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WOULD YOU BRIBE YOUR LECTURER?

An international replication study on bribery in higher education

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Abstract

Corruption is a critical issue in higher education (HE), causing severe economic and societal harm. It is a complex phenomenon deeply rooted in both individual motives and in the greater institutional context of HE. Because of its delicacy and effects of social desirability, it is difficult to find out to what extent acts of corruption have had an impact on HE institutions. Similarly, insights into the key underlying causal mechanisms of HE bribery are virtually non-existent.

This study investigates the conditions under which university students of Belgium, Germany and the Netherlands are willing to offer bribes to their lecturers in order to pass important exams and whether burn-out indications influence this intent. The findings of this study are based on a quasi-experimental research design in which graduate students of business, economics, and social sciences judged different bribery-vignettes (N=624).

Results show that students differentiate sharply between different shades of bribery and that a majority is okay with using emotional influence tactics to pass (failed) exams. In contrast, offering a helping hand or money was less acceptable. Contrary to our hypothesis, burnout and individual risk-propensity do not reliably predict students' likelihood to bribe. In sum, this article provides solid empirical evidence that students are likely to use emotional influence tactics, which might result in violations of both the ethical codes of conduct and the formalized bureaucratic procedures of examination. Consequently, HE institutions might benefit from selective awareness campaigns that enable lecturers to better recognize this behavior and advert students about the unappropriated use of emotional influence tactics.

Keywords: Higher Education – Bribery – Burnout – Risk Propensity

Introduction

Corruption is a substantial and severe problem in higher education (HE) worldwide. Literature shows that corruption is a cultural phenomenon deeply entrenched in the social, political, economic, and historical system of HE institutions (Heyneman, 2015; Johnson, 2001). Although corruption is often described as a *"victimless crime"*, von Arnim (2003) points out that this is, in fact, not true: Even though corruption – in contrast to other crimes like, for instance, robbery or murder – might not create *one* specific victim it is a crime that will always indirectly harm the welfare of a substantial number of people.

HE corruption involves the acts of dishonest, unethical, and most often illegal behavior by both students and academic staff (Chapman & Linder, 2016; Waite & Allen, 2003). Among other forms, this behavior predominantly manifests in acts of bribery, for instance in buying personal favors and university degrees (Feoktistova, 2014), undue promotion of faculty staff and the corrupt management of public funds and public property (Osipian, 2007). Other acts of corruption include embezzlement, fraud, patronage, favoritism, plagiarism, bureaucratic rule breaking and ethical misconduct (Osipian, 2007; 2008).

Among these manifold acts of HE corruption, bribery-acts committed by students attempting to influence their lecturer to their individual favor are likely to be the most serious issue since they enable people to receive higher education degrees without the required intellectual capacities to effectively achieve them. As a result, non-competent and corrupt people might get access to powerful political and managerial positions (Heyneman et.al., 2007). In this way, HE bribery is a fundamental problem for social coherence and public trust in political and governmental institutions (von Arnim, 2003). Furthermore, on the long term, these acts are argued to also have a substantially negative effect on societal welfare since they threat the quality of HE and the equal access to it (Osipian, 2007). Yet, these acts also impede economic

growth by slowing down the process of accumulating human capital of those left behind, diminish social progress and inhibit citizen equality (Heyneman, 2015; Osipian, 2007). Yet, because the damage done is distributed over a large quantity of people (i.e. all the students who do not bribe their lecturers will hence get no preferential treatment) the extend and effect of bribery can hardly be estimated (von Arnim, 2003).

Despite its criticality and since bribery is an illegal, unethical and socially undesirable behavior, it is especially hard to study and empirical research is therefore virtually non-existent at best (Feoktistova, 2014, Osipian, 2007; 2008, Waite & Allen, 2003). This is particularly surprising since bribery is an alarming signal for the loss of HE's objectivity, its honesty, and its ethical standards which lie at the very core of the traditional privileges of academic freedom and autonomy granted to institutions of HE by the public (Altbach, 2015; Heyneman, 2015).

Given this severe lack of empirical research, the current study scrutinizes the latent factors and reasons why some students are more likely to engage in bribery-acts and how individual situational factors affect this likelihood. To better understand why some students would attempt to bribe their lecturer while others do not, we turn our attention towards its micro-behavioral mechanisms. As such, we do not only aim to fill the gap of knowledge on personality aspects influencing the act of bribery in the HE context (see, for instance, Petrov and Temple, 2004), but also – and more importantly – advance the field's theoretical insights on the antecedents of bribery. Consequently, the aim of the current study is to contribute to the micro-behavioral perspective of corruption in HE. As such, HE officials are able to better understand – and thus potentially prevent – acts of bribery in HE.

The behavioral mechanisms that stand at the center of the current study originate from the current core of scholarship on bribery. In this way, this study sheds light onto the severely understudied phenomenon of micro-level bribery in HE from the grass-root, i.e. in the very

peculiar situation of a face-to-face consultation between lecturers and students in distress – a situation that is both very common and very likely to breed incentive and possibility for deviant behavior. Specifically, the current study seeks to find out whether university students find the use of bribery to achieve their study-related goals as acceptable and whether burnout (Misra, McKean, West, & Russo, 2000) influences this level of acceptability (Reynolds et al., 2013). More precisely, we argue that study-related burnout among students increases the chances on engaging in bribery since higher levels of burnout are associated with an increased likelihood of engaging in unethical behaviors (Everall & Paulson; 2004). Furthermore, we expect this relationship to be moderated by the level of the students' commitment to the public interest (from which the students' university is being part) so that that students who might feel emotionally drained by study-related burnout will still refrain from engaging in bribery-acts if they have developed a strong public values-related moral code.

These theoretical relationships are tested explicitly in the context of Western European countries because bribery in these countries is typified as illegal and unethical which implies that socially undesirable behavior might play an important role, obstructing empirical research. Consequently, empirical knowledge of HE-bribery within these countries is exceptionally scant (Osipian, 2007; 2008).

Respondents are students at three large public universities in three European countries: Belgium, the Netherlands and Germany. Findings are based on a quasi-experimental research design in which the students' intent to bribe has been measured by between-subject randomized vignettes. These vignettes differed in the seriousness of the bribery act in order to ensure sufficient contextual variance while being set in a typical situation of one-to-one consultation between a student and a lecturer. These vignettes were complemented with a questionnaire on

study-related burnout, commitment to the public interest, risk propensity, and socio-demographic control variables such as gender, age, and field of study.

This original research design directly responds to recent appeals by Petrov and Temple (2004), Osipian (2008), and Chapman and Lindner (2016) for replicating studies by using experimental study designs and it comes with a number of key methodological advantages. First, this design employs a novel approach in the research field of HE by using a quasi-experimental method on the issue of HE bribery, allowing the identification of treatment-related causal mechanisms (Meyer, van Witteloostuijn, & Beugelsijk, 2017). Second, by conducting corruption research in Western European countries, this project focuses on countries in which bribery in HE is often perceived as a marginal problem (von Arnim, 2003; Chapman & Lindner, 2016), although it is likely that these countries' HE systems suffer from similar degrees of corruption as other OECD countries (Chapman & Lindner, 2016). Third, since the findings of this study are based on a sample of university students in three countries, it ensures high internal and external reliability. Fourth, the findings of the study are not only relevant for academics, but also for practitioners who could refer to the results in order to develop more accurate awareness campaigns in order to ensure a more effective prevention of micro-level bribery in HE.

