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Differential effects of honesty-humility and descriptive social norms across the seriousness dimension of academic dishonesty

Hernán González Cruz [a], Tanja Fritz [b], Selma C. Rudert [c], Martin Daumiller [d] and Stefan Janke [a]

[a]Department of Educational Psychology, University of Mannheim, Mannheim, Germany; [b]Department of Psychology, University of Augsburg, Augsburg, Germany; [c]Department of Psychology, Social, Environmental, and Economic Psychology, University of Kaiserslautern-Landau, Landau, Germany; [d]Chair of Personality Psychology and Educational Psychology, Ludwig Maximilian University of Munich, Munich, Germany

ABSTRACT

Academic dishonesty hinders the accurate evaluation of student learning in higher education. Previous research indicates that both Honesty-Humility and descriptive social norms predict dishonest behavior. Here, we investigated the role of *seriousness*—the moral weight of dishonest acts—as an underlying dimension of academic dishonesty which can influence the predictive quality of both determinants. We demonstrate that Honesty-Humility has a stronger negative association with serious behaviors, whereas descriptive social norms show a stronger positive association with non-serious behaviors. We investigated a sample of 856 German university students who completed two surveys during a semester in a nationwide study. Using multiple methodologies (i.e. cross-validation with an independent sample, multidimensional scaling, cross-validation with judgments of perceived seriousness), we show that seriousness can be validly measured by assessing the self-reported prevalence of behaviors. This measurement approach is valuable as it does not require additional effort by the researcher. As predicted, structural equation modeling showed that Honesty-Humility was more strongly associated with serious behaviors, while descriptive social norms were more strongly associated with non-serious behaviors. Our findings underscore the theoretical significance of seriousness as a fundamental dimension of academic dishonesty, contributing to a more nuanced understanding of this broad construct. Furthermore, we discuss how recognition of seriousness of dishonest behaviors can inform the development of more targeted and potentially more effective prevention strategies in higher education contexts.

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Academic dishonesty; academic integrity; cheating; honesty-humility; descriptive social norms

Introduction

Academic dishonesty poses a significant hurdle for the accurate evaluation of students' learning progress in higher education institutions. This phenomenon is quite pervasive, as studies across the globe reveal that most students engage in dishonest behavior over the course of their studies (McCabe 2005). Theoretical models of the causes of academic dishonesty have inspired numerous

CONTACT Hernán González Cruz hernan.gonzalez@uni-mannheim.de Department of Educational Psychology, University of Mannheim, A5, 6, 68159 Mannheim, Germany

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studies that provide a wealth of empirical evidence on how dispositional and contextual determinants impact dishonesty (Lee, Kuncel, and Gau 2020; Murdock and Anderman 2006; Whitley 1998). Yet, it remains difficult to bridge the existing research traditions and come to a deeper understanding of the relative importance of those determinants of dishonesty due to strong inconsistencies in the definition and operationalization of dishonesty (Daumiller and Janke 2020; Fritz et al. 2023). Prior research often assumes that different acts of dishonesty have similar underlying mechanisms (Lee, Kuncel, and Gau 2020). This overlooks the possibility that humans perceive dishonest acts in different ways, and that the association with determinants influencing these acts depends on how they are perceived. We suggest that the *seriousness* of dishonest acts (i.e. perceived severity in terms of morality) serves as a relevant underlying characteristic that has direct consequences for associations of behaviors with dispositional and contextual determinants. Here, we theorize and empirically substantiate that organizing a range of dishonest behaviors based on their seriousness has implications for the predictive power of Honesty-Humility and descriptive social norms, which are among the strongest predictors of academic dishonesty (Lee, Kuncel, and Gau 2020; Zhao et al. 2022).

Seriousness as an important dimension of academic dishonesty

We define seriousness (of dishonesty) as the moral weight that a given behavior carries, which constitutes a central aspect of the moral quality of an action (Barnhardt 2016). We deem seriousness to be highly relevant for how humans perceive dishonest acts. Engaging in negative behavior that carries strong moral weight, and is thus deemed as particularly condemnable, is likely to be associated with costs in the form of anticipated punishment and psychological burden (Lee, Kuncel, and Gau 2020). Such anticipated costs in turn make individuals less likely to engage in this kind of behavior, meaning that if dishonest behavior is perceived as being particularly serious, individuals should be less likely to engage in it (Curtis and Vardanega 2016; Maxwell, Curtis, and Vardanega 2008). As such, we consider self-reported prevalence of dishonest behaviors to be both a direct outcome as well as a strong proxy for the seriousness dimension.

