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Academic cheating as planned behavior: the effects of perceived behavioral control and individualism-collectivism orientations

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Abstract
To inform interventions against academic cheating among college students, the study tests the moderating role of the construct of perceived behavioral control as originally proposed yet seldom tested in the Theory of Planned Behavior, and further tests the cultural boundary conditions for this moderating role with a focus on the four horizontal-vertical individualism-collectivism orientations. Using multicampus survey data collected from 2293 Chinese undergraduate students, the moderation analyses suggest a significant and negative joint effect of perceived behavioral control with the construct of subjective norm and a positive yet insignificant joint effect with the construct of attitude towards cheating. Further moderated moderation analyses identify a pattern from comparing the four significant three-way interactions: the positive effects of attitude towards cheating and subjective norm on academic cheating are stronger under the conditions of a combination of low subjective norm with low horizontal individualism and horizontal collectivism, respectively. The study contributes to a nuanced understanding of the utility of Theory of Planned Behavior in predicting academic cheating and supports a multivariable intervention approach that closely integrates administrative measures with students' attitudinal and normative beliefs with a concern for the subtle yet significant influences of cultural orientations.

Keywords Academic cheating · Theory of Planned Behavior · Perceived behavioral control · Individualism-collectivism · Chinese college student

Introduction

Academic cheating among college students consists of a series of dishonest behaviors that violate the norm of academic integrity to acquire unfair advantages in the evaluation of academic achievement (i.e., plagiarism in coursework and cheating on exams) (McCabe & Trevino, 1997). In the past three decades, academic cheating research has become an interdisciplinary field, where theoretical perspectives from various scholarly disciplines

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(i.e., psychology, ethics, and management) have been tested to inform understanding and intervention of cheating (Lee et al., 2020; Krou et al., 2020; Gallant & Rettinger, 2022; Zhao et al., 2022). Informed by these studies, various measures have been adopted, with the importance of implementing rigorous administrative interventions, enhancing students' competence in moral reasoning and academic practice, and shaping a normative environment favoring integrity on campus being well-supported. Despite these scholarly and practical endeavors, academic cheating is still a troublesome issue worldwide, including in China, given the reported high prevalence of cheating (Zhang et al., 2018; Curtis & Tremayne, 2021; Liu & Alias, 2022). More effective interventions based on a nuanced understanding of the motivations driving cheating are called for.

Among the perspectives tested in the literature, the Theory of Planned Behavior (TPB), formulated by Ajzen (1991), is of noticeable utility. The TPB illustrates the cognitive process of the behavioral decision via three constructs: attitude towards behavior (ATT: personal evaluation of a behavior as favorable or unfavorable), subjective norm (SN: evaluation of normative environment as supportive of a behavior or not), and perceived behavioral control (PBC: evaluation of ease or difficulty in performing a behavior). As a widely applied conceptual tool aiming at behavioral change, the efficacy of TPB in predicting behaviors in various domains, including academic cheating, has been supported (Beck & Ajzen, 1991; Armitage & Conner, 2001).

In recent years, to better inform practice, researchers of the TPB have called for empirical evidence to test the moderating role of PBC on the effects of ATT and SN, which is plausibly proposed yet seldom tested in the original formulation of TPB (La Barbera & Ajzen, 2020, 2021). To our knowledge of the increasing literature on academic cheating through the TPB lens, no studies have tested this moderating role of PBC. The study is aimed at adding evidence to this research gap and thus informing practice. Further, as suggested by La Barbera and Ajzen (2021), the study is aimed at understanding the "cultural boundedness" (Fischer et al., 2009, p.188) of the TPB by testing the roles of horizontal-vertical individualism-collectivism orientations as boundary conditions of the moderating role of PBC.

To respond to our research aims, we locate the present quantitative study in the Chinese context, a collectivistic society that values the traditional norms of honesty and integrity and highlights relational interdependence and respect for authority (Zhang et al., 2018; Zhang & Yin, 2020). It also needs to mention that we focus on the subtype of cheating on exams as the outcome variable, given the possibility of the unintentionality of plagiarism (Ellery, 2008) and the little administrative attention to plagiarism in coursework in the Chinese context (Zhang et al., 2018).

Literature review

PBC as a moderator in the TPB

The TPB was formulated based on the Theory of Reasoned Action (TRA). The TRA contains two constructs, namely, ATT and SN, while Ajzen (1991) incorporated the construct of PBC into the TRA and renamed it the TPB. The inclusion of PBC improves the utility of TPB in predicting behaviors over which people may have different levels of control (La Barbera & Ajzen 2021). In light of the TPB, the performance of a given behavior depends on behavioral intention, which in turn is determined by ATT, SN, and PBC. ATT

represents one's positive (or negative) evaluation of the behavior. SN suggests perceived social expectations of (or against) engaging in the behavior. PBC indicates the perceived easiness (or difficulty) of performing the behavior. It is assumed that favorable ATT, supportive SN and high PBC may predict the intention and occurrence of a given behavior.

After being included in the TPB, PBC is often used as an additional construct parallel with ATT and SN, and researchers are interested in its main and additive effect (Kothe & Mullan, 2015; La Barbera & Ajzen, 2021). Yet, it is argued that PBC is postulated as a moderator of ATT and SN in the original formulation of TPB, which is less known and insufficiently tested (La Barbera & Ajzen, 2020, 2021). The proposed moderating role of PBC is "intuitively compelling and grounded in theory," since it is reasonable to argue that "favorable attitudes and subjective norms should lead to the formation of a favorable intention only to the extent that people also believe that they are capable of carrying out the behavior" (La Barbera & Ajzen 2021, p.402). Researchers have criticized the linear applications of TPB (Conner & McMillan, 1999), while an increasing number of studies have provided evidence for the moderating role of PBC.

The studies testing the moderating role of PBC have involved various behaviors, such as drug use (Conner & McMillan, 1999), dangerous driving (Earle et al., 2020), smoke-quitting (Yzer & van den Putte, 2014; Hukkelberg et al., 2014), fruit and vegetable consumption (Kothe & Mullan, 2015), and reducing food waste and energy consumption (La Barbera & Ajzen, 2021). In terms of the joint effect of PBC with ATT, a relatively consistent result indicating a positive interaction has been reported (Conner & McMillan, 1999; Hukkelberg et al., 2014; Kothe & Mullan, 2015; Yzer & van den Putte, 2014; La Barbera & Ajzen, 2020, 2021). Results of the joint effect of PBC with ATT have been somewhat mixed. Some reported a significant negative interaction (La Barbera & Ajzen, 2020, 2021), while both significant (Yzer & van den Putte, 2014) and insignificant (Kothe & Mullan, 2015; Earle et al., 2020) positive interactions were also reported. The limited and inconsistent evidence calls for empirical investigations to enhance understanding of the moderating role of PBC across various behavioral and societal contexts.