Theory

Bribery

Ramdani (2014, 1) defines bribery as 'the corrupt payment, receipt, or solicitation of a private favor for actions or decisions from influential or powerful agents or authorities which could be public officials, corporations or people inside corporations to generate private benefits of the briber.' Consequently, bribery involves two different actors: A bribe-offerer tries to influence

another actor, called the bribe-taker who has the power to perform a specific action in favor of the briber-offerer. In exchange for this action, the bribe-offerer compensates with incentives such as financial sums or discounted services (D'Andrade, 1985) but the bribe-offerer can also respond with emotional stimuli that include the removal of undesirable sentiments such as guilt-feeling among the bribe-taker (DesRoches, 1995). The transaction therefore requires a reciprocal relationship between the bribe-offerer and the bribe-taker. This study takes the briber as the central point of interest since we are especially interested in how HE students behave in contexts in which they are at the edge of facing a burnout.

In the scientific discourse, antecedents of bribery are mainly rooted in the socio-cultural, economic, ethical, and institutional environment (Osipian, 2007; Ramdani & van Witteloostuijn, 2012). While reliable evidence for Germany, Belgium, and the Netherlands is still missing, quantitative and qualitative data from Russia (Osipian, 2007; Petrov & Temple, 2004) and the countries of former Yugoslavia (Sabic-El-Rayess & Mansur, 2016) show that reciprocal bribery in the form of informal and non-monetary granting of favors is a key driver. Furthermore, Mohamedbhai (2016) studied bribery in HE-contexts in Africa, Australia, China, India and Russia and refers to examples such as the transfer of money in exchange for a Ph.D. title, dubious promotions of professors and extortion of money for handouts and marks. However, prior research by Martin et al. (2007), Ramdani and van Witteloostuijn (2010; 2012) and Jávor (2016) also emphasizes the critical importance of individual micro attributes. Individual characteristics such as age, gender and education, but also personal risk preferences are argued to have an effect on the likelihood that an individual person will offer and / or accept bribes (Alatas et al., 2009; Nichols, 2017). Yet, within the context of HE, there is only scant research that addresses these themes.

As a complex and multifaceted phenomenon, bribery comes in very different shades of severity and visibility (Osipian, 2007; Ramdani & van Witteloostuijn, 2012). Heidenhemmer (2009) for instance differentiates between *white*, *grey*, and *black* forms of bribery. *Black bribery* is what is the most direct form of exchanging money for any form of preferential treatment (i.e. the classic brown envelope in exchange for a favor). *Grey bribery* is also based on a direct reciprocal exchange between the briber and the receiver of the bribe. However, the trade is based on the exchange of non-monetary goods or services – often with temporal delay – and could, for instance, be characterized as students offering a "helping hand" to their professors. Osipian (2008) as well as Chapman and Lindner (2016) point out that reciprocity in the sense of an exchange of favors is just as much a common form of HE corruption as are monetary or nonmonetary forms of bribery. *White bribery* is the subtlest form of HE bribery because neither goods nor reciprocal services are exchanged for being granted a favor. In contrast, the briber (i.e. the student) uses emotional stimuli as a means to strategically manipulate another person who is in power (i.e. a professor or lecturer) for his/her ends. In distress or if stakes are high, some people will go as far as to establish (fake and/or sexual) relationships to achieve their goal but softer forms such as crying, begging, and telling emotional family stories to cause compassion can also be subsumed under *white bribery* in HE (Chapman & Lindner, 2016; Osipian, 2007).

Burnout

The concept of burnout has recently gained substantial scientific attention but its key foundations date back to Freudenberger (1974). In his pioneering work, Freudenberger conducted case studies among volunteers engaged in health centers that treated people from drug and alcohol abuse to explore the specific demands of this engagement. Freudenberger defined the concept of burnout as an amalgamation of various negative symptoms such as

exhaustion, deprivation, headache, irritation, and frustration that were all related to the strains of his sample's voluntary work. Later, Maslach and Jackson (1986) developed the concept of burnout further by defining it as a syndrome of emotional exhaustion, depersonalization, and reduced personal ability that affects people working with others in a professional context. Schaufeli (1996) pointed out that burnout was originally considered to occur exclusively in the so-called 'human services' i.e. among those employees who do 'people work' for instance in the sense of having direct and frequent client interactions, engaging in human resource management, or team coordination activities of any kind. However, Maslach (1997) revealed that burnout also existed outside the human services branch and thus explored the concept further in a wider context. In this context, it is especially relevant to note Schaufeli and Enzmann's (1998) argument that 'normal' people (i.e. people without pathologically psychological disorders) can suffer from the symptoms characterized as burnout and suffer from exhaustion, a feeling of disability, demotivation and dysfunctional behavior. The current consensus is that burnout consists of three different but interacting dimensions: (1) *exhaustion*, i.e. a person's fatigue, (2) *cynism*, i.e. a person's indifference towards work, and (3) professional *efficacy*, which encompasses both social and non-social aspects of occupational accomplishments (Schaufeli, 1996). There are many reasons that explain why people develop burnout symptoms but the existing body of scholarship points out that workload does not solely drive this development (Schaufeli, 1996). Instead, the likelihood of developing burnout significantly increases in contexts in which people experience substantial levels of emotional stress in executing their tasks and when people's perceived locus of control is relatively low (Schmitz, Neumann and Oppermann, 2000) – a situation typically for students' in HE.

Although burnout has gained a lot of attention in the research field of human resource management, yet, so far, its empirical applications in the research field of HE remain fairly limited. For instance, Ross, Niebling, and Heckert (1999), Misra et al. (2000), and Robotham

and Julian (2006) provide quantitative evidence in which increased workload in class and getting lower grades than anticipated are identified as major sources of stress, possibly leading to burnout. Furthermore, based on a large sample of both students and lecturers in the U.S., Misra et al.'s (2000) found that study-related stress invoked strong emotional responses, varying from severe fear, anxiety, worry or anger to crying, and abusing themselves and others physically and emotionally, symptoms which are all significantly associated with burnout.

Prior studies on deviant behavior on the workplace show that negative affectivity and burnout are strongly correlated with a higher likelihood for unethical behavior in the workplace (Penney & Spector, 2005; Robotham & Julian, 2006). Following these findings, it is logical to assume that burnout is directly related with higher chances of acting corruptly, especially when individuals are agitated about their current work-related environment, e.g. in situations of failure (Penney & Spector, 2005). An extensive review on the origins and consequences of stress for HE students by Robotham and Julian (2006) confirms these results. Based on the current – although limited – scientific body of knowledge we therefore hypothesize that:

> *Hypothesis (H1): Students are more likely to engage in bribery when they are affected by burnout.*

Commitment to the Public Interest

Furthermore, a large body of scholarship grounded in the theory of planned behavior argues that personal values and ethics play an important role in guiding individual behavior. More specifically, developing a strong moral code is argued to assist individuals in self-regulating their behavior toward honest and socially desirable choice so that they become less subject to corruption (Ajzen 1991; Davis & Welton 1991; Glover et al. 1997). One potential explanation on why individuals with high moral standards are less likely to engage in corruption is provided by Fritz, Arnett and Conkel (1999) who observed that people, characterized by ethical

standards were more committed to the public interest in general. This commitment enabled them to more effectively resist acts perceived as harmful to the society, which includes acts of bribery. This indicates that an individual's level of commitment toward societal interests might play an important role in explaining whether or not some individuals engage in bribery. Consequently, we assume that students with a high commitment to the public interest (CPI) are less likely to engage in bribery even if they are at the edge of experiencing a burnout:

