

ARTICLES

The Relations Among Religion, Motivation, and College Cheating: A Natural Experiment

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A natural experiment was conducted studying the relations among student cheating, motivation, religiosity, and attitudes toward cheating. Students enrolled in a dual religious/college curriculum were surveyed regarding their cheating behavior, attitudes toward cheating, religiosity, and learning/grade motivations toward classes. Business and liberal arts college students were represented. Results strongly support the following conclusions. First, grade orientation is associated with increases in self-reported cheating. Second, among these religious students, more religiosity correlates with reduced reports of cheating in all courses. This result appears to be due to the unique effect of religion on self-reported cheating rates and, depending on course content, on a reduction of grade orientation in religious students. Third, business students report more cheating than their liberal arts counterparts, even when taking the same courses. They have less critical attitudes toward cheating and greater grade orientation, both of which statistically contribute to this difference, but other factors are involved as well.

Keywords: academic integrity, motivation, religiosity, cheating

Cheating, as the recent literature indicates, is on the rise internationally, with estimates of around 70% of college students admitting to having cheated during their career (McCabe & Treviño, 1993; McCabe, Treviño, & Butterfield, 2001; Whitley, 1998). In the search for an understanding of the causes of cheating, two types of variables have emerged: individual student variables and situational or contextual variables (Crown & Spiller, 1998; McCabe & Treviño, 1993). Individual student variables such as age, gender, religion, academic ability/grade point average, fraternity/sorority membership, and course of study all help statistically to distinguish cheaters from noncheaters. Aspects of the potential cheating context including a school's cheating culture, honor codes, sanctions, and surveillance have all been demonstrated to influence students' integrity decisions (McCabe & Treviño, 1993; see Crown & Spiller, 1998 for an excellent review).

A particularly well studied student variable is motivation. Research by Eison, Pollio, and Milton (1986); Anderman, Griesinger, and Westerfield (1998); Murdock, Hale, and Weber (2001); and others has indicated that students motivated by learning (or mastery of the material, or other internal factors) are subject to better outcomes in the classroom, including being much less likely to cheat than those motivated primarily by grades (or performance on a test, or other external factors).

The research reported here takes advantage of an unusual academic structure to create a natural experiment that examines student motivation and its effect on cheating behavior. Because all of the students in this sample are enrolled in a dual curriculum, they are simultaneously taking courses in an undergraduate college and a full-time Jewish studies program. Differences in motivation and cheating between the two situations can be used to shed light on the causes of cheating behavior because the same students are enrolled in both programs. Furthermore, with regard to context, students in the sample are enrolled in either a liberal arts or business college, and are commingled in their Jewish studies courses. Thus students in the two colleges can be compared using Jewish studies courses as a control condition. We are thus better able to understand the roles of course content and motivation on cheating behavior, independently of the student variables that differ between groups.

Due to the religious content of the Jewish studies course material, it is likely that students' religiosity will play a role in their motivation and cheating behavior as well. By measuring the individual variables of student motivation, attitudes toward cheating, and religiosity—and examining them in different contexts created by varying course content and structure (see the following discussion)—we seek to understand in this particular case the relations between contextual and individual variables in predicting cheating.

MOTIVATION AND CHEATING

Based on a growing body of research (Anderman et al., 1998; Anderman & Midgley, 1997; Dweck, 1986; Dweck & Leggett, 1988; Jordan, 2001; Newstead,

Franklyn-Stokes, & Armstead, 1996; Rettinger & Jordan, 2004), the goals or motivation that students bring to a class clearly have a large effect on their cheating behavior. Those students whose goal is internal (i.e., to learn the material for themselves) are much less likely to cheat than those with external goals such as grades or successful performance on a particular task.

For instance, Anderman et al. (1998) found that in a middle school setting, cheaters displayed significantly higher levels of performance goals and significantly lower levels of mastery goals than did noncheaters, measured at personal and school-wide levels. Newstead et al. (1996) reported a similar relation in British college students. In the latter study, students were asked to list their reasons for studying. Those who gave externally oriented reasons (such as getting a better job or a good grade) reported more types of cheating behaviors than those who gave internally oriented reasons (such as personal development).

Jordan (2001) used survey methods to demonstrate that students who cheated had lower learning orientation scores than those who did not cheat. Conversely, cheaters scored much higher on the grade orientation (GO) subscale of the Learning Orientation/Grade Orientation (LOGO) II (Eison et al., 1986) than did noncheaters. Jordan interpreted these results as indicating that cheating results from a lack of engagement with course material on a personal level, using coursework only to achieve other goals. Rettinger and Jordan (2004) followed up this conclusion by using vignette methods to test this hypothesis experimentally. Participants were presented with a scenario describing a student who is provided the opportunity to cheat. That student was described either as learning or grade oriented (using phrases taken from LOGO II scale items). Participants rated protagonists described as grade oriented as more likely to cheat than those described as learning oriented.

Based on this sample of evidence, students' educational orientation clearly has a strong effect on their decisions to cheat. In this study, contrasts between classes are made that can shed light on this relation. All students in this data set take Jewish studies and regular college classes. Given the strong motivation they bring to their religious studies (see the Method section for a description of the institution and its students) and given that the same students are enrolled in both curricula simultaneously, this situation may be used as a natural experiment on motivation and cheating, provided other crucial variables (i.e., course structure, religiosity) can be addressed.