Academic cheating as planned behavior

Application of the TPB in the academic cheating research

In the behavioral domain of academic cheating, the utility of TPB and its former version—the TRA—in understanding the cognitive motivations driving cheating behaviors has been well-supported in both western and nonwestern contexts (Beck & Ajzen, 1991; Passow et al., 2006; Harding et al., 2007; Stone et al., 2010; Alleyne & Phillips, 2011; Yang, 2012; Imran & Nordin, 2013; Rajah-Kanagasabai & Roberts, 2015; Chudzicka-Czupała et al., 2016; Jalilian et al., 2016; Camara et al., 2017; Lonsdale, 2017; Zhang et al., 2018; Kam et al., 2018; Curtis et al., 2018; Hendy & Montargot, 2019; Uzun & Kilis, 2020; Cheng et al., 2021; Yusliza et al., 2022; Khathayut et al., 2022; Farooq & Sultana, 2022). In light of the TPB, academic cheating is likely to happen when students hold favorable attitudes, sense a norm supportive of cheating, and perceive high self-control over cheating.

Like research in other behavioral domains, the above literature has typically examined the main and additive effects of the TPB constructs on the intention to cheat. Given the accommodating flexibility of TPB, some researchers have been further interested in incorporating parallel or intervening factors (i.e., prudence and conscientiousness) to extend the predictivity of TPB (Stone et al., 2010; Alleyne & Phillips, 2011; Lonsdale, 2017; Uzun &

Kilis, 2020; Yusliza et al., 2022). Yet, to our knowledge of the literature, few studies have tested the interactions among the TPB constructs, with the study of Kam et al. (2018) that reported an insignificant moderating role of SN in the relationship between cheating intention and behavior among Hong Kong secondary students as a known exception.

PBC in the academic cheating research

PBC and its joint effects with ATT and SN on cheating are the focus of the study. In the studies of cheating via the TPB lens, PBC has often been defined as the perceived ease of conducting cheating and measured with single or multiple items such as "cheating is very easy to get away with at your school" (Yu et al., 2021). Yet, partially due to the variations in the measurement, the subtypes of dishonest behaviors involved, and the characteristics of surveyed samples, some discrepancies concerning the explanatory power of PBC on cheating relative to ATT and SN have been reported. In some studies (Beck and Ajzen 1991; Stone et al., 2010), the effect size of PBC has been reported to be the largest, sequentially followed by ATT and SN, while some studies have revealed ATT as the most influential factor, followed by PBC and SN in sequence (Passow et al., 2006; Harding et al., 2007; Zhang et al., 2018; Yu et al., 2021).

Notably, there is another line of studies involving other theoretical perspectives (i.e., deterrence theory and rational choice theory) that are similar to the TPB in that these theories all highlight the cognitive process of the behavioral decision within given contexts. In this line of studies, PBC is posited as perceived rigidness of supervision and penalty against cheating, such that a high level of rigidness indicates a high level of difficulties in cheating (i.e., low PBC), and vice versa. The decision to conduct academic cheating is a function of subjective estimation of the benefits and costs of the consequences of cheating. When the perceived certainty and severity of the penalty are sufficiently high, one may be deterred from academic cheating (McCabe & Trevino, 1997; Eisenberger, 2004; Ogilvie & Stewart, 2010).

Associations of PBC with ATT and SN in the academic cheating research

ATT, SN, and PBC represent critical individual and contextual influences of academic cheating. The notion that academic cheating derives from the interplays of individual and contextual factors has been well-established (McCabe & Trevino, 1997; Rettinger & Kramer, 2009). Also, it is arguable that the theoretical plausibility of the joint effects of PBC with ATT and SN we discussed earlier applies to the behavioral domain of academic cheating.

With extensive explorations beyond research that apply the TPB lens, ATT towards cheating has been identified as a critical factor of cheating (Eisenberger, 2004; Lee et al., 2020). As a relatively changeable individual factor (Yu et al., 2021), it is logical that ATT may be shaped by influences from the environment, such as peers, teachers, and policies. For instance, Eisenberger (2004) reported that students' attitudes toward copying on exams are less favorable when exam supervision is perceived positively and vice versa.

Similarly, SN as perceived acceptability of cheating among peers has been well documented (see Zhao et al., 2022 for a recent review). Besides peers, the normative influence of authoritative significant others (i.e., teachers and parents) is relatively seldom investigated (Koljatic et al., 2003; Simkin & McLeod, 2009; Lonsdale, 2017; Zhang et al., 2018; Yu et al., 2021). For instance, Koljatic et al. (2003) tested the relationship between perceived parental acceptance of cheating and the occurrence

of cheating. Lonsdale (2017) tested the normative influences of two differentiated reference groups—peers and parents. It is argued that students who value relations with authoritative others may not conduct cheating to avoid informal punishment (i.e., feeling guilty and embarrassed) (Ogilvie & Stewart, 2010).

It is also plausible to argue that integrity expectations from authoritative significant others may function jointly with perceived administrative rigidness against cheating. The influence of perceived norms may differ in nature and intensity, given the referent groups that students are concerned about. In the study, we focus on authoritative significant others rather than peers to add to the relatively rare evidence.

To sum up, investigating the cognitive mechanism driving academic cheating through the lens of TPB with a particular focus on the moderating role of PBC is theoretically plausible and of practical importance, yet rarely conducted. The present study attempts to offer evidence for this insufficiency in the literature.

Individualism-collectivism orientations as boundary conditions

The notion that academic cheating is a value-laden issue that is related to cultural contexts has been proposed and investigated, with individualism-collectivism being the most widely discussed cultural aspect of academic cheating (McCabe et al., 2008), since the individualism-collectivism orientations can contribute to the understanding of human behaviors by highlighting the "cultural boundedness" of theory (Fischer et al., 2009, p.188).

As we reviewed earlier, given most of the studies on the moderating role of PBC have been located in the west, La Barbera and Ajzen (2021) called for empirical investigations to test the extents to which the proposed moderating role of PBC would be generalized to other behavioral domains and other cultural contexts. To advance understanding of cheating via the TPB lens, the study further explores the boundary conditions under which the moderating role of PBC is (un)likely, with a focus on the individualism-collectivism orientations.

Individualism-collectivism orientations

In the original formulation by Hofstede (1980) on the national level, individualism-collectivism orientations are the opposite poles of one continuum that distinguish how people from different cultural backgrounds define themselves in relation to others in the groups. Individualism is characteristic of self-independent from others, while collectivism illustrates self-interdependent on others. Major following studies not only went beyond using the nation as the unit of analysis and recognized the importance of applying individualism-collectivism orientations to indicate the psychological process of self on the individual level (Markus & Kitayama, 1991) but also introduced the horizontal (emphasizing equality among people) and vertical dimensions (emphasizing inequality and hierarchy) into the binary individualism-collectivism constructs (Singelis et al., 1995; Triandis & Gelfand, 1998). With the inclusion of the horizontal-vertical dimensions, four orientations are yielded: horizontal individualism (HI), vertical individualism (VI), horizontal collectivism (HC), and vertical collectivism (VC).

Specifically, people with HI orientation value self-reliance; they like to mind their own things but are not especially interested in having a higher status than others. People with VI orientation also value self-independence but tend to value personal achievement and like

to become distinguished via competition with others. People with HC orientation perceive themselves as interdependent and similar to others in the groups but do not feel subordinate to others. People with VC orientation also value interdependence on others but accept the existence of inequality in status; they incline to submit to the authorities and sacrifice for the benefit of the groups (Singelis et al., 1995; Triandis & Gelfand, 1998).