Empirical findings strengthen the assumption that the prevalence of dishonest behaviors and perceived seriousness are strongly intertwined. For example, collaboration with others during assignments constitutes a very prevalent aspect of dishonesty (McCabe, Trevino, and Butterfield 2001), while more explicit acts of misconduct such as sabotaging of materials or emotional manipulation of lecturers are much less common. This strongly mirrors people's perceptions of what constitutes serious misconduct. Behaviors such as unallowed collaboration on assignments, making up false excuses, doing less than your fair share in a group project, and inappropriate citation of sources are often perceived to be less serious (Brown, 1995; Peled, Eshet, and Grinautski 2013; Schmelkin et al. 2008; Stone et al. 2014). Further behaviors that are deemed particularly serious include claiming to have submitted a paper while not having done so and ghostwriting (Curtis and Clare 2017; Maxwell, Curtis, and Vardanega 2008; Royal and Flammer 2015).

Overall, data on self-reported prevalence and seriousness perceptions strongly overlap, suggesting that the willingness to admit to dishonest behavior goes in tandem with perceptions of the seriousness of said act. Indeed, this notion is not entirely new to the literature as analyzing data on student dishonesty with methods such as multidimensional scaling robustly yields evidence of a dimension that strongly aligns with both behavioral prevalence and students' perceptions of seriousness (e.g. Schmelkin, Gilbert, and Silva 2010; Schmelkin et al. 2008). Despite strong evidence supporting its relevance, the role of this dimension in differential associations between dishonest behaviors and its determinants remains surprisingly underexplored and, consequently, poorly understood. We specifically posit that the seriousness dimension may affect how strongly behaviors are predicted by factors anchored in personality versus the social context.

Seriousness, personality, and the social context

The assumption that the perceived seriousness of dishonest behavior is directly linked to cheating intentions by way of psychological costs (see also Murdock and Anderman 2006; Whitley 1998) has clear implications for the impact of individual differences on such behavior. Individuals with a strong sense of morality are more likely to experience engagement in dishonest behavior as burdensome as it comes with high costs for their self-image (Lee, Kuncel, and Gau 2020). This means that personality dimensions directly tied to a personal sense of morality are likely to raise the threshold of engagement in dishonest behavior. We expect this to be especially pronounced for behavior that is distinctly perceived as dishonest by the individual (i.e. a serious behavior) and for which it is more difficult to engage in strategies for moral discounting (see Barkan, Ayal, and Ariely 2015).

Extensive research on personality and dishonesty has established robust associations between personality traits and dishonest behavior (e.g. Cuadrado, Salgado, and Moscoso 2021; Giluk and Postlethwaite 2015; Lee, Kuncel, and Gau 2020). The personality trait of Honesty-Humility, postulated as part of the HEXACO framework, describes a tendency to be fair and genuine in dealing with others (Ashton and Lee 2007) and has typically been used to measure personal morality. Previous research has consistently demonstrated that higher levels of Honesty-Humility are associated with less dishonest behavior (Heck et al. 2018; Hilbig 2022; Hilbig and Zettler 2015; Lee, Kuncel, and Gau 2020). In line with these findings, a recent meta-analysis by Zettler et al. (2020) revealed that Honesty-Humility was associated with various forms of immoral behavior, showing negative correlations with cheating/dishonesty, low integrity, and unethical decision making. Studies have also found Honesty-Humility to predict dishonesty above and beyond other personality factors (Hilbig and Zettler 2015). By extension, we argue that this personality trait should be especially predictive for behaviors perceived as more, as opposed to less, serious.

While personality traits play an important role in determining engagement in serious dishonest behavior, a different dynamic emerges when considering non-serious dishonest behavior. Here, we expect that engagement depends less on personality and more on whether the context allows for any moral discounting. Multiple contextual factors operating at different levels (e.g. classroom-level social norms and institution-level honor codes) may influence non-serious dishonest behavior. Among these contextual factors, we deem descriptive social norms to be of particular importance. Descriptive social norms refer to the perception of what others are doing (Cialdini 2007). Perceptions of peer behavior serve as important indicators of whether certain actions are considered acceptable within a given social context. Thus, descriptive social norms can both foster and impede behavior. This holds true for academic dishonesty with a recent meta-analysis showing that perceived peer behavior ranks as the fourth strongest predictor of academic dishonesty (Zhao et al. 2022). Importantly, descriptive social norms have been shown to be especially informative in ambiguous situations. In such situations, individuals need to rely more strongly on others to understand which behaviors are acceptable and which are not in the respective social context (Lois and Wessa 2021). As behavior that is perceived as non-serious can be deemed forgivable by some and moral offense by others (i.e. less morally distinct), the behavior of peers may be key for evaluating one's actions. Note that this does not imply that descriptive social norms cannot lead individuals to engage in extreme acts; but rather that such acts need to be bolstered by additional situational cues (e.g. lenient external authority) to facilitate such an effect.