ATTITUDES TOWARD CHEATING

Beyond students' motivation for taking a class, one of the most important determinants of cheating behavior is their attitude toward cheating itself. Neutralizing attitudes and semantic differential attitudes are among the most crucial (Whitley, 1998). Neutralizing attitudes have been defined as attitudes that seek to justify or minimize the harm in cheating, thus neutralizing the negative feelings associated with the behavior (Haines, Diekhoff, LaBeff, & Clark, 1986). Students holding

such attitudes have been found in a number of studies (see Whitley, 1998, for a review) to be more likely to cheat than those who do not. Similarly, semantic differential attitudes, which simply assess students' valenced (good/bad) stance toward cheating, are, unsurprisingly, the strongest predictor of cheating behavior. However, neutralizing attitudes are a close second, as they allow for the rationalization of this self-acknowledged antisocial behavior (Whitley, 1998). Given the importance of these attitudes, it would be informative to know whether differences in these attitudes between students drives cheating over and above motivation or whether they are synergistic. By comparing the same students with different motivations in different classes, this study can make that distinction.

RELIGION AND CHEATING

Because this sample is taken from a school with a strong religious orientation and because religious course content is a crucial independent variable, we must understand the role that religion plays in student cheating. Mixed findings have been reported on this topic. Crown and Spiller's (1998) literature review cited two early studies by Michaels and Miethe (1989) and Smith, Ryan, and Digging (1972), neither of which found a relation between students' religiosity and cheating rates. More recent findings from Sutton and Huba (1995) found that religiosity influenced cheating attitudes. They found that more religious students had lower thresholds for considering a behavior to be cheating and were less likely to justify cheating. From this we might infer that religiosity would lead to lowered cheating rates.

Bruggeman and Hart (1996) and Guttman (1984) showed differences in moral reasoning and cheating attitudes between more religious and less religious students. However, they did not assess cheating behavior directly, and findings showing actual differences between religious and less religious students' cheating rates have not been forthcoming. It would therefore be interesting to examine a religious sample to see if the differences within this relatively observant group are related to self-reported cheating.

COURSE CONTENT AND CHEATING

Among context variables, the material presented in a course has not been examined as much as the way that material has been presented (Diekhoff, 1996). In particular, neutralizing attitudes (Haines et al., 1986; Newstead et al., 1996) have been shown to be quite context dependent. For example, Pulvers and Diekhoff (1999) found that cheaters perceive their instructional context to be worse than do noncheaters, and Jensen, Arnett, Feldman, and Cauffman (2002) reported that a poor instructor was

one of the top five (of 19) most acceptable reasons to cheat among undergraduates. Crucially for our argument, the goal structure of classes has been demonstrated to have an effect on cheating in middle school students. Classes with mastery goals (i.e., internal, learning oriented) produced much less cheating than those with performance (grade) goals (Anderman et al., 1998; Murdock et al., 2001).

This brings us to course content, in particular the difference between business courses and those in the liberal arts. Surveys (Baird, 1980; McCabe & Treviño, 1995) consistently report that business majors cheat more than do nonbusiness majors. Three factors may contribute to this. First, business classes may be more conducive to cheating, either structurally or because of the instructional context. Second, business students may have more of the individual attributes that cause cheating (e.g., grade orientation). A third possibility is that the culture of business schools outside of the classroom encourages cheating in some way. Although anecdotal evidence exists for all three explanations, rarely have business students been compared to liberal arts students within their colleges and in “neutral” courses that are outside the purview of both. In this study, we compare undergraduate liberal arts and business students within their respective college courses and in Jewish studies, which are taken in mixed classes without regard to undergraduate program. This provides a control condition to compare the two, helping us distinguish at least between the first two explanations previously discussed.

PREDICTIONS

Given this body of literature, we can make strong predictions about the attitudes, motivations, and cheating behavior of the students in this academic setting. At the most basic level, we predict that students who are more motivated by learning and less motivated by grades will report less cheating than those who are more motivated by grades than by learning. We also expect that more religious students will cheat less across the board than less religious students. This effect should be particularly pronounced in Jewish studies classes, where we speculate that students will be more motivated by learning and, in turn, cheat less than in their colleges. We also predict an interaction between religiosity, motivation, and course type. Based on an evaluation of correlations and regression weights, we expect religiosity to play a bigger role than motivation in predicting cheating in Jewish studies classes, but we expect to see the reverse (i.e., motivation playing a bigger role than religiosity) in college courses.

Business students will, we predict, report more cheating than liberal arts students. This effect is predicted to hold for their college and Jewish studies courses, indicating that the nature of the courses themselves does not provide sufficient explanation for this difference. We expect that cheating will be multiply determined. Business students are likely to have more positive attitudes toward cheating and

greater grade motivation but, even controlling for those variables, we expect they will cheat more than liberal arts students.

METHOD

Participants

One hundred and fifty undergraduate students at an independent university under Jewish auspices participated in this survey. There were 84 men and 67 women whose data were included in most analyses, and 9 who were excluded from some or all analyses due to incomplete or illegible surveys. Their ages ranged from 18 to 24 years old, with a mean of 20.5 years. Participants were typically juniors or seniors (41% and 45%, respectively), with some sophomores (14%) completing the sample. First year students were excluded, as they were not able to describe previous collegiate experiences. As incentives, each participant was offered a candy bar on the spot and the opportunity to enter a raffle with prizes ranging in value from \$50 to \$100. All participants were treated in accordance with American Psychological Association ethical guidelines, with particularly strict adherence to anonymity procedures. Approval for this research was obtained from the local institutional review board in the category of "exempt research." Participants gave informed consent and were notified that they would be queried regarding their academic integrity behaviors and attitudes. They were given the standard option of stopping at any time and, with regard to anonymity of their data they were told, "No identifying information will be recorded with your responses, so your answers will remain anonymous, even to the experimenters."