> *Hypothesis (H2): The relationship between burnout and students' likelihood to bribe is moderated by students' commitment to the public interest.*

Methodological approach

Quasi-experimental research design

As a very delicate issue, bribery is hard to measure because respondents are likely to consciously or unconsciously conform to norms of social desirability which bias their response to explicit questions related to their likelihood to bribe and to accept bribes evn in the anonymity of online surveys (Petrov & Temple, 2004). Quantitative quasi-experiments[1] using vignette-based treatments can be especially valuable in this context because they help reveal the (latent) mechanisms that determine people's likelihood to engage in bribery by circumventing this response bias in an elegant way: Vignettes are stimuli in the form of

[1] We label the research design of this study as a quasi-experimental design because we only randomized the treatment across respondents. In a full experiment, the different outcome-levels of the independent variable would also have to be randomized to strictly control for variance of this variable within treatment groups a-priori and assign treatments in a balanced way. In the scope of the current study, this is tricky because the independent variable of CPI is nested within individuals' character. One possible solution would have been to conduct a pre-study measuring individuals' levels of CPI and then – after a substantial temporal distance – invite students to the main wave of the experiment (multi-wave panel setup). Unfortunately, within the scope of our research, this was not possible because the ethical standards of using the sample at hand did not allow us to contact students directly in order to secure respondents' full anonymity.

narrative scenarios that ask participants to imagine being *another* person, who has to act and make decisions within this certain context as specified within the narrative of the vignette (Hughes & Huby, 2004). By asking respondents to state what this other person would or should do, effects of social desirability bias are greatly reduced because the (implicit) psychological burden of being the singled-out decision maker is greatly reduced for the respondent. Thus, vignettes have the power to systematically manipulate and trigger context-dependent behavior at high degrees of both internal and external validity (Aguines & Bradley, 2014).

The study involves three quasi-experimental vignette treatments that differ regarding the information given to describe the form of corruption (see appendix A.1 for full detail). The vignettes were carefully designed by an international team of researchers to represent Ramdani and van Witteloostuijn's (2012) three shades of corruption, ranging from *white* to *grey* and to *black* forms of bribery but within the specific context of HE. They comprise scenarios in which respondents are in the active role of a student proposing a specific form of bribe to a lecturer in exchange for the reconsideration of an important exam score. The first vignette represents *white bribery* in the form of begging, crying, and getting emotional in order to persuade the lecturer to reconsider the grade. The second vignette involves a form of so-called *grey bribery*, which is offering a reciprocal service in exchange for reconsidering the grade. The third vignette represents the most commonly exposed form of bribery (*black bribery*) and involves offering the classic brown envelop with €500 in exchange for a pass.

The external validity of this approach was corroborated with an expert panel – as suggested by Gould (1996) – comprising both lecturers/professors and students of these faculties. Adequate pretests of the treatment stimuli were conducted before the experiment was rolled out (Wilson & White, 1998). In the prospect of small to medium-sized effects (Cohen's $d \leq 0.3$; power = 0.8; $\alpha = 0.05$), sub-samples should comprise at least $n = 176$ respondents (Ellis 2010), which

has been achieved for each country sample. The raw data was strictly pre-stratified for missing values and responsive response patterns so that the final datasets comprise only complete responses.

The survey consists of four parts: A short introduction, a socio-demographic questionnaire with control variables (age, gender, religious beliefs, and field of study), independent variables, the vignette-treatment and dependent variable, and, lastly, a short debriefing.

<<< Please place Table 1 about here. >>>

Respondents were randomly assigned to two out of the three bribery vignettes to reduce the absolute number of participants needed while guaranteeing a satisfactory high amount of treatment variance. The vignettes were designed with due diligence following the suggestions by Hughes and Huby (2004) in order to make sure that the treatments are equally reliable and logical for the specific context of HE and for the specific group of respondents (i.e. university students). Treatment randomization is an essential requirement for research seeking to infer causal relations (Meyer et al., 2017). The balance between treatment groups was strictly controlled for, with success (see Table 1).

Sampling procedure

The data were raised with a voluntary online survey among university students in summer 2017. The study was conducted in several waves at two large Dutch, one Belgian, and one German university. Respondents were incentivized with the possibility of winning one of five

significant gift vouchers for a popular online retailer. The experiment was programmed and hosted with the software Qualtrics and distributed via e-mail invitation. The sample comprises $N = 624$ respondents, slightly dominated by female participants (53.2%), who are, on average, 23.2 (±4.4) years old, predominantly nonreligious (52.1%), and who study a variety of business and social sciences, especially Business Administration (41.1%) (see Table 1 for more detail).

The resulting dataset was strictly stratified for missing data and, consequently, comprises only complete responses. In the prospect of small effect sizes (Cohen's $d \leq |0.3|$; *power* = .8; $\alpha = .05$), conservative estimates prior to data collection indicated that the necessary absolute sample size requires $n = 176$ respondents per treatment group (Ellis, 2010), which has been achieved.

Dependent variable: Acceptability of Bribing (BRIBE)

We use De Waele et al.'s (2017) four item measure on *Acceptability of Bribing* as our dependent variable (*BRIBE*). This measure asks respondents to indicate how likely they were to act as depicted in a corruption-related vignette (see appendix A.1 for more details) on four dimensions: *likelihood*, *justification*, *affect*, and *mistake* (reversed). These dimensions are coded as Likert-type items ranging from 1 = 'absolutely disagree' to 5 = 'absolutely agree' and are then mean sum-scored. The validity of this aggregation procedure was controlled with a confirmatory factor analysis (*varimax* rotated with Kaiser normalization for item correlation, Chi^2 (6) = 2622.98, $p < 0.000$; low factor item uniqueness ranges from $U = 0.27$ to 0.46; Kaiser-Meyer-Olkin $KMO = 0.83$), which confirmed high internal validity. The derived model is well fit and shows that the four items strongly and significantly load onto one single factor (Cronbach's $\alpha = 0.874$), indicating high internal and external construct validity of the variable BRIBE with its four components which are highly inter-correlated and. BRIBE is normally distributed across all treatment conditions [tested with Shapiro-Wilk; vignette 1: $W(409) = 0.991$, $p = 0.015$; vignette 2: $W(417) = 0.954$, $p = 0.000$; vignette 3: $W(415) = 0.892$, $p = 0.000$]

and, thus, allows for regression analysis. As a control variable, respondents were asked to rate how realistic they found the scenario on a four-point Likert-type single item, ranging from 1 = 'very unrealistic' to 4 = 'very realistic'.

Burnout Scale

We use Schaufeli et al.'s (2002) well-established *burnout scale* to assess the role of stress as a factor influencing the likelihood that students are willing to engage in bribery. Schaufeli et al.'s (2002) scale is the result of a rigorous multi-national replication study based on the prior *Maslach Burnout Inventory* (Maslach, Jackson, & Leiter, 1986) in a special adaption for students in HE. This scale measure is characterized by both high construct validity and high external reliability and consists of in total 15 seven-point Likert-type items clustered in three underlying dimensions (*exhaustion*, *cynicism*, and *professional efficacy*). In the current study, we use the scale as a compound measure that does not discriminate between the three sub-dimensions because all three of them are equally relevant for students' study-related stress and anxiety.