Research questions and hypotheses

Taken together, we aim to provide the first empirical evidence on the idea that the associations of personality as well as of contextual influences with different dishonest behaviors are moderated by the seriousness of the respective behavior. First, we aim to establish seriousness as an important dimension underlying dishonest behavior. Second, we want to further illuminate its role as a moderator. We hypothesize that:

1. Honesty-Humility will have a stronger negative association with serious dishonest behaviors (e.g. deleting parts of online learning materials to obstruct others) compared to non-serious behaviors (e.g. solving tasks intended for individual work with fellow students).
2. Descriptive social norms will have a stronger positive association with non-serious dishonest behaviors compared to serious behaviors.

Method

Participants and procedure

We conducted two Germany-wide anonymous online surveys of students at the beginning of the winter semester in November 2020 (T1) and at the summer semester in April 2021 (T2).[1] Participants were recruited via official university and student body mailing lists as well as social media. As incentives we raffled online shop vouchers. This study was approved by the ethics committee of the University of Mannheim (EK Mannheim 25/2018).

We used anonymous identification codes to match the data of respondents from both waves, resulting in $N = 856$ matched participants ($M_{age} = 23.2$ years, $SD_{age} = 3.7$). Additional sample demographics for the matched sample are displayed in Table 1. We also used unmatched T1 participants ($N = 1{,}111$) to conduct a validity check of the seriousness dimension across independent samples (see Analysis for further details).

We checked for differences in age and gender between the matched and unmatched T1 samples. After Bonferroni correction for multiple testing, analyses revealed no statistically significant differences regarding gender, $\chi^2(1) = 3.88$, $p = .050$. We found that the matched sample was statistically significantly younger, $t(1954.2) = -2.52$, $p = .012$, $d = -0.46$. However, this difference should not impact the interpretation of our results because the inclusion of the unmatched T1 sample was primarily aimed at testing the robustness of the seriousness dimension across independent samples. To further ensure data quality, we recoded items with response times of less than one second as missing values. Responses from five participants on our measured variables met this criterion and were recoded accordingly. Of these, only the responses of one participant on dishonesty items were affected by this recoding procedure. The responses of this participant were excluded from the prevalence-based analyses.

Measures

Academic dishonesty

Well-validated, comprehensive scales for academic dishonesty are rare (though see Rettinger et al. 2024 for a notable exception) and the dimensionality of the construct has not yet been well-

Table 1. Sample demographics for the matched sample.

	n	%
Gender (female)	621	72.5
Number of semesters completed		
1	55	6.4
2	41	4.8
3	344	40.2
4	32	3.7
5	211	24.6
6	22	2.6
>6	148	17.3
Study majors		
Economics, business, law, and service industry	177	20.7
Education and pedagogy	133	15.5
Medicine, psychology, and health sciences	104	12.1
Other	442	51.7

Note. $N = 856$.

established (Fritz et al. 2023). We therefore compiled a comprehensive battery of items containing a wide range of dishonest behaviors found in the literature (e.g. Akbulut et al. 2008; Carpenter et al. 2006; Royal and Flammer 2015; Yang, Huang, and Chen 2013), in line with current recommendations. We then selected a diverse list of 13 relevant behaviors from this battery to test for differential effects. We measured academic dishonesty by asking participants how frequently they engaged in these 13 dishonest behaviors during the past semester (T2). Importantly, we constrained our choice of items to behaviors that had no systematic missing data (e.g. the category *cheating during online exams* was excluded because only a subset of our sample had taken online exams). This was a central requirement to test differential effects, as we needed to ensure fair comparability across behaviors, which would not be given if non-engagement resulted from differing processes. Furthermore, we ensured the items had a wide range of prevalences, which was necessary to test our hypotheses on the connection between prevalence and perceived seriousness of behaviors. The selected items which met these requirements came from the categories *lying* and *manipulation*. Lying behaviors encompassed a range of deceptive practices, including illicit collaboration with peers and engaging in unethical scientific conduct. Example item: *I have turned in individual assignments that someone else did in part or in full for me.* Manipulation items encompassed some form of manipulative behavior. Example item: *After receiving exam results, I have changed my answers and tried to convince the teacher that he/she made a mistake in grading.* An overview of all used items can be found in the Supplemental Materials (Table S2). Frequency was rated on a 7-point Likert Scale with response options 1 = *never* to 7 = *very often* to mitigate the common issue of underreporting of sensitive topics in surveys (Gnambs and Kaspar 2015). An eighth response category *I don't know* was also included, allowing participants the option to refrain from answering. We dichotomized participant responses (0 = *never*, 1 = *at least once*) for our analyses because aggregation of frequency ratings across different behaviors would not have been meaningful given the heterogeneity of the measured behaviors.