Participants in this natural experiment attend an unusual institution. We describe the intricacies of campus academic life here, as it is crucial to understand the academic background of the participants to evaluate the procedures and results reported in the following discussion. All full-time students (and participants in this study) are required to enroll in religious education each semester. It is this dual curriculum that allows for a direct comparison between Jewish studies courses and nonreligious ones (referred to as "college" courses here). Unlike many religious institutions, there is no credit requirement for religious studies. Rather, all undergraduates must complete a full Jewish studies curriculum each semester, requiring the equivalent of between 4 and 8 academic credit hr of work.

The Jewish studies curricula are varied. These diverse courses are referred to in this article as "Jewish studies classes," although not all students are enrolled in typical North American classroom settings. Each student chooses the program best suited to his or her abilities and interests from among five programs that conform to one of two structures. All women and a minority of men (24% of our sample; $n = 18$) are enrolled in religious studies programs with structures that mirror typical

college courses. These classes have a lecture/discussion format, including exams and other standard (e.g., papers, projects) methods of evaluation (referred to in this paper as “classroom” format). The majority of men (76%; $n = 65$) conduct their religious study in the traditional dialectic manner prescribed by religious authorities (referred to as “traditional” format). This format is quite different from a typical academic class. Although some variation is present, in many cases students in this program listen to lectures by religious figures, study independently in pairs, and are evaluated based on oral examinations and pro forma final examinations. These differences are significant and may impact the incidence of cheating behavior in these courses.

The more academically structured programs include coursework in relevant languages, religious history, and texts. However, the traditional learning program does not include this material, and therefore those students complete that coursework in their secular college. Data from those college courses were collected separately from either college or Jewish studies courses and excluded from these analyses due to the small numbers of courses involved.

All students (and thus participants) are simultaneously enrolled in a complete course schedule in a nonreligious college within the university. These programs have been rated as top-tier by *U.S. News and World Report* (“America’s Top Colleges,” 2003). The typical range of undergraduate liberal arts majors (78% of respondents) are represented, as is an undergraduate business program (22%).

Materials

Participants each completed a packet containing a number of survey measures including, in order, cheating behavior inventories (Jordan, 2001), LOGO II scales (Eison et al., 1986), a measure of religiosity based on Katz (1988), a 3-item scale assessing neutralizing attitudes toward cheating, and basic demographic information.

The cheating behavior inventory is a 17-item scale listing behaviors considered to be violations of academic integrity. The list includes items such as “I used unauthorized notes during an in class exam” and “I copied all or part of someone’s homework or lab work.” It addresses exam cheating, plagiarism, copying of homework, forging of laboratory results, and transmitting of prohibited information between students. A full list is included in the Appendix. The inventory is not labeled as cheating behaviors to lessen social desirability effects. On the inventory, participants are asked to place a check (✓) next to behaviors they engaged in at least once during the previous semester. They were asked to place an *N/A* next to behaviors they had no opportunity to engage in. For example, falsifying lab data might not be appropriate for students who have not taken a laboratory course. Cheating behaviors that students had not engaged in were to be left blank.

The LOGO II scale (Eison et al., 1986) contains 32 items and is designed to assess a student's learning and grade orientations toward classes. Participants rate each item on a scale of 1 (*strongly disagree*) to 5 (*strongly agree*). Half of the items describe attitudes. For example, "Instructors expect too much out-of-class reading and study by students" contributes positively to the grade orientation subscale. The other half of the items describes behaviors such as "I stay after interesting classes to discuss material with instructors." The endpoints of these rating scales were *never* and *always*. The learning and grade orientation subscales each contain 16 items. Separate learning and grade orientation subscales were created by taking the average response to the items on each subscale. Scores on the resulting subscales therefore also range from 1 to 5.

Religiosity was evaluated based on a modified version of Katz's Student Religiosity Questionnaire (as reported in Hill & Hood, 1999). The scale consists of two subscales, one describing religious practices (12 items) and one religious beliefs (10 items). For the former, participants were instructed to "rate *your* degree of *actual* observance from 1 (*minimal observance*) to 5 (*maximal observance by the most religious person you know personally*)." Examples of these behaviors included "observance of the Sabbath" and "blessings before and after weekday meals." A score was created for the behaviors subscale ranging from 1 to 5 and representing the average rating. For the beliefs scale, the instructions read, "For the following religious principles, rate the strength of your beliefs from 1 (*minimal strength*) to 5 (*maximal strength, compared to the most religious person you know personally*)." These beliefs included, "Biblical miracles," "individual supervision by God," and others. Results from the belief scale did not vary significantly in our sample and are not reported in this article; the scale is not included in the Appendix.