Multiple core values have been reported to closely relate to the four individualism-collectivism orientations (Oishi et al., 1998; Soh & Leong, 2002). For instance, individualism relates to one's independence of thought and action, while collectivism relates to conformity to social expectations; further, the horizontal dimension reflects a tendency of understanding and protection for the welfare of all people, while the vertical dimension relates to the pursuits of social status and personal success. These core values are deeply intertwined with one's self-concepts and contribute to understanding the psychological process of self (Oishi et al., 1998).

Academic cheating, individualism-collectivism orientations, and the TPB

Research of academic cheating has involved discussion of individualism-collectivism to various extents. Notably, researchers have tended to resort to the characteristics of the contrasting individualism-collectivism backgrounds for plausible explanations of differences in cheating (Lin & Wen, 2007; McCabe et al., 2008). In contrast, few studies have directly included the individualism-collectivism orientations as studied variables in the prediction of cheating (Martin, 2011; Thomas, 2017; Zhang & Yin, 2020; Kasler et al., 2021). Extant studies seem to convincingly propose cultural differences in cheating. However, no identifiable pattern appears to indicate either individualistic or collectivistic orientations are more closely related to (which subtype of) academic cheating.

The theoretical formulations of individualism-collectivism and TPB are both rooted in one's perceived significance of certain values, which to an extent serves our proposed associations between the individualism-collectivism orientations and the TPB constructs in the ethical domain of academic cheating. It is logical to speculate that the instilled cultural values may function as a compass orienting students' understanding and practice of standards of appropriate academic behaviors.

Specifically, as for ATT, attitudinal differences in academic cheating concerning cultural backgrounds have been reported. For instance, compared to students from individualistic cultures, those from collectivistic cultures are found to hold a more lenient attitude towards some cheating behaviors (i.e., collaborative cheating involving helping another student) (Lin & Wen, 2007; McCabe et al., 2008). As for SN, participants from collectivistic cultures scored higher on SN related to academic cheating (Chudzicka-Czupała et al., 2016). This finding seems reasonable given the core values of interpersonal bonds and conformity that characterize the collectivist orientations (Fukushima et al., 2009). Besides, the tendency of deference to authority in Chinese society has been pointed out (Zhai, 2017). Given our focus on the normative influence of authoritative others, it appears reasonable to suggest the relevance of collectivism with SN. As for PBC, considering the association between collectivism and the inclination of rule compliance to avoid deviant behaviors (Kobayashi et al., 2001), it is also logical that PBC may be relevant to the individualism-collectivism orientations since PBC indicates beliefs about whether to comply with

administrative rules. In sum, the discussed potential relevance suggests that the individualism-collectivism orientations may function as boundary conditions that influence inclination toward academic cheating as formulated by the TPB.

The study

Extant literature suggests the necessity and plausibility to investigate whether the interactions of PBC with ATT and SN within the TPB exist and how these interactions may be conditioned on the individualism-collectivism orientations in the prediction of academic cheating. Given the insufficient and inconclusive evidence, we address two general research questions instead of specifically hypothesizing associations between the studied variables: (1) would PBC moderate the effects of ATT and SN on cheating? (2) Would the four individualism-collectivism orientations (i.e., HI, VI, HC, and VC) further moderate the moderating effects of PBC? These two questions together form a moderated moderation model, a subtype of three-way interactions (Hayes, 2013; Lam et al., 2019). Figure 1 shows the conceptual model of the study.

[insert Fig. 1 about here]

The fact that we used active cheating on exams as the outcome variable requires explanations. Based on the two broad types of assessment, academic cheating behaviors are categorized into plagiaristic behaviors in written coursework and cheating on exams. It is suggested that plagiarism and cheating on exams may have different driving mechanisms (Passow et al., 2006; Krou et al., 2020).

Contrary to the assumption of intentionality in TPB, it is argued and supported that unintentional plagiarism due to students' insufficient mastery of proper academic practice is likely to occur (Ellery, 2008; Gallant & Rettinger, 2022). In Chinese universities, little administrative attention has been paid to plagiarism in daily coursework that occurs in an out-of-class context; however, exams are often in-class and rigorously surveilled (Zhang et al., 2018). These contrasting situations may indicate differences in students' perceived control over conducting the two types of cheating. These were the considerations driving us to exclude plagiarism from the study. As for cheating on exams, active cheating refers to behaviors that are purposefully initiated by one (i.e., copying others' answers), while passive cheating indicates behaviors that are responsive to others (i.e., letting others copy) (Eisenberg, 2004). We focused on active cheating on exams to further exclude the influence of unclear intentionality.

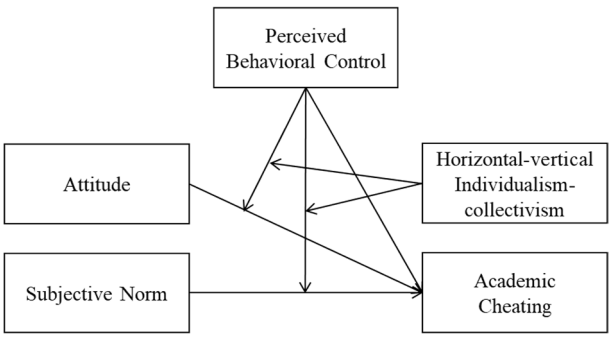


Fig. 1 The conceptual model of the study

Methods

Participants and procedures

The study was part of a large-scale research project on undergraduate academic integrity in China, through which we collected paper-based questionnaire survey data from 2293 Chinese undergraduate students (Zhang & Yin, 2020). To enhance the representativeness, when making decisions about the data collection sites, we expected the sample to reflect the prestige hierarchy of the Chinese higher education system and consist of undergraduates from various areas of study. However, this sample was convenient, given we obtained access to participants via our research team members' personal contacts who were then working in 35 Chinese higher education institutions. Ethical approval of this survey was obtained from the institution where the author of the study is working.

During the data collection, we mailed 3000 copies of questionnaires to our contacts, who helped distribute the survey to undergraduates in their universities during regular class hours. Before the survey, all participants were informed of the principle of voluntary and anonymous participation, which was written in the survey instructions and orally emphasized by our contacts. Each participant received a roller pen as an appreciation for their help.

By the end of the survey, 2453 copies of the questionnaire were mailed back to us. We screened each participant's responses and checked for obvious incomplete and/or patterned answers (e.g., continuously ticking the same value on more than 10 items). A total of 2293 valid copies remained. Influenced by our contacts' access to participants, the number of valid cases for each of the 35 institutions ranged from 24 to 184.

Of this sample, there were 1346 females and 947 males: 600 freshmen, 676 sophomores, 910 juniors, and 107 seniors. There were 625 participants from 10 prestigious institutions (i.e., specially funded by the Chinese government through Project 985 and Project 211) with high selectivity in undergraduate enrolment and 1668 participants from the other 25 less prestigious institutions. There were 1045 participants studying in soft disciplines (i.e., Chinese literature, sociology, and history) and 1248 in hard disciplines (i.e., computer science, mechanical engineering, and automation).