Honesty-Humility

We used the German version of the Honesty-Humility subscale from the HEXACO model of personality (Moshagen, Hilbig, and Zettler 2014). The measure consists of 10 items rated on a 5-point Likert Scale with response options 1 = *strongly disagree* to 5 = *strongly agree.* Example item: *If I knew that I could never get caught, I would be willing to steal a million dollars.* Six items in the scale are negatively poled (i.e. higher values reflect dishonesty). The scale had an internal consistency of $\omega = .62$.

Descriptive social norms

We measured perceived descriptive social norms with one item translated from McCabe and Trevino (1993). Item: *How often do you think other students cheat on other assignments (e.g. term papers)?* Participants rated perceived frequency of dishonest behavior on a 7-point Likert Scale with response options 1 = *never* to 7 = *very frequent.* Given that this single-item measure was very distinct, its performance should be adequate to assess perceived descriptive social norms in this context.

Analysis

To establish seriousness as an important dimension underlying dishonest behavior, it was necessary to demonstrate that (1) building a rank order of dishonest behaviors based on self-reported prevalence is a valid measure of the moral weight of those behaviors, and (2) seriousness is a central characteristic of dishonest behaviors upon which said behaviors vary. Concurrently, this would allow us to validly test our differential hypotheses. The data and analysis scripts are available in the Supplemental Materials (https://osf.io/yvm79/).

Previous literature on the seriousness of dishonest behaviors has typically focused on the subjective moral weight of different behaviors (i.e. directly asking students how serious they perceive a given behavior to be; e.g. Schmelkin et al. 2008). A less frequently used approach to make inferences

about the moral weight of dishonest behaviors is based on self-reported prevalence rates (i.e. on participant's willingness to admit to dishonest behavior). In our survey, we used the latter approach to rank dishonest behaviors, which we refer to as 'prevalence-based rankings' approach. As this approach is less common, we conducted several validity checks to establish that the measure is consistent with previous findings and stable across different subsamples of participants. We checked consistency by evaluating item content based on prevalence-based rankings and compared it with the literature. We also checked stability by comparing prevalence-based rankings of the matched ($N = 855$) and the unmatched T1 sample ($N = 1{,}111$). Both checks allowed us to establish whether prevalence-based rankings were suitable for measuring the seriousness of dishonest behaviors.

We then took a confirmatory approach to assess whether seriousness is a relevant characteristic of dishonest behaviors in our data set by applying Multidimensional Scaling (MDS), a data-driven dimensionality reduction method based on Euclidean distances of zero-order correlations between items (Borg and Groenen 2005). We constrained the solution to a single dimension because our objective was to test the extent to which prevalence-based rankings could be mapped on to the extracted dimension (rather than minimize loss of information). We compared prevalence-based rankings with rankings based on the MDS solution to replicate previous findings on seriousness as an important underlying dimension (Schmelkin, Gilbert, and Silva 2010; Schmelkin et al. 2008). We conducted the analysis utilizing the Proxcal function in SPSS 29. We report several key indices to assess fit of the one-dimensional solution: normalized raw stress, dispersion accounted for, and Tucker's coefficient of congruence. Values of stress $< .15$, as well as dispersion accounted for and Tucker's coefficient of congruence which are close to 1 suggest good fit (Dugard, Todman, and Staine 2022).

To test our differential predictions, we first constructed two aggregates based on prevalence-based rankings of behaviors. The aggregate for serious (low prevalence) behaviors was composed of those ranked at the bottom of these rankings. Conversely, the aggregate for non-serious (common) behaviors was composed of those ranked at the top. If participants engaged in any of the serious or non-serious behaviors, respectively, we coded the aggregate as 1. Conversely, if participants did not engage in any of the serious or non-serious behaviors, respectively, we coded the aggregate as 0. The coding scheme for the categorization of serious and non-serious behaviors was chosen based on item content and prevalence. For the serious aggregate, we included behaviors that were distinctly egregious and simultaneously had enough observations for our models. For the non-serious aggregate, choosing a cut-off based on item content and prevalence was more challenging because non-serious behaviors are less distinct compared to serious behaviors. We therefore opted to run sensitivity analyses with different coding schemes to assess the extent to which these could affect our results. We report the coding scheme that was most representative of the overall pattern observed across our sensitivity analyses in Table 2.

We then tested differential predictions of Honesty-Humility and descriptive social norms using Structural Equation Modeling (SEM) in *lavaan* (v0.6-12; Rosseel 2012) to predict engagement in serious and non-serious behaviors. Specifically, we looked at differences in the strength of association of our predictors for each of the behavior aggregates. We first evaluated two measurement models, a single-factor and a hierarchical model of Honesty-Humility, using the MLR estimator with Full Information Maximum Likelihood (FIML). We also calculated model-implied instrumental variables (Bollen 2019) to identify local structural issues. Cut-off values of CFI $> .95$, TLI $> .95$, RMSEA $< .05$, and SRMR $< .05$ were used to evaluate fit (Schermelleh-Engel, Moosbrugger, and Müller 2003). Additionally, if the RMSEA of the null model was smaller than .16, we refrained from using incremental measures of fit such as CFI and TLI, as suggested by Kenny, Kaniskan, and McCoach (2015), due to their reduced informativeness in such contexts. We subsequently evaluated the full model, wherein both serious and non-serious behavior aggregates were regressed onto our predictors. We used the DWLS estimator which uses a partially pairwise deletion estimation ($N = 4$

Table 2. Ranking of dishonest behaviors based on prevalence.