Commitment to the Public Interest

We measure respondents' commitment to the public interest (CPI) with Kim et al.'s (2012) well-established and internationally validated scale on public service motivation (PSM). Kim et al.'s (2012) full scale comprises four sub-dimensions to explain why some people are more motivated to engage in activities that are beneficial to the public interest (Perry and Wise 1990; Grant 2008). From these sub-dimensions – namely: *compassion*, *interest in policy-making*, *self-sacrifice*, and *commitment to the public interest* – we use *commitment to the public interest* (CPI) as a proxy to determine how individuals' ethical standard might inhibit or escalate their likelihood to bribe under burnout. CPI is measured as the weighted geometric mean of three Likert-type statement items with answer values ranging 1 (= 'absolutely disagree') to 7 (=

'absolutely agree'). Explicitly, these items asked respondents to indicate their personal opinion on (1) the relevance of civic duty, (2) the relevance of public service in general, and (3) the relevance of public servants to society.

Control variables

Probability Discounting Questionnaire

Since corruption is illegal and violates common ethical standards of HE, offering bribes is always a risky endeavor. Consequently, it is important to control for individual differences in risk attitudes between study participants. We assessed individuals' risk propensity with Madden, Petry, & Johnson's (2009) *Probability Discounting Questionnaire*, a behavioral measure that estimates revealed risk propensity based on responses to a systematic and randomized set of 30 economic trade-off tasks. Payouts are hypothetical, but Madden et al.'s (2009) measure is very reliable in predicting not just preferences but also real choice under risk (Green & Myerson, 2004), while at the same time being very robust against conscious manipulation. Following the aggregation algorithm of Weißmüller (*under review*), the questionnaire results in one characteristic discounting parameter (h) which describes individual students' likelihood to act risk-averse or risk-affine, respectively. The parameter h is exponential in scale and was, consequentially, centralized by taking its logarithm. Since higher discounting parameter values indicate that respondents devalue risky options more strongly, individuals with $\ln(h) > 0$ are characterized as risk-averse.

Model estimation

Because study participants always responded to *two* vignettes, we conducted a linear regression analysis clustered at the subject level to ascertain that standard errors are robust against

heteroscedasticity.[2] Consequently, the number of observations in the model amounts to 1,241 observations nested in $N = 624$ individuals. Model *I* is specified as follows:

$$BRIBE = \beta_1 Burnout + \beta_2 Treatment + \beta_3 Realism + \beta_4 CPI + \beta_5 Burnout + \beta_6 Risk\ Aversion + \beta_7 Age + \beta_8 Female + \beta_9 Country + \varepsilon$$

Model *I* tests the effect of study-related stress (*BURNOUT*) on the likelihood bribing (*BRIBE*) under three different shades of corruption. Based on prior empirical research pointing out that individuals' personal characteristics influence their likelihood of engaging in acts of bribery (see e.g. Glover et al. 1997), the model includes a series of control variables to guarantee high ecological validity of the model (i.e. respondents' individual revealed risk propensity, their age, their gender, and a binary indicator for high (i.e. larger than average) perceived realism of the treatment condition). The pairwise correlation matrix for all study and control variables is presented in appendix A.3. In a second model (Model *II*) we, subsequently, add an interaction term between CPI and burnout to investigate H2. In the following section, we first analyze each country's sample individually and then pool the data for a combined model in which Germany arbitrarily serves as the reference category to investigate cross-country effects.

Results

Study 1: Germany

The data of study 1 comprises responses by $n = 211$ participants (54.8% female) who are on average 25.84 ± 4.82 years old, mainly non-religious (40.8%) or of protestant faith (33.7%),

[2] Appendix A.2 provides the results of extensive post-hoc analyses to control for order and spill-over effects potentially resulting from randomization-based latent secondary treatment-clusters between respondents. These results show that experimental setup and randomization procedure is robust against these latent secondary treatment-clusters and that procedure-based order and spill-over effects are not an issue.

and predominantly studying business administration (35.6%) or other social sciences (47.7%) at a large German university. Participants score above average on Schaufeli et al.'s (2002) burnout scale (3.02 ± 0.87), hold relatively high levels of CPI (5.63 ± 1.06) and are revealed to be relatively risk averse (0.62 ± 0.59) but with a high degree of variance within the sample.

For the current sample, Schaufeli et al.'s (2002) burnout scale is highly reliable and robust with Cronbach's $\alpha = 0.86$ and a very satisfactory level of inter-item covariance (IIC) of 71.5% on average). Factor analysis on the three items of CPI confirms that all items are highly correlated and load unto one single underlying factor (Cronbach's $\alpha = 0.72$; average IIC: 0.818; Bartlett's test for sphericity: Chi^2 (3) = 296.25, $p < 0.000$; all mean KMO > 0.61), indicating high measurement reliability.

H1 postulates that students are more likely to engage in bribery if they are affected by burnout. Robust linear regression analysis on *BRIBE* (clustered at the level of the individual for conditional contribution) shows that the contextual treatment (i.e. darkening shades of bribery; $\beta_1 = -0.373$, $p = 0.000$) and the perceived realism of the treatment vignettes ($\beta_1 = 0.416$, $p = 0.000$) created a substantial amount of variance which adds to the robustness of the findings. Still, models I and II (see table 2) reveal that higher levels of burnout are directly associated with a higher likelihood of offering bribes ($\beta_{I1} = 0.156$, $p = 0.094$). Although this association is only statistically reliable on the 10% level, H1 cannot be rejected. Furthermore, model I reveals that higher commitment to the public interest is associated with a lower likelihood of engaging in acts of bribery ($\beta_1 = -0.076$, $p = 0.067$) but – contrary to H2 – model II shows that this effect is a direct effect rather than being filtered through an interaction between BURNOUT and BRIBE. Consequently, H2 has to be rejected.

<<< Please place Table 2 about here. >>>

Study 2: Belgium

Study 2 was conducted at a large Belgian university and comprises data of in total n = 220 respondents (51.8% female; on average 22.47 ± 3.65 years old) who mainly study for degrees in business administration (46.8%) and business engineering (24.1%). Study participants are mainly non-religious (49.6%) or of roman-catholic confession (40.0%), report relatively high CPI (5.78 ± 0.94) and an above-average level of study-related burnout (3.01 ± 0.51).

Across all vignette treatments, respondents in study 1 score below the scale's medium on BRIBE (M = 2.03, SD = .97). Two-tailed t-testing reveals that the bribery vignettes create significant variance across the three treatment groups, with *BRIBE* strictly and transitively decreasing from the *white* (M = 2.65, SD = 0.94) to the *grey* (M = 1.86, SD = 0.85) and to the *black* bribery scenario (M = 1.56, SD = 0.78). This indicates a strong and robust treatment effect ($F(1, 387) = 105.24$, $p = .000$, *adj.* $R^2 = 0.213$; $t = -10.26$, $p = .000$, $\eta^2 = 0.215$).