Measures

Academic cheating was assessed with three items adapted from prior studies (McCabe & Trevino, 1997; Zhang et al., 2018; Zhang & Yin, 2020). These items described common cheating behaviors on exams that are actively initiated by one: (a) looking at another student's test answers with his/her permission; (b) peeking at another student's test answers; (c) using forbidden materials and/or equipment (i.e., crib notes and cell phone). Participants reported the frequencies with which they engaged in these three behaviors during college on a 5-point Likert scale (1 = never do so, 2 = once or twice, 3 = occasionally, 4 = quite often, and 5 = very often). Cronbach's α is 0.85 and listed in Table 1. A high score indicates a high level of academic cheating.

Attitude towards cheating (ATT) was measured with three items. Participants indicated their opinions on a 5-point Likert scale (1= immoral, 5 = moral) about the extent of the morality of each of the three cheating behaviors on exams described above. Cronbach's α is 0.93. A high score suggests a favorite attitude towards cheating.

Table 1 Descriptive statistics, Pearson's correlation, and reliability coefficient

		1	2	3	4	5	6	7	8	9	10	11	12	13
1	Gender													
2	Year of study	.01												
3	Area of study	−.33**	−.10**											
4	Institution prestige	.23**	−.08**	−.17**										
5	Overall grade	−.19**	.12**	−.10**	.021									
6	Horizontal individualism	.05*	.05*	−.02	−.08**	−.10**	(.80)							
7	Vertical individualism	−.10**	.05*	.08**	−.11**	−.10**	.47**	(.61)						
8	Horizontal collectivism	.06**	.02	.02	−.04*	−.08**	.58**	.43**	(.78)					
9	Vertical collectivism	.04*	.02	−.04	.05*	−.06**	.25**	.24**	.37**	(.68)				
10	Attitude	−.08**	.03	.04*	.05*	−.07**	−.20**	−.11**	−.20**	−.07**	(.93)			
11	Subjective norm	−.06**	.02	.02	.07**	.06**	−.28**	−.21**	−.34**	−.17**	.28**	(.83)		
12	Perceived behavioral control	−.07**	.05*	.04	.10**	.04	−.39**	−.25**	−.46**	−.17**	.33**	.54**	(.75)	
13	Academic cheating	−.16**	.03	.07**	.11**	−.14**	−.14**	.01	−.11**	.01	.27**	.20**	.25**	(.85)
	Mean	.59	.44	.54	.73	2.32	3.97	3.49	3.94	3.47	1.80	1.91	1.75	1.58
	Standard deviation	.49	.50	.50	.45	.71	.70	.74	.69	.92	1.08	.93	.71	.84

*$p < .05$, **$p < .01$, two-tailed; Cronbach's α coefficients in parentheses

Subjective norm (SN) was assessed with three items that described perceived expectations of honesty on exams from authoritative significant others (i.e., teachers and parents) (Koljatic et al., 2003; Simkin & McLeod, 2009; Zhang et al., 2018): for example, "being caught cheating on exams would hurt my parent's feelings" and "being caught cheating on exams would disappoint college teachers who know me." As a subtype of social norm, it should be noted that these measures of SN reflected the student's perceived injunctive norm (i.e., a norm learned by perceiving social expectations of whether to perform a behavior) rather than the descriptive norm (i.e., a norm learned by observing others' behavior as acceptable) (Rajah-Kanagasabai & Roberts, 2015; Curtis et al., 2018). Participants' responses on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree) were reverse-coded. Cronbach's α is 0.83. A high score indicates perceived social expectations supportive of cheating.

Perceived behavioral control (PBC) was measured with five items that described the perceived severity of penalty and rigidity of enforcement against cheating on exams on campus (Zhang et al., 2018). For example, "my course instructors often take a zero-tolerance stance and report cheating on tests." and "I should stick to the rule of integrity on exams to avoid severe punishment." Participants' responses on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree) were reverse-coded. Cronbach's α is 0.75. A high score indicates high perceived easiness of cheating.

Individualism-collectivism orientations were assessed with a reduced 16-item version of the four-factor horizontal-vertical individualism-collectivism scale that has been validated in our prior study (Singelis et al., 1995; Triandis & Gelfand, 1998; Zhang & Yin, 2020). Participants indicated their levels of agreement with the statement of each item on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). Cronbach's α of the whole scale is 0.86, and the α values for the subscales of HI, VI, HC, and VC are 0.80, 0.61, 0.78, and 0.68, respectively.

Five demographic variables were controlled: gender, year of study, area of study, college prestige, and grade. These variables were coded as binary variables in the analyses: (a) gender—male = 0 and female =1; (b) year of study—years 1 and 2 = 0 and years 3 and 4 = 1; (c) soft discipline = 0 and hard discipline = 1; (d) prestige institution = 0 and average institution = 1; and (e) overall grade during college—1 = poor and 4 = excellent.

Data analysis

After data screening and deletions of cases with invalid responses, we conducted a missing value analysis using SPSS 22. The result suggested that no variable had missing values greater than 5%. The expectation–maximization (EM) method was used to impute the missing values.

To separately respond to the two research questions, following proper guidance (Aiken & West, 1991), we initially performed hierarchical multiple ordinary least square regression analysis in response to the first research question about the joint effects of PBC with ATT and SN on academic cheating. Then, we adopted PROCESS macro for SPSS for further three-way interaction analyses. Model 3 of PROCESS, a moderated moderation model (Lam et al., 2019), fits the conceptual framework well and was allowed for respective testing of how the inclusions of a higher-order moderator (i.e., the four individualism-collectivism orientations) may influence the joint effects of PBC with ATT and SN on academic cheating.

Before reporting the regression results, we checked the preliminary assumptions of multiple linear regression, including multivariate normality, linearity, and the homogeneity of regression standardized residual (Osborne & Waters, 2002). Finally, we plotted significant interactions and conducted simple slope and slope differences tests to interpret the interactions (Dawson & Richter, 2006).

Results

Descriptive statistics and correlations

Descriptive statistics, Pearson's correlations, and scale reliabilities are listed in Table 1. The three TPB constructs are positively correlated with academic cheating and their correlations with the four individualism-collectivism orientations are negative. HI and HC are negatively correlated with academic cheating. Significant correlations of the five controlled variables with the major studied variables are reported; therefore, they are controlled as covariates in all the following analyses.

The moderation of PBC with ATT and SN on academic cheating

In responding to the first research question, we used a 3-step hierarchical linear regression analysis to test the moderating effect of PBC with ATT and SN on AC. Following proper guidance (Aiken & West, 1991), interaction terms, calculated with mean-centered PBC, SN, and ATT, entered the model in the final step.

Before reporting the regression results, we checked whether the assumptions of linear regression were violated (Osborne & Waters, 2002). The normal probability plot and the scatterplot of the regression standardized residual suggest that the multivariate normality, linearity, and homoscedasticity are verified. As Table 2 displays, the Durbin-Watson value (DW = 1.980) approaches 2; thus, there are no significant correlations between the residuals. The collinearity statistics yielded in the model from the final step are summarized in Table 2. The tolerance value is expected to be above 0.1 and the variance inflation factor (VIF) value below 10. Given the reported ranges of tolerance value (ranging from 0.564 to 0.961) and VIF value (ranging from 1.041 to 1.774), the regression model does not subject to multicollinearity. In sum, our research data met the assumptions of regression.