Dishonesty Items	Prevalence (raw)	Prevalence (relative)	Coding Scheme
I have solved tasks that were intended as individual work together with fellow students. (ly06)	513	0.60	Non-serious
I have cited a source on a term paper that I did not read. (ly04)	265	0.31	Non-serious
I have turned in individual assignments that someone else did in part or in full for me. (ly07)	149	0.17	Non-serious
In a term paper, I have intentionally listed a source in the bibliography that I did not use in the text. (ly05)	148	0.17	Non-serious
I have made up a fake excuse for missing the deadline on a submission. (ly01)	108	0.13	Non-serious
I have modified information from scientific sources so that it better fits with my own work. (man04)	105	0.12	-
I have had someone sign for me on the attendance sheet of a seminar in which I was not present. (ly02)	76	0.09	-
When I had to write papers on similar topics in different courses, I have turned in the same paper. (ly03)	45	0.05	Serious
I have tried to deliberately influence a lecturer emotionally (e.g. by crying) in order to get a deadline extension or get a better grade. (man03)	21	0.02	Serious
I have tried to bribe a lecturer (e.g. with candy, compliments) to get a deadline extension or to get a better grade. (man02)	7	0.01	Serious
I have hidden or damaged books from the library so that others could not use them. (man05)	6	0.01	Serious
After receiving exam results, I have changed my answers and tried to convince the teacher that he/she made a mistake in grading. (man01)	5	0.01	Serious
I have deleted parts from learning materials available online so that others could not use them. (man06)	2	0.00	Serious

Note. $N = 855$. The choice of the reported coding scheme was based on representativeness of results of sensitivity analyses. Original German items as well as results of sensitivity analyses are made available in the Supplemental Materials (Tables S2 and S3).

were removed from the model). One important advantage of SEM is that it allowed us to account for the covariation between serious and non-serious behaviors.

Results

Prevalence of dishonest behaviors

Descriptive statistics and correlations among measured variables are included in the Supplemental Materials (Table S1). We analyzed the prevalence of the selected dishonest behaviors, ranging from non-serious to serious. Content analysis showed that this prevalence was consistent with the typical rates reported in the literature (e.g. Curtis and Clare 2017; Schmelkin et al. 2008). Behaviors that are typically less serious, such as solving tasks intended for individual work with fellow students (prevalence: 60% of respondents) and citing a source without having read it (31%), were more frequently reported. In contrast, more egregious behaviors such as deleting parts of online learning materials to obstruct others (<0.01%) or trying to manipulate faculty to get a better grade in an exam (0.01%) were extremely rare. To assess rank order stability across time points and participants, we calculated a Spearman rank order correlation between the matched ($N = 855$) and unmatched T1 sample ($N = 1{,}111$). The prevalence-based rank order was highly stable across samples ($r_s = .97$, $p < .001$), which speaks to the robustness of self-reported prevalence of dishonesty across independent participant pools. Table 2 provides an overview of the selected dishonest behaviors ranked by prevalence.

We proceeded to conduct MDS. Figure 1 displays the resulting 1-dimensional plot in which dishonest behaviors are ordered according to the extracted weights. Normalized raw stress = .05, dispersion accounted for = .95, and Tucker's coefficient of congruence = .98 indicated good fit (Dugard, Todman, and Staine 2022). Subsequently, we correlated the rank order of the resulting MDS weights with the prevalence-based rankings to better interpret the extracted dimension. A strong relationship between both rankings was observed ($r_s = .93$, $p < .001$), indicating that the extracted dimension was highly concordant with self-reported prevalence of dishonest acts. Along this dimension, which