Participants were asked to rate their agreement with three statements about their attitudes toward cheating. The questions, from Jordan (2001), are intended to assess students' neutralizing attitudes. They were asked to respond to the statements that cheating is justified (a) when a person needs to pass a class to stay in school or to graduate, (b) when a close friend asks for help, or (c) in general. Agreement was measured on a 5-point Likert-type scale, with endpoints ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

Procedure

Participants were recruited in well traveled public areas on the two main campuses. Surveys were administered in private rooms separated from the public with dividers between participants. During the consent process, special care was given to assure participants that their anonymity was absolute. They were shown that no identifying material was placed with their packets, and that they could opt out of the raffle, leaving only the consent form as a record of their participation. Consent forms were collected at the beginning of the study session and a box was provided

for blind return of the questionnaires at completion. Participants polled informally indicated that they felt their anonymity was assured.

After consent was obtained, participants were given a questionnaire packet. An undergraduate experimenter described each section and answered any participant questions. They were instructed not to look ahead or go back to change answers in hopes of preventing cross-contamination of data in the separate sections. Participants completed the packets in 15 to 45 min.

Each packet contained the following materials in order: three cheating inventories, one each for secular courses (in the colleges), religious studies courses (in the Jewish studies programs), and religious-themed courses (in the colleges); three LOGO II scales, one for each type of course; a single religiosity scale, a single attitude survey and a demographic survey including questions regarding the participant's age, sex, college, Jewish Studies program, and year in school.

Data Analysis

Three measures of cheating were created and calculated for each course type. First is a crude binary measure: Students are considered "cheaters" if they reported committing any of the behaviors on the inventory. Most surveys of cheating classify students in this manner, and this variable is important as a means of comparison to other studies. Second is a count of the number of different cheating behaviors a student engaged in, which has been shown to be a good indicator of a student's proclivity to cheat and the severity of that cheating (Jordan, 2001). It is a ratio variable, amenable to regression and correlational analyses, and is used in the following discussion for that purpose. Finally, a binary measure of exam and paper cheating was created, excluding homework and laboratory cheating behaviors. This measure is used to describe those behaviors that some consider more serious examples of academic dishonesty.

Although the university described here is not explicitly named, it is possible to infer its identity based on the detailed descriptions provided. The university is part of a small community, and enrollment in the programs discussed in this article is widely known within that community. To protect the privacy of students enrolled in these programs, the cheating rates reported in the following sections are relative to one another.

RESULTS

Descriptive Statistics

Before examining our predictions, let us compare the unusual student body under consideration here with that described in the literature. This examination allows us to determine whether this study is of isolated interest or if these results generalize

to the student population at large. As we saw in the previous discussion, the demographic variables are similar to those reported previously.

The rate of cheating behavior of the students in our sample is well within the normal range, which is to say quite common. In this sample, 64% of liberal arts students reported at least one cheating behavior in a particular semester, as compared to 55% in Jordan's honor code institution (2001). Whitley (1998) found in his meta-analysis that an average of 70% of students admitted to cheating over a college career. The results reported here are similar. Jordan found 54.9% in a particular semester. Our finding of 64% is in line with this latter number. The high overall cheating rate in this sample is largely the contribution of the business students, of whom 88% reported at least one incident of cheating, mirroring the pattern found by McCabe and Treviño (1995). Thus, it is safe to say that the academic integrity level of our sample is not out of line with the findings of others, and thus findings taken from it may have some generalizability in that regard.

In terms of their religiosity, however, the students in this sample are unusual indeed. Using a modified version of the religious observance measure from Katz' religiosity scale (Hill & Hood, 1999), our students are very observant. The mean response on the scale was 4.23 ($SD = .74$), and the mode was 5, on a 5-point scale. Given that this version was modified to be more sensitive to extremely high scores, these high scores indicate that our sample is considerably more observant than previous ones.

Natural Experiment 1: Jewish Studies and College Courses

Students in all programs reported notably less cheating in religious studies courses than in college classes (either liberal arts or business). For all students (liberal arts and business), this difference was 32.1%. For business students, the difference was 36.5%, and for liberal arts 30.9%. The overall difference is significant, $\chi^2(1) = 23.30, p < .001$, as are the differences for business students, $\chi^2(1) = 6.55, p = .01$, and liberal arts students, $\chi^2(1) = 23.62, p < .001$.

Two kinds of explanation are possible for the differences in reported cheating between college and Jewish studies courses. First, the content of the religious studies courses may cause students to cheat less. Although a number of reasons for this may exist, we argue that it is the personal connection that these students have to the material that accounts for the smaller number of cheating reports. These students have chosen a university setting that emphasizes their religious education, and we therefore infer that this education is intrinsically important to them, at least to some degree. Second, the structure of the courses might be less conducive to cheating. To wit, the traditional dialectic learning method emphasizes study pairs and de-emphasizes exams and may reduce the desire and opportunity for cheating. To assess the relative contributions of these factors, appropriate comparison groups are needed. To see the relation to course content, we contrast courses with the same academic structure but

either religious or nonreligious content. For the subset of students whose religious studies are conducted using standard classroom structure, less cheating took place in Jewish studies courses (by 25%) than in college courses, $\chi^2(1) = 14.40, p < .001$. Within the confines of a correlational study, we take this as support for the claim that the content of Jewish studies courses leads to reduced cheating.