The regression results are listed in Table 2. Beyond the influence of controlled variables, ATT ($b = 0.142$, $p < .01$), SN ($b = 0.046$, $p < .05$), and PBC ($b = 0.157$, $p < .01$) together contribute to 8.0 % of the variance of academic cheating. In the final step, a negative PBC and SN interaction is reported, while the PBC and ATT interaction is insignificant, which together explains 0.6% of the variance of cheating.

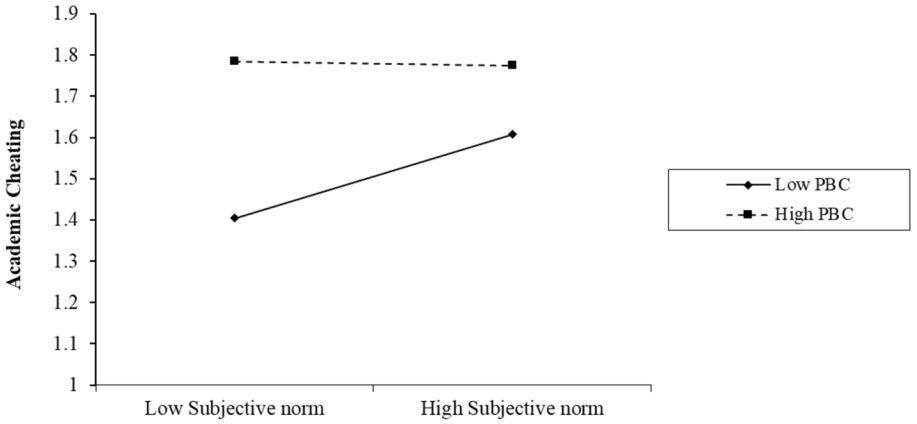
To help interpret the pattern of PBC and SN interaction, we plotted Fig. 2 to illustrate the relation between SN and cheating at high and low values (±1 SD of mean) of PBC. As suggested by Aiken and West (1991), the simple slope tests indicate that the effect of SN on cheating is more positive under the condition of low PBC ($b = 0.11$, $p < .001$) rather than high PBC ($b = -0.01$, $p = 0.83$).

Table 2 Regression results predicting academic cheating with PBC as moderator

Step	Variables	B (SE)[a]	Beta[a]	B (SE)[b]	Beta[b]	ΔF	ΔR^2	Collinearity statistics[b]	
								Tolerance	VIF
1	Gender	−.24** (.04)	−.14**	−.24** (.04)	−.14**			.818	1.222
	Year of study	.08* (.03)	.05*	.07* (.03)	.04*			.961	1.041
	Area of study	.04 (.04)	.03	.04 (.04)	.02			.866	1.155
	Institution prestige	.24** (.04)	.13**	.23** (.04)	.12**			.907	1.103
	Overall grade	−.11** (.02)	−.10**	−.11** (.02)	−.09**	32.53**	.066	.940	1.064
2	ATT	.142** (.02)	.183**	.138** (.02)	.179**			.856	1.168
	SN	.046* (.02)	.051*	.052* (.02)	.058*			.689	1.451
	PBC	.157** (.03)	.132**	.194** (.03)	.164**	71.38**	.080	.564	1.774
3	ATT*PBC			.02 (.02)	.03			.715	1.400
	SN*PBC			−.08** (.02)	−.09**	7.93**	.006	.809	1.236
	Accumulated R^2						.152		
	Durbin-Watson value = 1.980								

Unstandardized coefficients (standard error) and standardized coefficients from the model of step 2 (a) and step 3 (b); collinearity statistics (tolerance value and variance inflation factor value) from the model of step 3 (b)

*$p < .05$, **$p < .01$, two-tailed; $N = 229$



Slope	Gradient of simple slope	p-value of simple slope
(- 1SD) Low PBC	0.11	0.00
(+ 1SD) High PBC	-0.01	0.83

Fig. 2 Interaction between subjective norm and perceived behavioral control (PBC) on academic cheating

The moderated moderation of PBC with ATT and SN by individualism-collectivism orientations

To test the moderated moderation model proposed in the second research question, we used Model 3 of PROCESS (Hayes, 2013). We conducted eight analyses of the moderated moderation of PBC with SN and ATT by the four individualism-collectivism orientations, respectively, with five covariates controlled and continuous predictors mean-centered. Results for SN and ATT are summarized in Tables 3 and 4, respectively. The results of the three-way interaction terms suggest that HI and HC significantly interact with the joint effect of PBC with SN and ATT.

To help interpretations, we plotted the four significant three-way interactions at high and low values (±1 SD of mean) of HI and HC. For a more specific understanding of the interaction patterns, we conducted simple slope tests and further performed post hoc slope difference tests as guided by Dawson and Richter (2006). Figures 3 and 4, respectively, depict the moderating effect of HI and HC with PBC and SN, while Figs. 5 and 6, respectively, illustrate that with PBC and ATT.

In Fig. 3, regarding the moderating effect of HI, for students with low HI, SN is related to cheating under the condition of low PBC ($b = 0.15$, $p < 0.001$) rather than high PBC ($b = -0.01$, $p = 0.68$); further, the two slopes differ significantly from each other (slope difference $= -0.16$, $p < 0.001$); for students with high HI, the interaction

Table 3 Moderated moderation of PBC with SN on academic cheating by the individualism-collectivism orientations (as moderators)

	Moderator			
	HI	VI	HC	VC
	B (SE)	*B* (SE)	*B* (SE)	*B* (SE)
Predictors				
SN	.08** (.02)	.08** (.02)	.08** (.02)	.08** (.02)
PBC	.23** (.03)	.27** (.03)	.25** (.03)	.26** (.03)
SN*PBC	−.07** (.03)	−.07** (.03)	−.07** (.03)	−.07** (.02)
Moderator	−.07* (.03)	.09** (.03)	−.00 (.03)	.05* (.02)
SN*moderator	.01 (.03)	−.01 (.03)	−.00 (.03)	−.03 (.02)
PBC*moderator	−.14** (.04)	.01 (.04)	−.08 (.04)	.05 (.03)
*SN*PBC*moderator*	*.06** (.02)*	−.01 (.03)	*.04* (.02)*	−.00 (.02)
Covariates				
Gender	−.25** (.04)	−.24** (.04)	−.25** (.04)	−.25** (.04)
Year of study	.08* (.03)	.07* (.03)	.08* (.03)	.08* (.03)
Area of study	.05 (.04)	.04 (.04)	.05 (.04)	.05 (.04)
Institution prestige	.24** (.04)	.25** (.04)	.24** (.04)	.24** (.04)
Overall grade	−.12** (.02)	−.13** (.02)	−.12** (.02)	−.12** (.02)
F value	28.54**	28.11**	27.24**	27.56**
R^2	.131	.129	.125	.127

Italic items indicate significant moderated moderation by horizontal individualism and collectivism

*$p < .05$, **$p < .01$, two-tailed; $N = 2293$

Table 4 Moderated moderation of PBC with ATT on academic cheating by the I individualism-collectivism orientations (as moderators)