For the Belgian sample, the burnout scale is highly reliable and robust with Cronbach's α = 0.85 and an acceptable level of IIC (47.1% on average). Factor analysis on the three items of CPI confirms that all items are highly correlated and load unto one single underlying factor (Cronbach's α = 0.67; average IIC: 0.60; Bartlett's test for sphericity: Chi^2 (3) = 185.32, $p <$ 0.000; all mean KMO > 0.62), indicating an acceptable level of measurement reliability.

Robust linear regression analysis on *BRIBE* (clustered at the level of the individual; see table 2) reveals partially dissimilar results compared with study 1: The contextual bribery treatments (β_1 = -0.435, p = 0.000) and the perceived realism of the treatment vignettes (β_1 = 0.433, p = 0.000) explain a substantial amount of variance and higher levels of burnout are directly associated with a higher likelihood of offering bribes (β_{I1} = 0.216, p = 0.114) but this association is not statistically reliable on the 5%-level. In contrast to study 1, model II shows a

small interaction effect between students' level of CPI and BURNOUT on BRIBE (β_{I1} = -0.017, p = 0.041), while the direct effect of CPI is both small and statistically non-reliable (β_1 = -0.043, p = 0.172). Consequently, H1 had to be rejected but H2 cannot be rejected for study 2.

Study 3: The Netherlands

The results of study 3 are based on a sample of university students (n = 193; 51.8% female) mainly studying for degrees in business administration (40.1%) and socioeconomics & economic policy (31.3%) at two large Dutch universities. Respondents are on average a little bit younger than respondents in studies 1 and 2 (21.13 ± 2.82), and predominantly non-religious (67.7%). They report above average levels of study-related burnout (3.16 ± 0.56) and a relatively high level of CPI (5.50 ± 1.10).

Like in study 1, the scale measures are highly reliable and robust (BURNOUT: Cronbach's α = 0.88, average IIC = 58.5%; CPI: Cronbach's α = 0.86, average IIC = 70.6%, Chi^2 (3) = 258.69, p < 0.000, all mean KMO > 0.61).

The clustered robust linear regression models on *BRIBE* (see table 2) reveal very similar results compared with both studies 1 and 2: The contextual bribery treatments (β_1 = -0.341, p = 0.000) created a substantial amount of variance and together with the perceived realism of the treatment vignettes (β_1 = 0.501, p = 0.000) explain a high amount of variance. Higher levels of burnout are directly associated with a higher likelihood of offering bribes (β_{I1} = 0.251, p = 0.011). Contrary to study 1 but in line with the results of study 2, higher CPI is directly related with a lower likelihood of offering bribes (β_{I1} = -0.080, p = 0.034) but model II also shows that this relation is partially moderated by an interaction between CPI and Burnout (β_{I1} = -0.025, p = 0.041). Consequently, both H1 and H2 cannot be rejected for study 3.

Pooled data

Pooling the data of all three country samples (n = 1,169), linear regression analyses clustered on the level of the individual further substantiates the results presented in the previous sections. Higher levels of burnout are directly related to a higher likelihood of students willing to engage in activities of bribery (β_{I1} = 0.200, p = 0.000), thus further supporting H1, and higher CPI is associated with a lower likelihood of BRIBE (β_1 = -0.069, p = 0.001) with parts of this effect channeled through an interaction between CPI and BURNOUT (β_{I1} = -0.021, p = 0.003). Consequently, neither H1 nor H2 can be rejected.

The models indicate no substantial country effects indicating high reliability of overall findings. Across all three studies, we find that students are far less likely to use darker shades of bribery compared with lighter shades (β_I = -0.390, p = 0.000); see Figure 1 for the marginal effects plot of treatment variation on BRIBE. This implies that respondents are much more accepting the use of "white" methods of influencing their lecturers for passing an exam – e.g. by becoming emotional, begging, and pleading – then using reciprocal or monetary means.

<<< Please place Figure 1 about here. >>>

Curiously, and across all three studies, respondents who perceived the scenario presented in the vignettes as more realistic were more likely to accept bribery as a means to improve failed exams (β_I = 0.443, p = .000). This is an intriguing finding because it substantiates the high ecological validity of both the quasi-experimental procedure and the findings since it indicates that in these cases respondents were less likely to answer in a socially desirable way.

In summary (see table 3), this indicates that the quasi-experimental approach used in the current treatment was successful in revealing actual intention to BRIBE. Furthermore, the in each study, both regression models are well specified [$F(9, 385 – 1{,}169) = 47.91 – 139.11$, $p = 0.000$] and explain a large share of variance ($R^2 = 0.410 – 0.524$), indicating robust and reliable findings. Multi-collinearity was not an issue (all $VIF = 1.11 – 1.42$).

<<< Please place Table 3 about here. >>>

Discussion

The study confirms that students who are on the edge of a burnout are more likely to use bribery as a means to pass an exam: Pooled analyses indicated a robust and significant effect between burnout and the acceptability to bribe. This finding is therefore also in line with prior research by Penney and Spector (2005), Robotham and Julian (2006), and Reynolds et al. (2013) who found that higher levels of stress in students are positively correlated with a higher likelihood of engaging in risky and deviant behaviors (such as bribing). At the country-level, the replications showed a significant effect in Germany and the Netherlands. However, surprisingly, the effect in Belgium proved to be non-significant, which might be caused by country-specific differences. A potential reason could be that, according to Hofstede (1991), the level of uncertainty-avoidance in Belgium is considered as rather high (94 versus 65 in Germany and 53 in the Netherlands), which has been also illustrated by the relatively high level of risk-aversion within the Belgian sample, compared to Germany and the Netherlands. Since bribery is typically a riskful endeavor, respondents in Belgium might be less willing to engage in bribery acts so that the relationship between burnout and acceptability of bribery was being disrupted.

Furthermore, findings show that students with high ethical standards in the sense of being strongly committed to public values are only marginally less likely to engage in bribery. This is surprising and stands in contrast with classic predictions on the importance of students' personal ethics in directing individual behavior in a social context as well as with prior empirical research by, for instance, Trevino (1986), Ajzen (1991), Glover et al. (1997), and Ritter (2006), but it is in line with comments by Heyneman (2015). In his essay on the corruption of ethics in HE, Heyneman (2015) points out that even though university students worldwide feel uncomfortable about engaging in corrupt study-related behavior – for instance by cheating in their examinations – the individuals who do engage in this adverse behavior will *still* report that they are satisfied with their behavior from an ethical perspective. This idea resonates loudly with the theory of cognitive dissonance, a theory less frequently used in the context of HE but one that has been popular in explaining deviant or corrupt behavior in the context of organizations for decades (Moore 2007). Following this theory, human beings strive for internal psychological consistency in order to mentally function in the real world (Festinger 1962). People who are aware of internal inconsistencies are likely to feel psychologically uncomfortable which motivates them to reduce the cognitive dissonance by making chances to justify the behavior, either by adding new parts to the cognition causing the inconsistencies or by avoiding social situations that cause this behavior (Festinger 1962). A second explanation of the small correlation between holding high ethical standards and the likelihood of engaging in study-related bribery observed in the current study might relate to the phenomenon of moral disengagement. Moral disengagement describes a conscious or unconscious process of dissociating individuals' own behavior from the standards of morality they would normally deem legitimate, thus suspending the power of high ethical standards on behavioral self-regulation (Tsang 2002; Moore 2007). The result that personal ethical standards are only marginally related with the likelihood of engaging in corrupt behavior emphasizes the

importance of ethical appeals to prevent corrupt behavior. This is an important result for practice because it shows that cases of bribery in student-lecturer consultation can hardly be prevented by moral appeals but should rather be tackled by adaptations in procedural and organizational structures, for instance, by introducing the four-eye principle in these vulnerable situations or by evaluating student appeals in a double-blind procedure.