To determine the role of class structure, we compare the cheating reduction for traditionally taught religious studies courses to the reduction in religious studies courses that use the academic format. The results show that the structure of the course also clearly plays a significant role. Students taught using traditional methods reported cheating notably less often (by 22.1%) than did students in lecture/exam courses of study, $\chi^2(1) = 7.29, p = .007$. This effect is not likely to be due to selection effects, because students in the two groups do not differ significantly in their cheating rates in college courses (difference of -8.9%), $\chi^2(1) = 1.35, ns$. In sum, these findings point to contributions of class structure and religious content in causing lower cheating rates in religious studies courses.

Having examined situational impacts on cheating, we now turn to the personal variables assessed in the survey: religious observance, learning motivation, grade motivation, attitudes toward cheating, (measured on a 3-question scale), and reported cheating behavior (operationalized as number of cheating categories, a ratio variable). Although religious observance and attitudes toward cheating are conceived as personal variables and thus assessed for each participant, motivation is considered to be the result of an interaction between individual and class and, thus, was measured separately for religious studies and college courses. For Jewish studies courses, students reported greater learning orientation (LO; $M = 3.16, SD = .61$), than in college courses, ($M = 3.04, SD = .56$), paired $t(151) = 2.61, p = .01$. The reverse is true for grade orientation (GO). In Jewish studies courses, students reported less GO ($M = 2.81, SD = .69$) than in college courses ($M = 3.08, SD = .59$), paired $t(150) = -5.65, p < .001$.

The correlations among these variables are instructive in understanding their roles as interrelated constructs in determining cheating. Of course, the mere association of these variables does not demonstrate causality, but it provides suggestive evidence in that direction. Table 1 represents the correlation matrix containing these theoretical variables, populated with Pearson correlation coefficients. This table shows clearly that all of the theoretical variables are associated with cheating levels, with the exception, in college courses, of the LO subscale of the LOGO scale. Increased GO (.40), positive attitudes toward cheating (.41), and less religious observance ($-.22$) all correlate reliably at the .002 level or greater ($N = 154$) with college cheating. These variables have similar effects on religious studies cheating (GO, .46; positive attitudes, .29; religious observance, $-.25$). However, notable intercorrelations are present among these variables as well. For example, religious observance is negatively correlated with positive attitudes toward cheating, $r = -.27$; and GO for religious courses, $r = -.22$; among others. GO in college

TABLE 1
Correlations Between Cheating Rates and Predictor Variables

<i>Measure</i>	<i>Jewish Studies Cheating</i>	<i>College Cheating</i>	<i>Jewish Studies LO</i>	<i>Jewish Studies GO</i>	<i>College LO</i>	<i>College GO</i>	<i>Cheating Attitudes</i>
<i>Jewish studies cheating</i>							
College cheating	.65**						
Jewish studies LO	-.20*	-.24**					
Jewish studies GO	.46**	.40**	-.51**				
College LO	.02	-.10	.59**	-.17*			
College GO	.27**	.40**	-.18*	.55**	-.29**		
Cheating attitudes	.29**	.41**	-.13	.34**	.04	.30**	
Religiosity	-.25**	-.22**	.08	-.22**	-.17*	-.03	-.27**

Note. LO = learning orientation. GO = grade orientation. $N = 154$.

* $p < .05$. ** $p < .01$.

courses and positive attitudes are positively correlated, $r = .30$. See Table 1 for more examples. Therefore, the unique contributions of these constructs to cheating are impossible to assess without statistically controlling for each one, using regression techniques and partial correlations.

Stepwise regression, $p < .05$ to enter, $p > .10$ to remove, was used, entering LO, GO, cheating attitudes, and religious observance as predictors and number of cheating categories as the dependent variable. For ease of reporting, these are summarized in Figure 1.

In college courses, higher GO, $\beta = .35, p < .001$, predicts more cheating as do more positive attitudes toward cheating, $\beta = .31, F(2, 147) = 36.38, p < .001, r^2 = .29$. Although the effect is marginal, increased religious observance, $\beta = -.14, p = .06$, was associated with reduced cheating, $model F(3, 145) = 21.29, p < .001, r^2 = .31$. Religious studies courses, GO, $\beta = .45, p < .001$, and religious observance, $\beta = -.16, p = .03$, both predict cheating in the expected direction, $F(2, 147) = 23.08, p < .001, r^2 = .49$. Cheating attitudes is excluded from the Jewish studies model. LO drops out in both cases because it adds little to the predictions, being highly correlated with GO. This complex pattern of results indicates that individual factors interact with the course material to determine the likelihood of cheating. In particular, the role of motivation (GO) remains fairly constant, but the effects of religiosity and neutralizing attitudes depend on the course content.