	Moderator			
	HI	VI	HC	VC
	B (SE)	*B* (SE)	*B* (SE)	*B* (SE)
Predictors				
ATT	.15** (.02)	.15** (.02)	.15** (.02)	.15** (.02)
PBC	.18** (.03)	.23** (.03)	.21** (.03)	.21** (.03)
ATT*PBC	.02 (.02)	.01 (.02)	.01 (.03)	.01 (.02)
Moderator	−.04 (.03)	.09** (.02)	.01(.03)	.05* (.02)
ATT*moderator	−.04 (.02)	−.07** (.02)	−.06 (.03)	−.04* (.02)
PBC*moderator	.00 (.03)	.07* (.03)	.04 (.03)	.06* (.03)
*ATT*PBC*moderator*	*.05** (.02)*	.03(.02)	*.04* (.02)*	.01 (.02)
Covariates				
Gender	−.23** (.04)	−.22** (.04)	−.24** (.04)	−.24** (.04)
Year of study	.08* (.03)	.07* (.03)	.08* (.03)	.07* (.03)
Area of study	.04 (.04)	.03 (.04)	.04 (.04)	.04 (.04)
Institution prestige	.24** (.04)	.25** (.04)	.24** (.04)	.24** (.04)
Overall grade	−.11** (.02)	−.13** (.02)	−.11** (.02)	−.11** (.02)
F value	33.11**	35.29**	33.22**	33.73**
R^2	.148	.157	.149	.151

Italic items indicate significant moderated moderation by horizontal individualism and collectivism

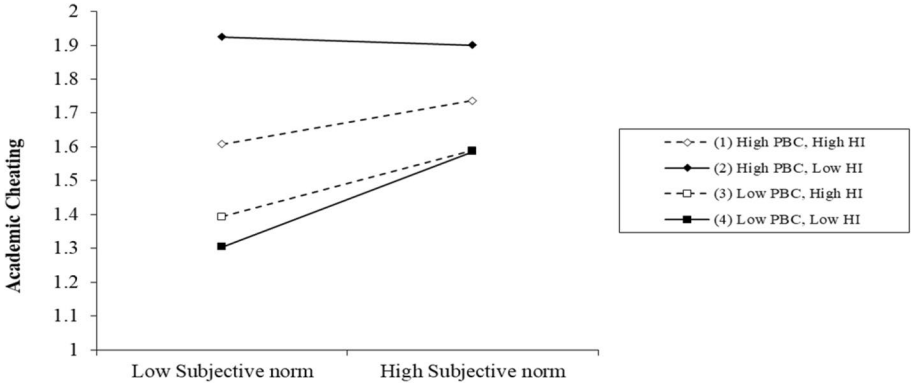
*$p < .05$, **$p < .01$, two-tailed; $N = 2293$

between SN and PBC mirrors the pattern under the condition of low HI, yet differences between the two slopes are insignificant (slope difference = −0.04, $p = 0.42$).

In Fig. 4, the moderating effect of HC reflects the overall pattern of HI, in that the effect of SN on cheating is more positive at low PBC ($b = 0.15$, $p < 0.001$) rather than at high PBC ($b = 0.02$, $p = 0.62$), and this is the case only under the condition of low HC (slope difference = −0.14, $p < 0.001$). In short, under the conditions of low (rather than high) HI and HC, the positive effect of SN on cheating is strengthened by low (rather than high) PBC.

In Fig. 5, under the condition of high HI, the effect of ATT is stronger at high PBC ($b = 0.17$, $p < 0.001$) than at low PBC ($b = 0.08$, $p = 0.005$); however, the difference between these two slopes is insignificant (slope difference = 0.08, $p = 0.07$); similarly, under the condition of low HI, the slope at high PBC ($b = 0.17$, $p < 0.001$) does not significantly differ from that at low PBC ($b = 0.19$, $p < 0.001$) (slope difference = −0.02, $p = 0.56$). However, it is noted that under the condition of low (rather than high) PBC (slopes 3 and 4 in Fig. 5), ATT is more strongly related to cheating at low HI ($b = 0.19$, $p < 0.01$) than at high HI ($b = 0.08$, $p < 0.01$) (slope difference = −0.10, $p < 0.01$). These results suggest that our speculation of HI as a moderator of the joint effect of PBC and ATT is not supported; on the contrary, it is the joint effect of ATT and HI that depends on the levels of PBC.

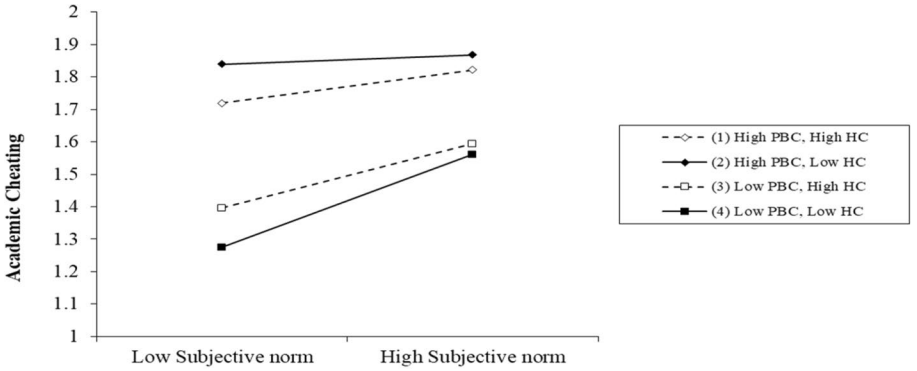
Similarly, in Fig. 6, the moderating role of HC is not supported; however, under the condition of low (rather than high) PBC, the effect of ATT is stronger at low HC ($b = 0.21$, $p < 0.01$) than at high HC ($b = 0.08$, $p < 0.01$) (slope difference = −0.13, $p < 0.01$). In



Slope	Simple slope test	Pair of slopes	Slope difference test
(1)	0.07	(1) and (2)	0.08
(2)	-0.01	(1) and (3)	-0.04
(3)	0.11**	(1) and (4)	-0.08
(4)	0.15**	(2) and (3)	-0.12*
		(2) and (4)	-0.16**
		(3) and (4)	-0.05

Note: Gradient of simple slope and paired slope difference reported; * p < .05, ** p < .01, 2-tailed.