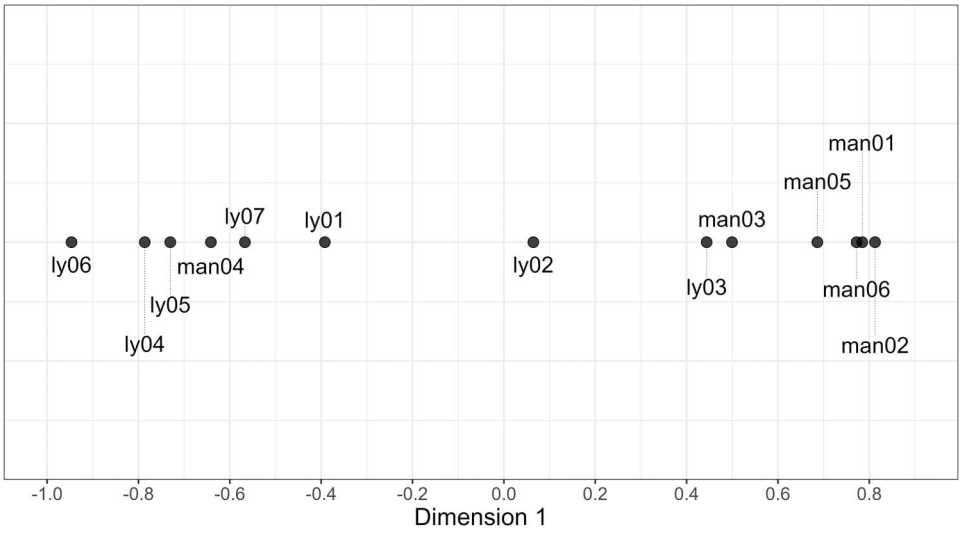

Figure 1. Results of Multidimensional Scaling of dishonesty items (1-dimensional solution). Items labeled 'lyXX' and 'manXX' represent a range of deceptive practices from the *lying* and *manipulation* categories respectively, where XX represents the item number. Behaviors with positive weights are interpretable as more serious, whereas behaviors with negative weights are interpretable as less serious. For full item descriptions, see Table 2.

we interpret as a seriousness dimension, behaviors with positive weights can be interpreted as being more serious, while behaviors with negative weights can be interpreted as being less serious.

As an additional robustness check of the prevalence-based rankings approach, we conducted a validation study ($N = 10$) in which university students rated the dishonest behaviors used in our study based on perceived seriousness. Ratings were given on a sliding scale ranging from 0 = *non-serious* to 100 = *very serious*. We calculated median ratings for each behavior and ranked them according to perceived ratings. We found a strong association between the prevalence-based rankings and the rankings from the validation study ($r_s = .55$, $p = .049$), further suggesting concordance between perceived seriousness and prevalence-based rankings.

Differential effects of Honesty-Humility and descriptive social norms

To assess the measurement properties of our Honesty-Humility construct, we conducted confirmatory factor analyses. We first specified a single-factor measurement model for the Honesty-Humility measure, assuming all items loaded onto a single latent variable. The model demonstrated unacceptable fit: $\chi^2(39) = 326.01$, $p < .001$, RMSEA = .09, SRMR = .06, CFI = .72, and TLI = .61. Additional model diagnostics using model-implied instrumental variables (Bollen 2019) revealed several structural issues with a single-factor solution. We therefore fit a second measurement model with a hierarchical specification of Honesty-Humility, which is theoretically consistent (Ashton and Lee 2007). In this hierarchical specification, Honesty-Humility was defined as a higher-order construct encompassing four underlying facets (sincerity, fairness, greed avoidance, and modesty). The fit of the second model improved significantly: $\chi^2(39) = 61.07$, $p < .01$, RMSEA = .03, SRMR = .03, CFI = .97, and TLI = .96.

Subsequently, we examined the differential effects of the higher-order Honesty-Humility construct along with descriptive social norms on serious versus non-serious behaviors. This was accomplished by specifying separate regressions for serious and non-serious behaviors within the hierarchical model. The model fit the data well: $\chi^2(53) = 100.87$, $p < .001$, RMSEA = .03, SRMR = .04. We refrain from reporting incremental fit indices as these may not be as informative given that the null model's RMSEA was smaller than .16 (Kenny, Kaniskan, and McCoach 2015). Descriptive differences in effect sizes support the existence of differential effects of Honesty-Humility and

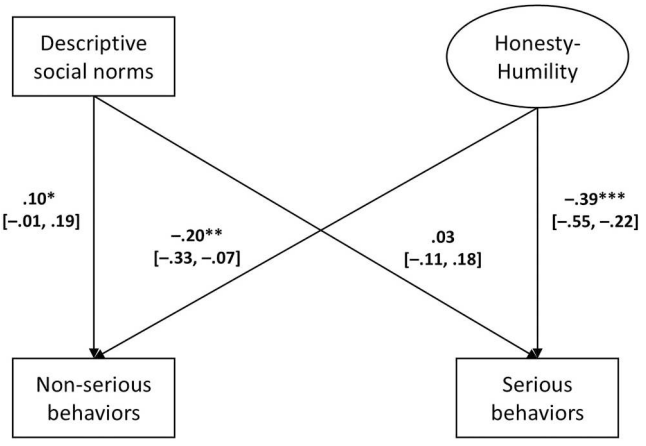

Figure 2. Structural equation model showing effects of Honesty-Humility and descriptive social norms on serious and non-serious dishonest behaviors. For clarity, Honesty-Humility subfacets, factor indicators, residual errors, and correlations are omitted. Full model details and reproducible code can be found in the Supplemental Materials. Numbers represent standardized path coefficients with 95% confidence intervals in brackets. Significance levels: * $p < .05$, ** $p < .01$, *** $p < .001$.

descriptive social norms on behavior types.[2] R^2 values for serious and non-serious behaviors were .16 and .06, respectively. The model is displayed in Figure 2.

