$). Females scored 2.6% lower than males in the course. In the experiment test data the differences between gender were larger. In the reminder group females scored 17.8% lower than males, and in the non-reminder group females scored 19.8% lower than males.

5. Conclusions

The study provides new knowledge concerning the relationship between moral priming, gender and cheating among business students. The new knowledge extends beyond the effect of ethical primes on students' scenario perceptions (e.g., Tsalikis and Peralta, 2014) to providing direct evidence of ethical behavior in class. It supports previous findings about university students at large (Mazar et al., 2008) in that a moral reminder reduces cheating on tests, while demonstrating that cheating is higher among male students. The findings are remarkable given that the only incentive for cheating was the chance to win a movie ticket as opposed to individual financial rewards (Mazar et al., 2008). At universities students compete for much larger incentives, for example, being accepted to coveted majors and programs, getting the best internships, and getting on the Dean's list.

5.1. Discussion and future research directions

The study shows that a moral reminder works effectively in a business school context, where cheating is said to be more prevalent than in other fields of study (Whitley et al., 1999). The results point to the existence of a type of cheating that happens casually by blurring the rules rather than undertaking risk analysis of the test situation. The incentive was the same for both experimental conditions and included no risks associated with cheating. This supports previous findings that a moral reminder works independently of incentives and risks. For example, Mazar et al. (2008, p. 17) reported that "[w]hen we replicated the experiment in an institution that had a strict honor code, the results were identical, sug-

gesting that it is not the honor code per se and its implied external punishment but rather the reminder of morality that was at play."

A second important finding is that males scored higher than females. The findings differ from a recent international study by Pascual-Ezama et al. (2015) in which no gender differences were found for university students' cheating behavior. Their study involved tossing a white/black coin and each participant who got the white side up was awarded chocolate, thus providing a small incentive to cheat. To our knowledge, our study is the only one to include only business students in the sample as the other studies have been conducted in business courses that include students of various majors. A meta-study by Whitley et al. (1999) found that women were more likely to cheat in business courses than men, but only when small sample observational data were used. The conflicting results indicate that there may be other explanatory factors and, hence, further comparative studies are needed.

An experimental setting does not rely on perceptions and intended actions that are affected by social desirability bias. Since it is important in an experiment not to reveal the true aim of the study, we were unable to include other potential explanatory measures. Consequently, there is a need for further research on why male business students seem to be more prone to cheating than women. To date, some reasons for gender differences in unethical behavior have been suggested. Research on deception has shown that women differ from men in social preferences, risk preferences, and competitive preferences (Croson and Gneezy, 2009). Also, research has identified, but not explained, some idiosyncratic differences in cheating behavior between genders, as for example, that men seem to be more prone to lying than women when monetary gain is involved (Dreber and Johannesson, 2008). Self-enhancement traits, such as narcissism, have been related to over-claiming knowledge (Paulhus, Harms, Bruce and Lysy, 2003). Since cheating on the math problems is a form of over-claiming knowledge, the personality trait of self-enhancement might explain cheating, or gender differences in cheating. Self-enhancement has been shown to vary between gender in certain contexts (Harré, Foster and O'Neill, 2005). However, there is lack of studies on factors that could explain gender differences in actual cheating behavior.

Incentives have been shown to affect behavior, such as responding to surveys, taking part in experiments, and making product referrals (e.g., Jin and Huang, 2014). Our study used a minimal incentive to cheat by offering only the draw of one movie ticket among the 25% top scoring students. By comparison, Mazar et al. (2008) investigated the effect of individual monetary incentives (0.50$ vs. 2$ for each correctly solved matrix) and tokens that could be exchanged for money almost immediately. They found no significant difference between the two monetary conditions, but tokens increased cheating. It is possible that the referral of the reward in our study, although the reward was small and not given to everyone, increased cheating. Similar to tokens, it may have raised cheating by increasing the distance between the act and the reward. Future studies should investigate if the type of reward affects business students' cheating.

Due to the experimental setting and sampling strategy, the results ought not to be affected by a non-random clustering of participants into groups of similar backgrounds and personalities. Although individual cheating might be explained, for example, with a higher Machiavellian trait (Paulhus and Williams, 2002; Tang and Chen, 2008), such traits are extremely rare. The common denominator in this study is that all participants are studying business. In addition, two differences between our study and that of Mazar et al. (2008) may have affected the results and need further investigation.

First, our study was performed on business students from a wide array of majors. All these students are required to pass a course on corporate responsibility in which ethical issues are discussed. Additional analysis of the data revealed no difference between the experimental conditions and students having passed the corporate responsibility course ($\chi 2(1) = 1.547$, $p = 0.149$), however, it cannot be ruled out that students of different majors differ with regard to ethical perceptions and the propensity to cheat on a mathematical test. It has been suggested, for example, that students who major in marketing are especially likely to cheat (Chapman et al., 2004). Other studies have suggested that students in male-dominated majors and schools cheat more, but there is little corroborating evidence (Whitley et al., 1999). Future studies should investigate differences in cheating between majors, and should also look for other explanatory personal characteristics like competitiveness and self-perceived skills in the subject that is being tested.