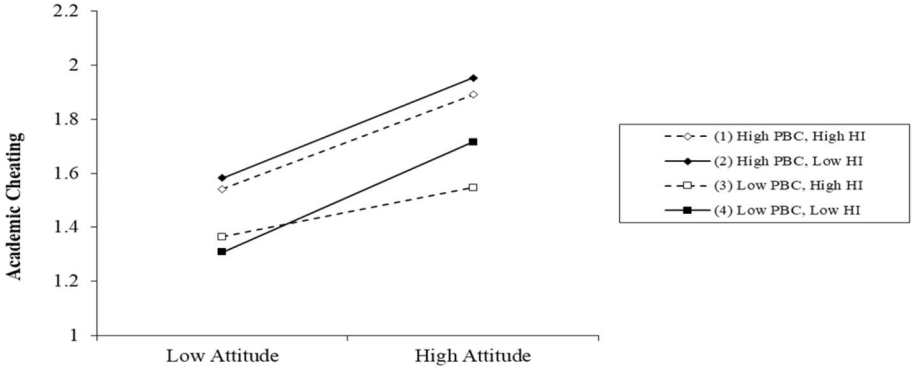
Fig. 3 Moderating effect of horizontal individualism (HI) on the interaction between subjective norm and perceived behavioral control (PBC) on academic cheating



Slope	Simple slope test	Pair of slopes	Slope difference test
(1)	0.06	(1) and (2)	0.04
(2)	0.02	(1) and (3)	-0.05
(3)	0.11**	(1) and (4)	-0.10
(4)	0.15**	(2) and (3)	-0.09*
		(2) and (4)	-0.14**
		(3) and (4)	-0.05

Note: Gradient of simple slope and paired slope difference reported; * p < .05, ** p < .01, 2-tailed.

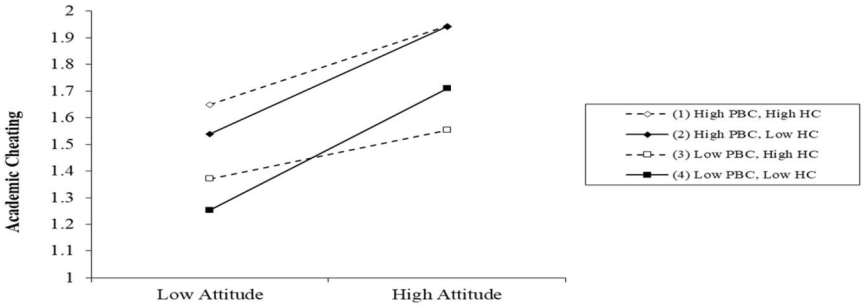
Fig. 4 Moderating effect of horizontal collectivism (HC) on the interaction between subjective norm and perceived behavioral control (PBC) on academic cheating



Slope	Simple slope test	Pair of slopes	Slope difference test
(1)	0.16**	(1) and (2)	-0.01
(2)	0.17**	(1) and (3)	0.08
(3)	0.08**	(1) and (4)	-0.03
(4)	0.19**	(2) and (3)	0.09*
		(2) and (4)	-0.02
		(3) and (4)	-0.10**

Note: Gradient of simple slope and paired slope difference reported; * p < .05, ** p < .01, 2-tailed.

Fig. 5 Moderating effect of horizontal individualism (HI) on the interaction between attitude and perceived behavioral control (PBC) on academic cheating



Slope	Simple slope test	Pair of slopes	Slope difference test
(1)	0.14**	(1) and (2)	-0.05
(2)	0.19**	(1) and (3)	0.05
(3)	0.08**	(1) and (4)	-0.08
(4)	0.21**	(2) and (3)	0.10**
		(2) and (4)	-0.03
		(3) and (4)	-0.13**

Note: Gradient of simple slope and paired slope difference reported; * p < .05, ** p < .01, 2-tailed.

Fig. 6 Moderating effect of horizontal collectivism (HC) on the interaction between attitude and perceived behavioral control (PBC) on academic cheating

short, under the condition of low (rather than high) PBC, the positive effect of ATT is more strongly strengthened by low (rather than high) HI and HC.

To sum up, it is argued that "the significance of the three-way interaction term indicates that the relation between X and Y varies across levels of Z, W, and/or the combination of

Z and W" (Dawson & Richter, 2006, p. 917). A pattern emerges from comparing the four significant three-way interactions: the positive effects of ATT and SN on academic cheating are stronger under the conditions of a combination of low (rather than high) PBC with low (rather than high) HI and HC, respectively.

Discussion

The moderating effects of PBC with SN and ATT on academic cheating

Regarding the first research question, the results reveal that, beyond the main effects of the controlled variable and the three TPB constructs, the moderating effect of PBC is significant in the prediction of cheating from SN, whereas insignificant on the influence of ATT on academic cheating. More discussions of these findings are below.

The results reveal significant and positive main effects of ATT, SN, and PBC on cheating, while the effect size of PBC is the largest, followed by ATT and SN in sequence. These findings are consistent with some prior studies (Beck & Ajzen, 1991; Stone et al., 2010) and coincide with the basic theoretical assumptions of the TPB. It is argued that the barriers to behaviors are likely to render PBC a better predictor than ATT and SN (Ajzen, 1991; Stone et al., 2010). However, the relatively low amount of total variance of cheating explained by the TPB constructs ($\Delta R^2 = 8.0\%$) is noted. A plausible reason for this result is that we used self-reported cheating behavior as the outcome variable instead of intention to cheat, because researchers have pointed out (Beck & Ajzen, 1991; Armitage & Conner 2001; Ajzen, 2011) that the overall efficacy of TPB is higher in the prediction of intentions than of actual (cheating) behaviors.

It is noted the main effect of SN is marginal relative to that of ATT and PBC, which is consistent with some prior studies (Zhang et al., 2018; Hendy & Montargot, 2019; Uzun & Kilis, 2020; Yu et al., 2021) and coincides with the observation that SN often has relatively small effect size in the TPB (La Barbera & Ajzen, 2020). This result does not indicate the unimportance of SN. On the contrary, a significant and negative interaction between PBC and SN is reported in the study, which is consistent with some prior studies (La Barbera & Ajzen, 2020, 2021). Simple slope tests indicate that the positive effect of SN is enhanced under the condition of low (rather than high) PBC. In light of this interaction, when the perceived chance of being caught and punished is high (i.e., low PBC), students seem more susceptible to the integrity expectations from authoritative significant others (i.e., teachers and parents) on their decisions to cheat; in contrast, when their perceived control over cheating is high, the function of normative pressure in inhibiting cheating becomes diminished and insignificant. This interaction highlights the importance of targeting normative and administrative interventions at the same time.

The critical role of ATT in the prediction of cheating is also supported in our study (Yang, 2012; Zhang et al., 2018; Hendy & Montargot, 2019; Yu et al., 2021). Yet the interaction between PBC and ATT is positive yet insignificant. The insignificant interaction suggests that when students' moral evaluation of active cheating on exams is sufficiently negative, they may not cheat regardless of perceived difficulty or ease of cheating, since their salient concern is the integrity responsibility rather than evaluating and avoiding penalty (Miller et al., 2011).

Except for the study of La Barbera and Ajzen (2021), the positive yet insignificant PBC and ATT interaction is inconsistent with other prior related studies (Conner & McMillan,

1999; Hukkelberg et al., 2014; Kothe & Mullan, 2015; Yzer & van den Putte, 2014). It is speculated that the insignificant or small effect size of interaction between the TPB constructs may partially result from the situation of observed data not being able to cover the whole range of scale (Ajzen, 2002; La Barbera & Ajzen, 2021). In light of this explanation, the fact that we measured ATT singularly from the moral perspective (i.e., moral vs. immoral) may contribute to a relatively skewed data distribution of ATT (i.e., on a 5-point Likert scale, the mean and mode for ATT are 1.80 and 1.00 respectively) thus to an insignificant PBC and ATT interaction. A recent study by Kam et al. (2020) via the TPB lens reported that students' ATT towards cheating is a multi-faced construct that contains three subdimensions—conservativeness in cheating accusation (i.e., perceptions of the degree to which a teacher should be careful in judging the existence of cheating), justification of cheating (i.e., perceptions of the degree to which cheating is justifiable due to the unfair examination system), and perceived immorality of cheating students (i.e., perceptions of the degree to which cheating students are immoral). To more fully capture the essence of ATT towards cheating, as Kam et al. (2020) suggested, future studies may include the multiple subdimensions of ATT, rather than merely measure students' perceived degree of unfavorability of cheating to form a single score as most of the prior studies did (i.e., Beck & Ajzen, 1991).