Yet, although commitment to the public interest only marginally decreased the chances to engage in bribery, pooled analyses confirmed that higher levels of commitment to the public interest moderated the relation between burnout and the likelihood of bribery, which confirms the second hypothesis. At the country-level, these findings were confirmed by our sample in Belgium and the Netherlands. In Germany, this hypothesis was rejected, however, which might be explained by potential country-specific differences. Looking closer at Hofstede's (2010) dimensions, within our sample, Germany scored the lowest on individualism (67, versus 75 and 80 in the Netherlands and Belgium), which indicates that Germany is a slightly more collectivist country. Consequently, German respondents might be more willing to suppress their own 'problems' (burnout in this case) in order to preserve the 'greater good' (observed by CPI in this case) so that these variables are not significantly correlated. These assumptions resonate with Williams (2017) who argues that Germany has been largely influenced by Kantian philosophy compared to the Netherlands and Belgium. As a result, German respondents within our sample might be more likely to rationalize and minimize personal issues in order to preserve morality.

The quantitative analysis of the data indicated that students distinguish sharply between different forms of bribery as students engaged much more frequently in white bribery. This might be caused by several reasons. First, white forms of bribery typically take place within the grey zone of bribery. Therefore, respondents might react very differently to this form of

bribery: while some oppose this behavior others might perceive these acts as rather acceptable so that they become more open towards the use of it. Second, and in line with the previous argument, the results might be affected by socially acceptable behavior so that the real cases of grey and black bribery might be still under reported, despite the semi experimental research design. Third, this sort of behavior is typically hard to identify since the use of emotions does not leave material evidence or witnesses, and thus, is hard to persecute so that the chances on getting away with this behavior are much more likely and chances on punishment are very low. As a result, rather risk-averse samples might prefer these acts above grey and black forms of bribery. However, their acceptability of offering bribes to pass important exams is not related to the actual level of study-related stress that students experience. Both findings are intriguing.

Conclusion

The motivation of this study was to explore the connection between study-related burnout and bribery in a higher education context. The results of this study contribute to the emerging discourse of HE corruption on the micro-level of behavior. Using a semi-experimental multi-national approach, the findings of this study do not only show that university students' level of burnout is hardly connected to their intent to bribe their lecturer for passing important exams, but also that the overall intent to use emotional influence tactics is much higher and perceived as much more acceptable as a means to manipulate their lecturer than other forms of bribery.

The research design presented in this paper came with a few methodological advancements. On the one hand, the replications added to the robustness and external validity of the findings. On the other hand, taking into account the specific institutional contexts from the different countries enabled us to construct more nuanced findings. As a result, unexpected inconsistencies in the findings between the countries were easier tracked down which resulted

in a more reflexive approach. Consequently, the combination of replicating research, based on (semi) experimental data proved to be a promising research design.

Furthermore, the findings of this study are especially relevant for practice. We advise practitioners to keep an open eye on more subtle forms of bribery such as emotional pleading or offering a helping hand because people are much more susceptible to those 'white' and 'grey' forms of bribery than for the classic brown envelop. HE institutions might therefore benefit from selective awareness campaigns that enable lecturers to better recognize this behavior and advert students about the unappropriated use of emotional influence tactics. Furthermore, practitioners seeking to diminish the likelihood of bribery who prefer to meet with students wishing to discuss their exam results might ask another colleague to join them, which could serve as an additional barrier towards students who are willing to use bribery-acts.

Like any empirical study, this research is subject to limitations. First, this study uses data from a vignette-based survey (semi)experiment and does not directly examine real-life behavior but behavioral intent. Yet, stated intentions to bribe still grant very valuable insights into the delicate topic of HE bribery. Given the issue of social desirability, the effect sizes of the results might actually be under-reported, thus, calling for future research. Future studies might want to manipulate other contextual aspects such as the effect of the four-eye principle by manipulating the effect of witnesses or by including information about peer feedback. Future studies could also opt to investigate whether other character traits influence students' likelihood to use bribing for instance by using the BIG-5 personality inventory. While behavioral intent is a good indicator for actual real-life behavior, more quantitative behavioral and qualitative observational research is needed as well. Furthermore, the current study solely follows the perspective of the agent offering a bribe. Consequently, the current study cannot make

assumptions about to what extend this act of would effectively lead to bribery since the viewpoint of the potential acceptor of this very bribe was not explicitly examined.

The current study explicitly focusses on the context of the HE systems in Germany, Belgium, and the Netherlands, calling for future replication studies in two ways: First, replications of this study could be conducted in countries with a dissimilar cultural perception of bribery to determine whether the effects revealed by the current study are idiosyncratic or generalizable. Second, replications in countries with a dissimilar background regarding the structure and the institutional logics of HE could yield valuable insights into the role of formalized structures on the likelihood of bribery in HE as a means to "cut the corner".

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TABLE 1: Descriptive sample statistics

Sample	**1**	**2**	**3**
Sampling site	Germany	Belgium	The Netherlands
N	211	220	193
Vignette treatment[a]			
Treatment 1: "*white*" bribery	33.8%	34.7%	34.2%
Treatment 2: "*grey*" bribery	33.8%	34.8%	31.4%
Treatment 3: "*black*" bribery	34.2%	34.9%	30.8%
Gender, male (*n*)	45.2% (95)	48.2% (104)	48.2% (93)
Age in years	25.84 ± 4.82	22.47 ± 3.65	21.13 ± 2.82
Burnout	3.02 ± .87	3.01 ± .51	3.16 ± .56
CPI	5.63 ± 1.06	5.78 ± .94	5.50 ± 1.10
Religion (*n*)			
Non-believer	40.8% (86)	49.6% (109)	67.7% (130)
Catholic	14.7% (31)	40.0% (88)	20.7% (40)
Protestant	33.7% (71)	2.3% (5)	6.7% (13)
Muslim	6.6% (14)	5.9% (13)	.5% (1)
Jewish	.	.5% (1)	.5% (1)
Buddhist	.	.5% (1)	1.6% (3)
Other	4.3% (9)	1.4% (1)	2.6% (5)
Field of study (*n*)			
Business Administration	35.6% (75)	46.8% (103)	40.1% (79)
Socioeconomics & Economic Policy	9.9% (19)	10.0% (22)	31.3% (66)
Political Science	3.6% (7)	7.3% (16)	5.7% (12)
Business Engineering	.	24.1% (53)	4.3% (9)
Other Social Sciences	47.7% (92)	11.8% (26)	21.3% (45)

Notes: Items are either reported with geometric means and standard deviations (M ± SD) or proportions (%) and frequencies (*n*). [a] Treatment distribution controlled for balance with two-tailed *t*-tests (on 5% level of significance) both within and between studies; all non-significant.