We also conducted sensitivity analyses to establish the extent to which different coding schemes might impact the stability of our findings. We tested four additional coding schemes with varying subsets of non-serious behaviors. The effect of descriptive social norms was generally stable across coding schemes (βs = .08–.12, ps = .01–.08). Furthermore, we tested an additional coding scheme in which we narrowed the selection of behaviors down to only those directly related to cheating in assignments in order to increase fit between our predictor of descriptive social norms and the measured behaviors. This had no impact on the reported pattern of results. All results of the sensitivity analyses can be found in the Supplemental Materials.

Discussion

Academic dishonesty encompasses a range of behaviors that vary in moral weight. In the current study, we investigated how this variation in seriousness may be related to fluctuations in the strength of associations between determinants of dishonesty and (reported) engagement in dishonest behavior. First of all, our analyses underscore that the seriousness of dishonest behavior can be consistently measured by assessing and ranking its prevalence. Our ranking was stable across different methodologies (cross-validation with an independent sample, multidimensional scaling, cross-validation with judgments of perceived seriousness by independent raters) and also highly consistent with the literature. Moreover, we found differential effects for both Honesty-Humility and descriptive social norms in the expected directions: more serious behaviors were more strongly associated with personality, while descriptive social norms were more strongly associated with less serious behaviors. Overall, this pattern of findings has strong theoretical implications regarding the relevance of seriousness as a dimension that characterizes dishonest behavior as well as practical implications for the development of targeted interventions.

Theoretical and practical implications

Notably, our findings speak to the robustness of seriousness as a dimension that characterizes and differentiates dishonest behaviors in educational contexts. The consistency of results across

methodological approaches not only underscores the relevance of the seriousness dimension but also suggests that it can be quantified through the simple yet elegant measure of self-reported prevalence. While this measure may be influenced by additional factors (most notably [lack of] opportunity; see Lee, Kuncel, and Gau 2020), our analyses suggest that it is a strong indicator of seriousness.

While the measurement of seriousness might thus be simple, its impact on the likelihood of engagement in dishonesty is far from arbitrary. Our findings show that not all dishonest behaviors are equal and may be driven by different mechanisms based on their moral weight. This fits well with past criticism of measurement approaches of dishonesty which are too inclusive (Barnhardt 2016) and treat dishonest behaviors with different underlying mechanisms equally (*cheater vs. non-cheater* paradigms).

The seriousness dimension provides one possible organizing principle to further differentiate the wide spectrum of dishonest behaviors and adds to our understanding of what drives them. Serious behaviors are much more strongly determined by personality, in line with the established theoretical link between personal morality and personal costs (Murdock and Anderman 2006; Whitley 1998). However, the effect of personality attenuates for non-serious behaviors, which can likely be explained by a more prominent role of contextual factors, such as, but not limited to, descriptive social norms. While actors with dishonest personality traits are likely to engage in all kinds of serious as well as non-serious misconduct, more honest actors may be inclined to engage in non-serious misconduct in social contexts in which such behavior is likely to be accepted because the threshold of engagement for such behaviors is much lower (and thus more prone to situational influence).

Our findings have significant implications for deterring dishonesty in higher education. We propose that prevention efforts should leverage seriousness as a critical informational tool. Our data suggest that prevention strategies that focus on fostering cultures of honesty at the classroom or course-level are well-suited to target less serious behaviors (Stephens 2015). To achieve this, educators should cultivate trust in the classroom, encourage student responsibility for integrity, and underscore the importance of academic integrity (McCabe, Trevino, and Butterfield 2001). Such strategies, when implemented successfully, have the advantage of being self-enforcing. In contrast to approaches that attempt to shift students' perceptions of seriousness directly (e.g. Owens and White 2013), these culture-focused methods are more likely to succeed with less serious behaviors, as it is more challenging to construct a compelling moral argument against them. Additionally, educators should strive to explicitly communicate what constitutes cheating in their class (Anderman and Koenka 2017), which can help close the gap between how faculty and students perceive non-serious behaviors.

On the other hand, our findings suggest that 'softer' prevention strategies targeting descriptive social norms may not be as effective in preventing serious behaviors, given the stronger influence of personality traits. Therefore, current recommendations that increase deterrence of more serious offenses, such as the explicit communication of how specific sanctions will be enforced (Dawson, Nicola-Richmond, and Partridge 2023), remain an important preventive practice for educators to make the costs of dishonesty as salient as possible. Furthermore, educators should minimize opportunities for dishonest behavior during planning of assessments and proactively challenge dishonest behavior when noticed (McCabe, Trevino, and Butterfield 2001).