The moderated moderation of PBC with SN and ATT by individualism-collectivism orientations

Regarding the second research question, a series of moderated moderation analyses revealed that among the four individualism-collectivism orientations, HI and HC significantly interact with the joint effects of PBC with SN and ATT. Simple slope and slope difference tests identify a pattern from the four significant three-way interactions: the positive effects of ATT and SN on academic cheating are stronger under the conditions of a combination of low PBC with low HI and HC, respectively. This pattern suggests that for students with low HI and HC orientations, when they perceive rigorous surveillance and penalty against cheating on exams on campus (i.e., low PBC), they may also seem more inclined to base on personal moral evaluations and normative expectations of authoritative others to make decisions to cheat. This pattern provides evidence for the necessity of distinguishing the horizontal and vertical dimensions, in contrast to utilizing the binary individualism-collectivism constructs as conceptual tools for explaining complicated behaviors such as academic cheating.

The individualism-collectivism orientations serve as a source of one's fundamental values that are often subtly related to behaviors. To explain the above pattern, it is likely that certain core values inherent to HI and HC may operate jointly with other forms of values in their influences on behavioral inclinations. Under the circumstances of the study, given the core values characterizing the horizontal dimension (i.e., highlighting equality, indicating fewer concerns for status, and valuing the welfare of all people) (Oishi et al., 1998; Soh & Leong, 2002), the relatively low horizontal orientations for some students (i.e., low HI and HC) may render them more susceptible to the influences of values with an authoritative nature, such as abiding administrative policies of integrity (i.e., PBC), following the moral rule of being honest (i.e., ATT), and living up to the integrity expectations of teachers and parents (i.e., SN).

The above explanation is especially illustrated by a noticeable finding in the study, that is, the inclusion of HI and HC made the insignificant interaction between PBC and ATT become a significant three-way interaction. This finding suggests that attitudinal beliefs about cheating are vital and changeable (Yu et al., 2021), since they are not only related to a sense of behavioral efficacy but also to one's more fundamental values. It may be

suggested that fine-grinded evidence is needed to understand the influences of more specific core values of culture on cheating beyond the overarching yet relatively simplified framework of four individualism-collectivism orientations.

Limitations

Five limitations of the study are noted. The first limitation is that we used cheating behavior as the outcome variable and did not include cheating intention, which led to the situation of not being able to test the moderating role of PBC in a complete TPB framework. Future research may include all the TPB constructs and explore the potential interactions among the TPB constructs. The second limitation is the correlational nature of the study. Future research with an experimental design that manipulates the levels of PBC and compares its changing moderating effects may be valuable (La Barbera & Ajzen, 2020). The third limitation lies in the fact that our study was restricted to the Chinese context, despite the recognized approach of using the individualism-collectivism orientations as individual characteristics. Future studies with a cross-cultural design may conceivably substantiate the proposed cultural conditions of the moderating role of PBC in the prediction of cheating. The fourth limitation relates to the self-report method, because for an ethics-sensitive issue like academic cheating, participants' responses may be subject to social desirability bias (Schmelkin et al. 2008). One suggestion is to control for social desirability in the self-report survey (Dalton & Ortegren, 2011). Researchers are also advised to be cautious about how their subjective perceptions of academic cheating may impact the interpretations of analysis results. The fifth limitation is that our sample is convenient despite its relatively large size, which may restrict the generalizability of the results.

Summary of discussion

The study is explorative, given the scarce evidence for the moderating effect of PBC and its boundary conditions in the broad TPB literature and the academic cheating literature. The additional variance explained by interactions tends to be small yet important in exploring the boundary conditions of influence (Aiken & West, 1991). This point applies to our study, particularly to the higher-order three-way interactions, such that the relatively small effect sizes of interactions do not suggest our findings of the moderating roles of PBC, HI, and HC as trivial; in fact, these findings contribute to a nuanced understanding of using the TPB to guide academic cheating interventions.

Practical implications

The study has two practical implications. The first implication derives from the reported main and interactive effects of PBC. These results suggest that administrative measures with surveillant and punitive nature are still needed rather than disregarded. For instance, in a typical Chinese university, it is common to assign at least two faculty members as proctors of a final-term exam that often takes place in a classroom with a motoring camera in operation; meanwhile, severe cheating behaviors on exams (i.e., using a cell phone, taking exams for others) may cause students' being put on probation or even expelled. These measures may function as deterrence and increase students' perceived difficulty in cheating

without being caught or punished. Further, to increase effectiveness, these administrative measures should not be implemented as an "easy solution" that may provoke students' sense of being mistrusted (Rettinger & Kramer, 2009, p.310). Promisingly, these measures can be embedded, as a reinforcement component, in a "multivariable intervention" approach (Yzer & van den Putte, p.377), in which the attitudinal and normative influences of cheating are all targeted in a correlated way.

For instance, given the relatively large effect sizes of PBC and ATT and their positive association, it is advisable to focus on appealing to students' identification with the value of integrity, rather than simply emphasizing the negative outcomes of cheating, when one is communicating to students of the integrity policies. Also, given the interaction between PBC and SN, it is plausible to integrate the administrative measures, together with the integrity commitment from teachers and parents, into the creation of a normative atmosphere supportive of integrity. The authoritative nature of this atmosphere may help to change the cheating culture among peers on campus. Further, male participants, and those from less prestigious institutions and senior years, scored higher on PBC relative to their counterparts. Attention may be directed to these groups, thus enhancing the efficacy of the multivariable intervention approach that builds on decreasing students' perceived control over cheating.

The second implication is that to design and implement interventions against cheating, it is advisable to go beyond the concerns for behavioral change and take the influences of value orientations into account. Our findings especially support the importance of the horizontal dimensions of individualism-collectivism. In the study, HI and HC are negatively correlated with academic cheating and the TPB constructs and operate jointly with TPB constructs on their influences on academic cheating. Given the high level of education college students have, they are more horizontally- oriented than the overall population (Triandis & Gelfand, 1998; Chiou, 2001). It means they may be more likely to identify with the core values inherent to the horizontal dimensions (i.e., justice, equality, and welfare of others). Thus, it may be helpful for college administrators and teachers to address these core values when they attempt to communicate the principle of academic integrity to college students.

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Data Availability Academic cheating is an ethics-sensitive topic. To comply with our promise to the participants, the data we used cannot be openly available.

Declarations

Ethics approval This study involved human participants in the questionnaire survey. All the participants were fully informed of the voluntary nature of the survey before it begun.

Competing interests The author declares no competing interests.

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