TABLE 2: Regression analysis on *BRIBE* by study

	Germany				***Belgium***				***The Netherlands***				***Pooled data***			
	I		***II***		***I***		***II***		***I***		***II***		***I***		***II***	
Treatment effect																
Bribery vignette	-.373***	(.05)	-.373***	(.000)	-.435***	(.05)	-.435***	(.000)	-.341***	(.06)	-.342***	(.000)	-.390***	(.03)	-.391***	(.000)
Realism	.416***	(.05)	.415***	(.000)	.433***	(.04)	.433***	(.000)	.501***	(.05)	.501***	(.000)	.443***	(.03)	.443***	(.000)
CPI	-.076†	(.04)			-.043	(.03)			-.080*	(.04)			-.069**	(.02)		
Two-way interaction																
CPI x Burnout			-.020	(.144)			-.017*	(.041)			-.025*	(.041)			-.021***	(.000)
Control variables																
Burnout	.045	(.05)	.156†	(.094)	.118	(.07)	.216	(.114)	.115	(.07)	.251*	(.011)	.083*	(.04)	.200***	(.000)
Risk aversion	.063	(.07)	.070	(.342)	.010	(.05)	.009	(.856)	-.013	(.06)	-.013	(.832)	.020	(.03)	.021	(.535)
Age	.018*	(.01)	.018*	(.028)	.005	(.01)	.006	(.576)	-.002	(.01)	-.003	(.755)	.010†	(.01)	.001†	(.095)
Female	-.101	(.10)	-.106	(.268)	-.170**	(.07)	-.169*	(.011)	-.102	(.08)	-.103	(.219)	-.134**	(.05)	-.135**	(.003)
German													*– reference category for country effects –*			
Belgian													-.076	(.07)	-.077	(.261)
Dutch													-.061	(.06)	-.059	(.334)
Intercept	1.703***	(.44)	1.271**	(.001)	1.685***	(.37)	1.423***	(.000)	1.770***	(.41)	1.348***	(.002)	1.781***	(.25)	1.393***	(.000)
Observations		385		385		430		430		354		354		1,169		1,169
F		49.23***		47.91***		80.04***		79.74***		62.42***		62.24***		139.11***		137.88***
VIF [a]		1.13		1.59		1.11		1.40		1.16		1.42		1.35		1.62
R^2		.412		.410		.524		.524		.488		.488		.474		.473
Adj. R^2		.401		.399		.516		.516		.478		.477		.469		.469

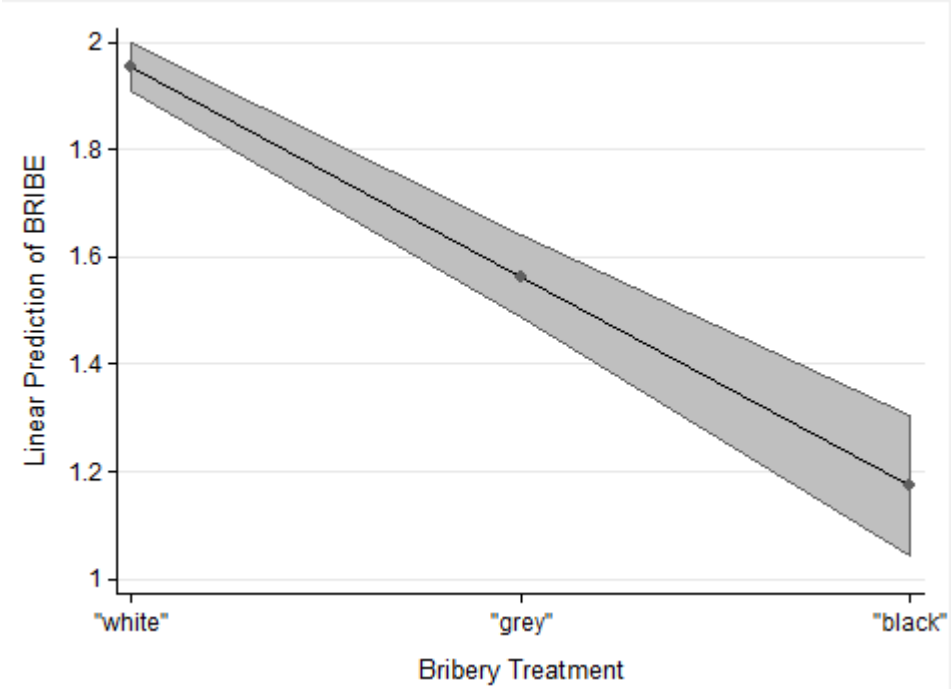
Notes: Linear regression estimates clustered at subject level for conditional contribution; Model *I*: direct effects, heteroscedasticity-robust standard errors in parentheses; Model *II*: pure interaction effects (*p*-values in parentheses); † $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, and *** $p < 0.001$. [a] Mean variance inflation factor (*VIF*): all $VIF \leq 2.64$.

TABLE 3: Overview of findings

Hypothesis			*Study 1*	*Study 2*	*Study 3*	*Pooled data*	*Interpretation*
H1	(+)	Burnout → BRIBE	**.156† (.094)**	.216 (.114)	**.251* (.011)**	**.200*** (.000)**	Consistently positive → not rejected
H2	(–)	CPI x Burnout → BRIBE	-.020 (.144)	**-.017* (.041)**	**-.025* (.041)**	**-.021** (.003)**	Consistently negative → not rejected
Additional analysis	(–)	CPI → BRIBE	**-.076† (.067)**	-.043 (.172)	**-.080* (.034)**	**-.069** (.001)**	Consistently negative → not rejected

Note: Analysis based on beta coefficients, with *p*-values between brackets († p < 0.10, * p < 0.05, ** < 0.01, *** < 0.001).

Figure 1: Marginal Effects Plot of Treatment Effect



Note: Shaded area indicates 95%-confidence interval.

APPENDIX

A.1 Vignette Stimuli (English translation)

1. Introduction to bribery scenarios [all study participants]:

'Please imagine that you are a first year student again who has just received his results for the end of term exams. You passed all courses but one. You failed to pass one very difficult course you really do not want to redo. The consequence is that your prerequisites in the next academic year become compromised and you are unable to participate in other courses so that chances are real that you will not succeed to obtain your degree within the foreseen four years.

Meanwhile, you informed the assistant of this course in order to receive written feedback. This feedback indicates that you achieved 9.4/20. You know that if you would have scored 9.5/20, your result would be rounded off to 10/20 so that you would have passed the exam and the study program of the first year would have been accomplished.

What would you do in the following two situations?'

2. Vignettes:

Study participants randomly received **two out of three** vignette treatments, each followed by the five Likert-type scale factor items of the dependent variable BRIBE.

A. "Emotional plea": white corruption

'You make an appointment with the lecturer of this course and inform him about your situation. Rumour goes that, in the past, the lecturer let himself be influenced in a personal conversation. After you became emotional, you ask the lecturer if he, due to the circumstances, would consider being a little bit milder with regard to your result so that you can finally succeed in this course. Your future relies on this.'

B. "Car mechanic": grey corruption

'You make an appointment with the lecturer of this course and inform him about your situation. Rumour goes that, in the past, the lecturer let himself be influenced in a personal conversation. The lecturer is a little bit too late and apologizes. He experienced car trouble, which is very unfortunate for the reason that he has to leave for an important

	conference tomorrow. However, your father is a car mechanic. You offer your lecturer to repair the car, free of charge and with the highest priority, on the condition that your result is reconsidered.'
	C. "Brown envelop": black corruption 'You make an appointment with the lecturer of this course and inform him about your situation. Rumour goes that, in the past, the lecturer let himself be influenced in a personal conversation. You ask him to reconsider your score and therefore offer him an envelope with €500 in exchange.'