Second, the study was performed in Finland, which is known for its high-quality primary and secondary education. A number of international studies have shown that Finnish school children have good mathematical skills and that there are small differences between gender (Pisa 2012 Results). The sexes differ very little with regard to solving different types of mathematical problems, although girls in general tend to perform better on tests, whereas boys have higher confidence in their own mathematical skills (Virtanen, 2016). However, it may be that students who believe that they are good at math, regardless of their gender, need to keep up that self-image, even if it means cheating. Since the math problems were easy, students may have experienced feelings of "I knew that" when they self-checked the result, leading to corrections of the result in accordance with a perception of having solved it earlier, but of having made a mistake when writing it down. Having good mathematical skills is not an absolute requirement in business school entrance exams, but all schools have compulsory courses that require mathematical knowledge. Hence confidence levels in mathematical skills may be higher for Finnish business school students than for students in other disciplines who are not required to show such skills. The experimental conditions in our study were shown to be independent of course scores in mathematics and finance, however, further comparison studies are needed to test if the results hold for students of other business schools and non-business disciplines.

Our study supports that cheating can be reduced by an inexpensive and easily applied modification of test procedures, but other types of moral primes should also be investigated. Moral primes can be seen as moral nudges that form and guide choices in a non-restrictive manner (Leonard et al., 2008; Music, 2014), and which can be applied to guide humans and societies towards better decisions (Thaler and Sunstein, 2008). The power of choice architecture in this regard has been demonstrated in numerous studies (Behavioural Insights Team, 2013a; 2013b; 2014; Thaler and Sunstein, 2008). A classic example of how choice architecture influences people's actions are default options concerning organ donation, where a default of opting in (and action needs to be taken for opting out) could lead to a larger number of donors.

Our findings demonstrate the effectiveness of one type of moral nudge, but other nudges could be tested also. For example, Bateson et al. (2006) demonstrated that a visual cue had an effect on people's honesty. The workplace coffee room had an honor system, whereby people could take coffee and pay for it by depositing money in a collection vessel. No one supervised the box and people were left to their own morals to deposit the right amount. The researchers placed a small picture of eyes, 15 times 3 centimeters, watching the honesty box from time to time. When

the observing eyes were present the amount of money grew almost threefold. Similar results were obtained in a cafeteria, where a poster of watching eyes increased the likelihood of people picking up after themselves and reducing littering (Ernest-Jones et al., 2011). We suggest that the effect of visual cues could be investigated in test situations as well.

In addition to the future research directions mentioned above, the field would benefit from exploring the effect of moral primes in modern test situations, like online tests, group tests and computerized tests in general. Testing primes and nudges in such environments is a relatively new field of study. For example, massive online courses open up opportunities for randomized field experiments on how different cues affect students' results.

5.2. Limitations of the study

The study has some limitations that should be considered when evaluating the results. First, the study did not measure *how much* cheating took place in the experimental conditions. The exact amount of cheating has been measured in previous studies (Mazar et al. 2008), and was not the focus here. The current test is reported in full in the appendix to make it replicable. A replication could include a control group for which the test scores are checked by an examiner to calculate the exact amount of cheating.

Second, as already mentioned, the study did not include psychological measures that could have explained the differences between the scores of men and women. Including such measures might have given the participants clues about the object of the investigation. In that case it would have required a more elaborate study design with a booklet of filler questions to hide the true intent of the study.

Third, the experiment did not include a manipulation check. It cannot be completely ruled out that some student who received the moral reminder may have suspected that cheating was being investigated. Future studies should include a manipulation check, although no check was reportedly used in Mazar et al.'s (2008) study. They were able, however, to demonstrate with measures of perceived honesty, which were included among a large number of other questions in a booklet, that the participants were unaware of the effect of the reminder.

5.3. Relevance of the study for business ethics

Although the focal study was performed in a student setting, there is reason to believe that business student cheating has implications for future business behavior, and that this relationship needs to be addressed in future studies. The ethical behavior and policies of companies have been studied since the 60's (e.g., Baumhart, 1968; Brenner and Molander, 1977; Newstrom and Ruch, 1975), and there are many recent examples of unethical behaviour in business fields, the implications of which for society can be large. For example, the mortgage-backed securities scheme, which misled private consumers and businesses, has been argued to be the harbinger of the collapse of the Western financial system (e.g., Cukiermana, 2013; Dokko et al., 2009; O'Hara, 2009; Phillips and Jun, 2010). Since marketing practices are among the most visible parts of a business, it has drawn special attention from the public (Dubinsky and Loken, 1989). Non-governmental organizations (e.g., Consumer Watchdog, Kuluttaja- and Kilpailuvirasto, Federal Trade Commission, and Consumers International) try to guard consumers from unethical business practices. Clearly, there are many such practices and many of those who practice them have a business education. As a result, several explanations for unethical business practices have been put forth.