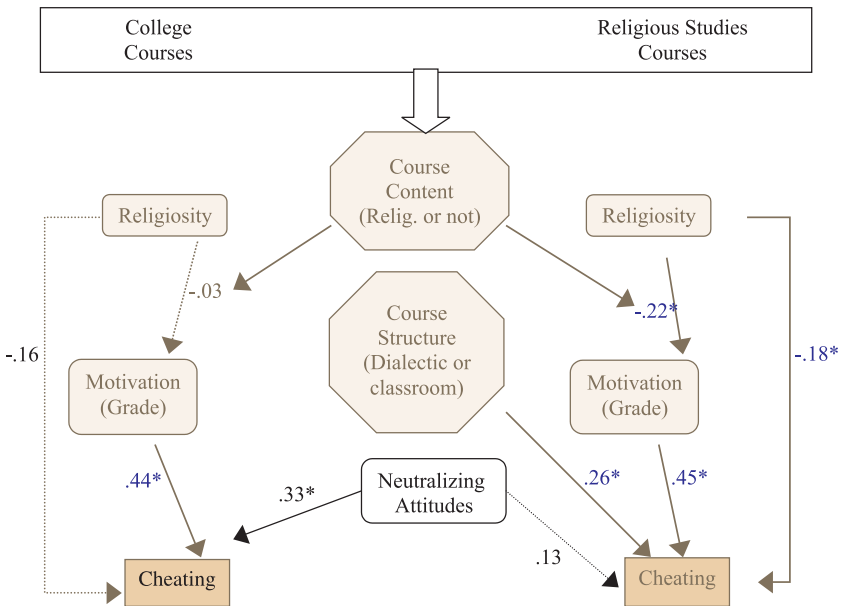


FIGURE 1 Partial correlations between theoretical variables predicting cheating

The effect of religiosity in college and Jewish studies courses is similar, hovering around significance. Given the overall high correlations between religiosity and cheating (from Table 1, $-.25$ and $-.22$) and the lower cheating rate in Jewish studies courses, this effect is somewhat counterintuitive. A secondary effect of religion on motivation in Jewish studies courses is present, which in turn affects cheating indirectly. In college courses, religious observance is uncorrelated with GO, $r(150) = .03$, *ns*. However, in Jewish studies courses, religious observance is negatively correlated with GO, $r(150) = -.22$, $p = .006$.

Religious observance reduces cheating directly in college courses but has no indirect effects. In religious studies courses, a smaller direct effect of religious observance on cheating exists. This effect is compensated for by an indirect effect of religious observance: Increased religious observance leads to less grade motivation in religious studies courses, which in turn leads to less cheating. These results can be interpreted as indicating that religious students are less motivated by grades in religious studies courses and therefore cheat less in them for that reason, as well as because religious students typically cheat less across the board. The same pattern of findings is obtained using partial correlation techniques.

Also in Figure 1 we can see the different effects of neutralizing attitudes in the two types of courses. These attitudes are strongly correlated with cheating, partial $r = .33$, $p < .001$, whereas in Jewish studies courses they are not, partial $r = .13$, *ns*. Taken in combination with the differences in the effects of religiosity, we may interpret this to mean that only one of the two is likely to operate at once. This effect should be considered speculative, however, as the absolute difference in the religiosity effect between Jewish studies and college courses is quite small.

As we have just shown, substantial differences are present in cheating rates between Jewish studies and college courses. Those differences cannot be completely attributed to the pedagogical structure of the classes nor to differences of students in the classes (as the same students take both types of courses). We therefore attribute different cheating rates to the relation between the content of the classes and the attitudes of the students. In particular, students' religiosity and attitudes toward the courses impact each other and cheating behavior.

Natural Experiment 2: Business and Liberal Arts Students

This academic structure allows for a number of interesting comparisons in the form of natural experiments comparing different groups of students. For example, in most cases, business and liberal arts students, when they are present on the same campus at all, enroll in courses in their specialization or in the other. Only rarely do they enroll in a third type of course (Jewish studies, in this case) that can be used as to compare the two groups of students, controlling for course content. This situation is used to compare these groups of students to determine whether differences

in cheating rates exist between them and, if so, whether it is due to course content factors or individual differences among the students themselves.

The first step in this process is examining cheating differences between business and liberal arts students. Business students reported cheating more in Jewish studies (18.7% more students reported cheating and business students reported an average of 1.3 more cheating categories), $\chi^2(1) = 3.89, p < .05$, and in college courses (23.2% more students and business students reported an average of 1.9 more categories), $\chi^2(1) = 6.57, p = .01$. Because business students cheat more across the board, we can infer that the course content alone does not explain these differences. If that were the case, no difference would be present in Jewish studies courses, where students from these groups are taught side by side.

Having found differences in reported cheating between business and liberal arts students, we now search for other differences that might explain them. One possible confound would be that business and liberal arts students choose dialectic or classroom Jewish studies curricula in different proportions. However, this is not the case, as 40% of liberal arts and 54% of business students chose dialectic Jewish Studies programs, $\chi^2(1) = 2.06, ns$. Moreover, as dialectic programs produce less cheating, even this trend is in the wrong direction. Another possible explanation would be differences in student attitudes within the colleges. Attitudes toward cheating, grade orientation, and religiosity might all play a role. Marginal differences in cheating attitudes exist between the colleges. Liberal arts students rated cheating as less justified ($M = 1.8, SD = 1.08$ on a 5-point scale) than did business students ($M = 2.14, SD = 1.36$), $F(1, 145) = 3.63, p = .059$. On the LOGO II scale, a significant difference is present between the colleges on grade orientation for college classes, liberal arts = 3.03, $SD = .56$; business = 3.34, $SD = .63$, $F(1, 145) = 7.77, p = .006$. Religiosity did not differ significantly between liberal arts ($M = 4.2/5$ points) and business ($M = 4.2/5$) students, $F(1, 143) = .03, ns$.

To determine whether these differences are related to the differences in cheating rates, cheating attitude and GO were entered as covariates into two analysis of variance designs (for Jewish studies and college courses) with business/liberal arts enrollment as the independent variable and number of cheating categories as the dependent variable. For college classes, the model was a reliable predictor of cheating, $F(3, 143) = 20.94, p < .001, r^2 = .31$. Both covariates were reliable predictors of cheating: attitude, $F(1, 143) = 16.25, p < .001, \text{partial } \eta^2 = .10$; and college GO, $F(1, 143) = 18.64, p < .001, \text{partial } \eta^2 = .12$. Over and above the covariates, an average difference of 1.06 cheating categories reported still exists between business and liberal arts students, $F(1, 143) = 4.59, p = .034, \eta^2 = .03$.