Limitations and future research

In this study, we focused on a subset of dishonest behaviors broadly applicable to a range of academic situations, allowing for a fair assessment of differential effects across the seriousness dimension. This approach was chosen to avoid the confounding effects of situationally constrained behaviors, such as cheating during in-person exams, where differential exposure to opportunities for dishonesty could impair comparisons across behaviors. While this was

necessary to ensure a fair comparison of behavior clusters across the seriousness dimension, it limits the scope of our findings to lying and manipulative behaviors. Future research should aim to test the generalizability of our differential effects to other kinds of dishonest behaviors while taking potential confounds such as differential exposure to cheating opportunities into account.

Another issue pertains to the underreporting of sensitive topics in survey research (Gnambs and Kaspar 2015). This known issue becomes especially relevant when studying serious behaviors because the likelihood of underreporting increases the more serious the offense (Franklyn-Stokes and Newstead 1995). This may introduce systematic underreporting at one tail-end of the seriousness dimension, which could lead to overestimation of effects. Although our implementation of Likert scale ratings was designed to ameliorate underreporting by providing participants the opportunity to give more moderate responses (Gnambs and Kaspar 2015), this approach cannot fully address the mentioned asymmetry in underreporting for serious behaviors. Furthermore, dishonest individuals' higher tendency to lie may further introduce bias. Future research on seriousness could employ survey techniques such as Randomized Response Technique (e.g. Diekmann 2012) to help mitigate the effects of underreporting by guaranteeing a higher degree of anonymity.

We also limited our choice of predictors to two which are strongly supported by the literature. We acknowledge that the academic context is rich with contextual factors operating at multiple levels. Our selection was evidently not meant to be exhaustive, but rather to show that differential effects are possible in principle and in practice. Future research should examine additional determinants of dishonesty which might also interact with seriousness of the behaviors one is trying to predict. For example, it would be valuable for prevention practice to explore whether injunctive social norms exert a differential deterring effect on engagement in serious versus non-serious dishonest acts. While this study focused on seriousness as an important dimension along which dishonest behaviors can vary and its interaction with relevant predictors, there are likely to be other dimensions that could also affect the pattern of associations of established predictors, such as whether behavior immediately affects another person or not (Lee, Kuncel, and Gau 2020). Future studies should continue the search for relevant underlying dimensions to gain a more complete understanding of the structure of dishonesty.

Another methodological limitation of this study is its reliance on a single-item measure of descriptive social norms. Despite this limitation, we do not believe this poses a major threat to the validity of our findings because the construct is sufficiently unambiguous (Wanous, Reichers, and Hudy 1997). Still, given that insufficiencies in measurement reliability may attenuate differential effects, future studies could benefit from employing a multiple-item measurement approach. A multi-faceted measurement approach could deepen our understanding of the intricate associations between descriptive social norms and dishonest behavior even further. We think it would be particularly worthwhile to investigate whether descriptive social norms are perceived differently for serious and non-serious behavior. Furthermore, future studies could explore whether our findings replicate in samples from diverse cultures, as recent research has shown that the effect of predictors on dishonest behavior can be moderated by cultural values (Zhao et al., 2024).

Conclusion

In sum, we found that students' construal of seriousness is a stable and meaningful phenomenon that may impact the strength of associations between dishonest behavior and its established determinants. We recommend that dishonesty researchers consider differences in seriousness of dishonest behaviors when selecting outcomes, as the relevance of such differences could vary across studies. More generally, we consider efforts to identify the underlying dimensions of dishonesty as an important next step for the field. Building on our current, comprehensive understanding of

the most relevant variables for academic dishonesty, the field is now well-positioned to move toward a multidimensional understanding of this phenomenon.

Notes

1. For an additional publication using the same data set but addressing a different research question see Janke et al. (2021).
2. As additional robustness checks, we estimated separate manifest regression models for serious and non-serious behaviors and removed influential observations as indicated by Cook's *D* and Hat values. We also conducted subgroup analyses for various demographic variables (i.e., gender, degree level, and study major). These steps did not alter the observed pattern of results. Overall, the pattern of results remained consistent.

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Data availability statement

The data, analysis scripts, and supplemental materials that support the findings of this study have been made available in an Open Science Framework online repository at https://osf.io/yvm79/.

ORCID

Hernán González Cruz http://orcid.org/0000-0003-0916-2658
Tanja Fritz http://orcid.org/0000-0002-1854-6269
Selma C. Rudert http://orcid.org/0000-0001-5986-2447
Martin Daumiller http://orcid.org/0000-0003-0261-6143
Stefan Janke http://orcid.org/0000-0003-1799-8850

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