One argument for unethical practices prevalent in business is the diminishing of personal responsibility (Donaldson, 1982). The moral imperative to survive as a corporation can supersede other ethical responsibil-

ities. For example, Drumwright and Murphy (2004) argue that there has been a shift in the last thirty years, where traditionally privately owned advertising agencies have been acquired by large public companies with a short-term goal orientation, which may hinder ethical long-term decision-making. In their study of marketing professionals, a substantial portion seemed to rationalize ethical issues away or were unable to see ethical issues presented to them. It may be argued that universities should have a role in educating students to recognize and react against these unethical business suggestions.

Secondly, a slippery slope argument can be made by linking cheating in school to future behavior. Cheating seems to be significantly enabled by contextualized circumstances surrounding the cheater. Research on how unethical actions snowball has shown that past unethical business actions increase the likelihood of future unethical actions (Welsh et al., 2014). Simply put, cheating leads to more cheating and reducing cheating early on may have a positive impact on future ethical behavior. Hence, all tools that reduce cheating in universities help to create norms for more ethical behaviors.

It would be unfair to point the finger at business schools alone, in light of the complexity of factors that affect people's ethical decisions, and yet business schools may have an increased responsibility for providing an education in ethics. Nevertheless, a link has been suggested between graduates' unethical behavior and business school education (Giacalone and Wargo, 2009), and importantly, it applies to all majors. For example, Farrel and Dawn (2013) and McAlister (2004) argue that many of the ethical failures of businesses stem from the faults of business ethics education and they mention in particular the field of marketing. While business schools have added ethical and moral education to their curriculum, ethical teaching in the field of marketing lags behind (Farrel and Dawn, 2013; Schlegelmilch and Öberseder, 2010), despite marketing ethics education being the second most popular area of ethical marketing research (Farrel and Dawn, 2013; Nill and Schibrowsky, 2007). In the United States, among AACSB-accredited business schools, only a quarter required a generic business ethics course to be taken by bachelor's students (Rutherford et al., 2012), and the number of business schools who have mandatory bachelor's courses on marketing ethics are greatly reduced (Farrel and Dawn, 2013). However, having a mandatory course in ethics may not solve the problem as in our study, we found no relationship between students who had taken a mandatory corporate responsibility course and the test score results. Clearly, taking a course is not enough.

Numerous studies have gauged the amount of cheating on college campuses. A review of 46 studies on cheating in universities (Whitley, 1998) showed that students who reported cheating at some point in their career was as high as 70% (cf. McCabe et al., 2001). The main conclusion from this extensive pool of research is that cheating is commonplace; over half of students have cheated at some point, and it is reported to be especially prevalent among business students (e.g., Jensen et al., 2011; Kerkvliet, 1994; Klein et al.,2007; McCabe et al., 2006; Premeaux, 2005). Although some dispute the finding that cheating in business schools is higher than in other schools, they do agree that rules and ethics in general seem to be more flexible and fluid among business majors (Klein et al., 2007). Business students consider themselves more ethical than business professionals, while also admitting that they likely will cheat at some point in their academic career, and that they might have to engage in unethical actions to further their career (Lawson, 2004). It would therefore seem prudent to assume that cheaters in the business world may have practiced their trade already at university.

However, there is an alternative argument that unethical behaviours are internalized

in the workplace. For example, it has been suggested that the lack of gender differences in perceived business ethics among business professionals is due to the professional codes that employees jointly internalize (e.g., Shawver and Clements, 2015). Other studies, however, show that gender differences persist in business (Simga-Mugan et al., 2005). More studies are needed to further explain the relationship between education, ethical business practices, and gender differences.

Companies are an active part of society and their unethical actions can have a destructive impact on the public. For example, consumer trust in financial institutions have been reduced by reports of breaches in ethical conduct, such as the Libor scandal in London, where it was discovered that bankers used false deflating and inflating of the London Interbank Offered Rate for personal gain (Abrantes-Metz, 2012). As mentioned in the introduction, there are many recent examples of companies that have behaved unethically with consequences for both consumers and the society at large. However, cheating consumers cause considerable damage to society also, for example, by raising the costs of goods and services. In addition, Mazar et al. (2008) draw parallels to employee theft, which may be explained by similar psychological models as students cheating on tests.