In Jewish studies courses, a similar pattern holds. The model is reliable overall, $F(3, 143) = 18.31, p < .001, r^2 = .28$. Attitude toward cheating is a marginally reliable predictor of cheating, $F(1, 143) = 3.09, p = .08, \eta^2 = .01$. GO is a strong predictor, $F(1, 143) = 30.7, p < .001, \eta^2 = .18$. Once again, a difference still exists between business and liberal arts students over and above the covariates, $F(1, 143) =$

4.59, $p = .034$, $\eta^2 = .03$. This pattern indicates that business students cheat more in college and Jewish studies classes partially due to increased grade orientation and more positive attitudes toward cheating but also for other undetermined reasons.

Attitudes and Motivation

A final issue raised by these data is the relation between cheating attitudes and motivation. The findings previously reported imply that each has independent contributions to reported cheating behavior. Explicit testing bears out this claim. Using partial correlations controlling for student attitudes toward cheating, college cheating is still correlated with college GO, $r = .37$, and Jewish studies cheating is still correlated with Jewish studies GO, $r = .32$; both 146 df, $p < .001$. Conversely, controlling for the appropriate GO, attitude toward cheating is correlated with college cheating, $r = .33$, $p < .001$, and Jewish studies cheating, $r = .166$, $p = .04$; both 146 df. These analyses, taken together, indicate a separate relation with cheating for attitudes and motivation and a particular dominance of motivation for Jewish studies courses.

DISCUSSION

The major hypothesis of this study was that motivation (learning and grade orientation) would have a significant role in determining cheating. As we can see from the results, this is certainly the case. Grade orientation is strongly correlated with self-reported cheating in Jewish studies and college courses, and learning orientation is negatively correlated with cheating in Jewish studies classes. Furthermore, in both natural experiments, the classes that engendered higher grade orientation (business classes as compared to liberal arts classes and college classes generally compared to Jewish studies) reported higher rates of cheating. These results hold up when other relevant variables such as course structure, religiosity, and students' attitudes toward cheating are controlled for statistically. Although this finding is not new, the use of the natural experiment methodology provides convergent support for the importance of motivation to cheating. The strongest aspect of this novel method is the ability to compare the same students in different motivational situations. Although this situation is far from a controlled experiment, the external "manipulation" of motivation based on religious versus nonreligious course content does support the claims that grade orientation does cause increased cheating and, to a lesser degree, that learning orientation reduces cheating.

A second hypothesis was that students' religiosity would reduce cheating. More religious students were predicted to cheat less, especially in religious studies courses. This expectation is also supported, although not for the reason we predicted. As we saw in Figure 1, in Jewish studies courses religiosity has a significant

direct effect on cheating, only slightly larger than the analogous effect in college courses. This result was surprising, given the nature of the course material and the substantial reduction in cheating in Jewish studies courses. However, these findings are reconciled by the large significant partial correlation between GO and religiosity only in Jewish studies courses. This result is interpreted to mean that more religious students do not care as much about grades in Jewish studies courses as their less religious counterparts do, but the two groups are equally grade motivated in college courses, which, in turn, reduces cheating in Jewish studies but not college courses. It should also be mentioned that religiosity in this sample was negatively correlated with cheating, even when controlling for other variables (e.g., motivation, attitudes toward cheating). This finding is unusual in the literature and may be due to the restricted range of religiosity found in the sample. It is fair to say, however, that extremely religious students are, by virtue of their religiosity itself, less likely to cheat in all courses than are the somewhat less religious students in this sample.

A related finding that was not predicted was the differential effect of cheating attitudes in Jewish studies and college courses. Neutralizing attitudes were strongly correlated with cheating in college courses and not in Jewish studies (over and above those other variables that were correlated with cheating). This result may be due to the difficulty of justifying cheating in courses in one's religion, especially when one's religious identity is so important. Given that the students in this sample have chosen a dual curriculum, the high learning motivation might prevent neutralizing attitudes from being effective. Another possibility is that students interpreted the attitudes scale as being mostly relevant to college courses. Their responses would then naturally correlate more with their college cheating responses. These interplays would be an excellent topic for future research in which neutralizing attitudes are assessed separately for religious and college courses.

Third, we predicted that business students would cheat more than liberal arts students in college and Jewish studies courses. This finding is overwhelming in these data. The difference in reported cheating rates was over 18% in Jewish studies courses and 23% in their respective colleges. This particular finding is important because it demonstrates that it is not only the business courses themselves that promote cheating but other factors as well. Business students have marginally stronger neutralizing attitudes than do liberal arts students and significantly greater grade orientation. Controlling for these variables statistically did account for some of the differences in cheating rates between the student groups. However, a significant difference is still present between liberal arts and business students' cheating over and above those variables. This result was obtained with college and Jewish studies courses, leading to the conclusion that other individual and social variables influence these business students and possibly the culture at this business school and engender higher cheating rates. Further research distinguishing between

extraclassroom and individual student effects is required to disentangle these possibilities.