Note: Extensive codebooks in Dutch and German upon request.

A.2 Additional analysis on order and spill-over effects

In each study country, respondents were treated with two vignettes, which were drawn randomly out of three vignettes. Compared to a between-subject design in which each respondent would receive only one single vignette, this randomization approach dramatically reduces the number of respondents needed to achieve reasonable sample sizes to investigate treatment effects with respect to the anticipated effect sizes. Yet, this method of distributing the treatments could potentially confound the observed treatment effect on the main dependent variable *BRIBE* because showing two randomly drawn vignettes to each respondent results in latent second-order clusters between respondents based on the unique vignette order each of them received. For instance, the effect of receiving the white bribery vignette first followed by a grey bribery vignette next could relatively outweigh the effect of receiving two extreme conditions – for instance, in the form of first receiving the white bribery vignette followed by the black vignette.

The technical implementation of our quasi-experimental design allows us to identify three unique combinations of vignettes, as described in Table A.2.1: *white & grey* (cluster *C1*), *black & white* (cluster *C2*), and *grey & white* (cluster *C3*). Hence, cluster *C2* represents the combination of receiving the two most extreme treatment conditions.

TABLE A.2.1: Descriptive statistics of *BRIBE* by latent second-order treatment clusters

BRIBE		**Obs.**	**Mean**	**SD**	**Min**	**Max**
Cluster description						
C1	White & grey bribery treatment	412	2.106	.928	1.000	4.750
C2	Black & white bribery treatment	407	2.044	1.038	1.000	5.000
C3	Grey & black bribery treatment	422	1.720	.833	1.000	5.000

Notes: Pooled data; *BRIBE* values range: 1 = ‘very low’ to 5 = ‘very high’.

Mean comparison analysis (see table A.2.1) reveals only very mild cluster-based order effects within treatments, indicating that receiving a combination of the white and grey bribery

treatment (*C1*) correlates with a higher likelihood of *BRIBE* compared with receiving a treatment cluster including the black bribery vignette ($M_{C1} > M_{C2} > M_{C3}$), which is in line with both the hypothesized direction of effects in the study and with the results presented in the main analysis. Similar to the effects reported in the main analysis section, the effect of receiving a latent cluster of two extreme treatment conditions – the white and the black vignette (*C2*) – is associated with a substantial decrease in *BRIBE* but the effect is even larger if the black bribery vignette is combined with the grey bribery vignette (*C3*). This effect can be explained by the well-researched psychological effect of the negativity bias: A large body of research shows that negative stimuli are generally more salient than positive stimuli and, consequently, clusters that incorporate the socially less acceptable – i.e. black – form of bribery (*C2* and *C3*) are likely to result in lower likelihoods of *BRIBE*, indicating that the randomization approach resulted in a well-balanced treatment distribution. Since these findings are in line with our expectations, consequently, we find that vignette cluster-based spillover effects do not substantially confound the results of the current study, although mild cluster effects exist.

Since confidence intervals are relatively large, we investigate the robustness of these mild cluster effects by conducting a series of two-tailed *t*-tests between the three clusters on the pooled data (see Table A.2.2).

TABLE A.2.2: Between-cluster differences of *BRIBE*

BRIBE		***t***	***p***	**|*d*|**
Cluster comparison				
C1 vs C2	[white & grey] vs. [black & white]	.909	.364	.064
C2 vs C3	[black & white] vs. [grey & black]	4.943	.000	.345
C3 vs C1	[grey & black] vs. [white & grey]	6.324	.000	.439
Extreme cluster comparison				
C1 & C3 vs. C2	[white & grey] or [grey & black] vs. [black & white]	-2.209	.028	.140

Notes: Clustered treatment effect; tested with two-tailed *t*-tests; effect sizes estimated with Cohen's *d*-score (Welch-adjusted).

We find substantial mean differences between respondents who received the most extreme black and white bribery treatment (*C2*) and those who received the more moderate combination

of the grey and black bribery treatment (*C3*) [*C2* vs. *C3*: $t = 4.943$, $p = 0.000$; $|d| = 0.345$] or those who received the white and grey bribery treatment (*C1*) [*C3* vs. *C1*: $t = 6.324$, $p = 0.000$; $|d| = 0.439$]; [*C1* & *C3* vs. *C2*: $t = -2.209$, $p = 0.028$; $|d| = 0.140$]. This makes a lot of sense since cognitive psychology research shows that being framed with a rather negative – i.e. black bribery scenario – or a rather positive – i.e. white bribery – treatment condition creates an implicit benchmark for the evaluation of the situation for respondents in consecutive choice scenarios. Although we would also expect a significant difference between being treated with the white and grey bribery treatments (C1) compared to being treated with the more extreme black and white treatment cluster (C2), two-tailed *t*-testing reveals no substantial differences in *BRIBE* ($t = 0.909$, $p = 0.364$; $|d| = 0.064$) which can be explained by the phenomenon that – compared with the white bribery scenario – both the grey and the black bribery scenario present scenarios that are less socially acceptable and which might, hence, trigger almost equally negative psychological benchmarks for evaluation.

Since the compound treatment effects of the latent between-subject vignette-clusters strongly resemble the findings in the main analysis we conclude that the current experimental setup is robust against noise involuntarily induced by the randomization procedure-based order effects, and, hence, that order or spillover effects between vignettes were not a substantial issue.

In summary, we have great confidence in our findings but we do encourage scholars conducting future replications of the current study to recognize the methodological risk of involuntarily creating additional noise by using automatized randomization procedures which might result in latent vignette-clusters in the treatment distribution among respondents. Although we do not find any substantial bias induced by these latent treatment clusters, future replication studies could, alternatively, use a pure between-subject design in which respondents receive, first, a non-affective neutral vignette to set a neutral benchmark across all respondents followed by, second, a single (*white*, *grey*, or *black*) treatment vignette randomized across the whole

sample(s) to rule out any potential of treatment cluster-based artefacts. Yet, researchers following this alternative approach should be aware that they would have to raise substantially larger samples to achieve the same level of power, which – due to increasing between-subject heterogeneity – might also induce further noise into the data, while the expected benefit of circumventing marginally small and statistically insignificant cluster effects is limited. Research pragmatism, hence, suggests that replicating the current study in its original design would be most advisable.

A.3 Pairwise correlation analysis

		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
Study variables												
1.	BRIBE	–										
2.	Treatment	-.53***	–									
3.	High realism	.60***	-.48***	–								
4.	Burnout	.04	.01	-.01	–							
5.	CPI	-.09**	-.01	-.00	-.01	–						
Control variables												
6.	Risk propensity	-.06†	.00	-.09**	.02	.07*	–					
7.	Female	-.09***	.00	-.04	.03	.08**	.02	–				
8.	Age	.05†	.01	-.03	.00	-.07**	-.16***	-.10***	–			
9.	German	.05†	.00	.07*	-.10***	-.18***	.03	.33***	.03	–		
10.	Belgian	-.06*	.00	-.03	-.06*	.10***	.47***	-.01	-.37***	-.45***	–	
11.	Dutch	-.04	-.00	-.06*	.09**	-.09**	-.05*	-.03	-.09**	-.46***	-.46***	–

Note: † p < .10, * p < .05, ** p < .01, *** p < .001