As argued with the slippery slope argument, earlier cheating behavior is shown to lead to future unethical behavior through the creation of social norms. Therefore, reducing the amount of any cheating behavior early on, may have a significant impact of lessening a snowball effect that may lead to an escalation of unethical actions in the future. Someone ultimately makes the choice to manipulate the stock market, lie to customers, steal office materials, or return a designer bag that has been used at a party. The choices are based on similar moral judgement calls.

5.4. Concluding remarks

Our study suggests that adding a moral reminder can reduce cheating in test. With the development of smart devices and online tests, an argument can be made that cheating on tests will become easier. Some online colleges already include honor code reminders on their online tests (Coursera, 2015). It seems trivial, but if adding a moral reminder on a piece of paper can influence students to cheat less, together with other course warnings (Bing et al., 2012), should it not be implemented always?

APPENDIX 1.
Mathematical test with instructions

Test with the moral reminder. In the non-reminder test all else was equal except that the moral reminder was missing. The equations to be solved are presented on the next page. In the real test there was more space between the equations which spanned three pages.
Read the following instructions carefully.
The test consists of mathematical problems where the object is to define X.
Example of problem: ***X - 4 = 21***
Correct answer = ***25***
Solve as many problems as you can in four minutes.
The instructor will tell you when the timer starts and when the time has elapsed.
Write down your answer beside each problem.
After the time has elapsed, check your own answers.
Write down your score (how many problems you solved correctly) on the given answer paper together with your gender and age.
The instructor will collect the answer papers.
Take the test paper with you and remember to recycle it.
The top 25% of scores will be entered into a raffle to win a Finnkino movie ticket.
Even though this test does not affect your grade, please observe the honor code of Hanken and show the same moral standard you would for any given test

1.	x + 7 = 11	21.	x / - 6 = 3	41.	x + 9 = 16	61.	- 3 = x - 6
2.	8 + x = 8	22.	18 = x + 8	42.	- 4x = - 44	62.	x - 8 = 2
3.	6x = - 42	23.	x - 10 = -18	43.	4 + x = 14	63.	x + 5 = 5
4.	x - 7 = 0	24.	x - 3 = - 2	44.	- 2x = - 20	64.	6 = x - 6
5.	x - 7 = - 5	25.	x - 10 = -1	45.	x / 5 = - 5	65.	5x = - 30
6.	5 + x = 14	26.	2x = 4	46.	x / 6 = 1	66.	x + 6 = 6
7.	8 = x + 3	27.	x + 2 = 10	47.	6x = 72	67.	x + 4 = 14
8.	7x = - 42	28.	x - 1 = 10	48.	- 2 = x + 10	68.	x - 2 = - 6
9.	15 = x + 10	29.	3 + x = 4	49.	x + 3 = 12	69.	x + 9 = 20
10.	7x = 56	30.	4 + x = 11	50.	x + 2 = 7	70.	x / - 7 = 6
11.	1 = x + 1	31.	x - 1 = 11	51.	6 = x + 6	71.	- 2 + x = - 9
12.	2 + x = 13	32.	3x = 3	52.	- 2x = - 24	72.	x / 2 = -1
13.	10 = x + 8	33.	x + 7 = - 4	53.	x + 3 = 14	73.	x + 1 = - 9
14.	x + 10 = 20	34.	x - 4 = - 12	54.	x / 2 = 6	74.	x + 8 = 9
15.	x - 2 = 4	35.)	2x = 18	55.	x - 9 = 0	75.	- 7 + x = - 3
16.	5x = 50	36.	x / 3 = - 2	56.	- 8 = x - 4	76.	- 5x = 0
17.	x / 4 = 6	37.	x / - 2 = 4	57.	x - 9 = - 10	77.	x + 6 = 5
18.	x + 5 = 7	38.	- 3 = x - 9	58.	12 = x + 4	78.	x / - 4 = - 5
19.	2x = 0	39.	x + 2 = 1	59.	5x = 55	79.	- 15 = x - 5
20.	7x = - 7	40.	x + 10 = 14	60.	x / 6 = 4	80.	x + 8 = 14

81. x + 2 = 9
82. x + 10 = 13
83. - 7 + x = - 7
84. 3x = 33
85. x + 9 = 20
86. x + 4 = 7
87. 10 + x = 2
88. x / - 4 = 6
89. x / - 4 = 3
90. x + 9 = 19
91. x - 6 = 4
92. x + 1 = 2
93. x + 2 = 3
94. 4x = 16
95. - 8 + x = - 19
96. x + 8 = 11
97. x - 2 = 2
98. x + 5 = 13
99. 7x = 28
100. 1 + x = 3
101. x + 6 = 3
102. x + 8 = 17
103. 10 + x = 22
104. 2x = 18
105. x - 1 = 7
106. 10 = x + 6
107. - 4 = x + 4
108. 5 + x = - 2

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