As with any study of this scope, certain questions must be addressed. First and foremost is the generalizability of these data to a national student population, given the unusual sample. Although the results surrounding religiosity are particularly subject to this critique, given the consistency of the overall cheating rates with national norms and the correspondence of the results with theoretical arguments about motivation, we feel safe in concluding that the major theoretical conclusions here will generalize. In particular, we believe that the elements of Judaism that condemn cheating are common to most world religions. Plagiarism and exam cheating are most often categorized as examples of intellectual theft or fraud (i.e., deception about the source of one's information). These behaviors are either explicitly or implicitly condemned in most if not all religious systems, and so the injunction against cheating is likely generalizable to most students. We anticipate that increased religiosity in any religious context would generally correlate with less self-reported cheating, although the strength of that effect might vary based on the importance placed on that injunction across religious communities. This, of course, is an empirical question that future research may help elucidate.

Another concern is the self-report of cheating rates. Although this method is certainly standard in the literature (see Crown & Spiller, 1998, for many examples), it does have drawbacks. Of particular concern here is that motivation, attitudes toward cheating, and religiosity might be correlated not with cheating rates, but rather with willingness to admit to specific cheating behaviors. It is difficult to defend against this criticism. The materials were designed to minimize pejorative language and emphasized anonymity as much as possible, encouraging students to be honest. Anonymity was not presented directly, but shown, so as not to create a sense that answers to any items might be considered shameful. Furthermore, anecdotal reports from the director of the liberal arts college's academic integrity process support our finding that business students are disproportionately represented among violators. Although not a scientific result, it does lend some independent verification to a small part of the results reported here.

Finally, Council (1993) made the methodological point that the context in which a personality measure is presented can change participants' responses to that measure. In his work, the effects are so strong that even merely counterbalancing the order of these measures does not eliminate the effects. He therefore advocated the separation of multiple measures into different sessions, disguising their relatedness. This excellent suggestion would not, unfortunately, have been appropriate for this study. To protect the rights of students who are discussing past cheating incidents and to maximize their comfort in reporting those incidents, it was crucial to maintain absolute anonymity. The mere process of placing an identifier with their responses to connect them across sessions would have reduced (if not

eliminated) their sense of anonymity. Given the difficult choice between compromising participants' sense of anonymity and reducing context effects with multiple testing sessions, we determined that the need for complete anonymity outweighed the potential for context effects on the results.

Furthermore, given the limited effectiveness of counterbalancing in Council's (1993) research, the decision was made to forgo this as well. Because cheating behaviors were assessed first, counterbalancing the order of the scales could have only *increased* the context effects on those scales. Although this technique may have reduced context effects on participants' responses to the LOGO, religiosity, and attitude scales, we decided to accept this tradeoff to have the maximum reliability of the cheating measures.

In conclusion, two natural experiments studying the roles of motivation, religiosity, and attitudes toward cheating strongly support the following conclusions. First, grade orientation is associated with increased self-reports of cheating. Second, among religious students, more religiosity is correlated with reduced cheating in all courses. This finding is due to the unique effect of religion on cheating rates and, depending on course content, on a reduction of grade orientation in religious students. Finally, business students cheat more than their liberal arts counterparts, even when taking the same courses. They have less critical attitudes toward cheating and greater grade orientation, both of which contribute to this difference, but other factors are involved as well.

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APPENDIX

*Cheating Instrument***Think about courses you took during Spring 2002.**

Please read each of the statements below. Place a check mark in the column to the right next to each behavior you have engaged in *during the Spring 2002 semester*. Place an "NA" in the column if the this behavior was not possible due to the class structure (e.g. no take home exams).

Place a check mark (or "NA") below.

I used unauthorized notes during an in class exam.

I used unauthorized notes during a take home exam.

I copied from someone during an in class exam.

I copied from someone during a take home exam.

I gave answers to someone (or allowed someone to copy my answers) during an exam.

I gave test information to someone in a later section.

I obtained test information from someone in an earlier section.

I turned in a paper written by someone else.

I used exact words or ideas from a WWW source without acknowledging the source.

I used exact words or ideas from a book or other printed publication without acknowledging the source.

I added items to a bibliography that were not used in writing the paper.

I copied all or part of someone's homework or lab work.

I had someone do my homework or lab work for me.

I allowed someone to copy my homework or lab work.

I did someone's homework or lab work for them.

I worked with another student on a homework or lab assignment that was supposed to be done independently.

I invented or altered data (e.g., entered nonexistent results into a database; adjusted data to get a significant result).

Religiosity Instrument

Directions: For the following activities, rate your degree of *actual* observance from 1 (minimal observance) to 5 (maximal observance by the most religious person you know personally)

Sabbath observance	1	2	3	4	5
Dietary laws – observance at home	1	2	3	4	5
Dietary laws – observance out of home	1	2	3	4	5
Formal obligations of daily prayer	1	2	3	4	5
Observance of days of public mourning	1	2	3	4	5
(S'fira & The Three Weeks)					
Observance of days of personal mourning	1	2	3	4	5
(shiva & shiva calls)					

Observance of fast days	1	2	3	4	5
Blessings before & after weekday meals	1	2	3	4	5
Blessings before & after Shabbos meals	1	2	3	4	5
Sabbath termination prayers (Havdalah)	1	2	3	4	5
Observing the requirements of Sukkot	1	2	3	4	5
Giving of tithes	1	2	3	4	5

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