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Original article

Linking cheating in school and corruption

Liens entre tricherie à l'école et corruption

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ABSTRACT

Introduction. – Previous research suggests a link between academic cheating and corruption. However, no prior empirical studies examined this link with cross-cultural data.

Objective. – The present study aims to fill this gap and it examines their link by considering cultural values such as in-group collectivism and economic background in terms of GDP per capita.

Method. – Self-reported data were collected regarding collaborative academic cheating. The database of Transparency International was used for assessing the level of perceived corruption, and the in-group collectivism data was derived from the GLOBE study. Structural equation modeling was used in order to identify their relationship pattern.

Results. – In the present study, using data from 40 countries, a strong relationship between self-reported academic cheating on exams and the country level of the corruption perception index was found. The present results also support evidence of a strong relationship between collaborative academic cheating and in-group collectivism in a sample comprising 30 countries. This link remains significant if GDP per capita, as an indicator of economic development, is controlled. However, path analysis showed that if both GDP per capita and in-group collectivism are considered, the link between corruption and cheating disappeared.

Conclusion. – These results suggest that GDP per capita as an economy-related background variable and in-group collectivism as a societal value have independent effect on collaborative cheating and perceived corruption and these broader background variables can diminish the strong link between collaborative cheating and perceived corruption.

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R É S U M É

Introduction. – Des travaux antérieurs (2009) ont montré l'existence d'une corrélation entre le favoritisme à l'égard de l'ingroup en lien avec le niveau de collectivisme du pays et le niveau de corruption. Néanmoins aucun travaux précédent à notre connaissance n'a fait l'étude comparative de différents pays.

Objectif. – Cette étude vise à combler ce manque en examinant les liens entre des variables culturelles, telles que le niveau de collectivisme et le PIB par habitant.

Méthode. – Des données auto-rapportées sur la tricherie à l'école ont été collectées. La base de données Transparency International a été utilisée pour évaluer le degré de perception de la corruption et les données de l'étude GLOBE ont permis de mesurer le degré de collectivisme (*in-group collectivism*). Le modèle d'équations structurelles a été utilisé pour identifier les types de relations.

Mots clés :

Tricherie collective à l'école

Corruption

PIB par habitant

Collectivisme

Ingroup

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Résultats. – Ainsi, à partir des données de 40 pays, nous avons pu mettre en évidence la présence d'une relation forte entre les déclarations de tricheries à l'école et le niveau de l'indice de perception de la corruption du pays d'origine ($r = 0,54$). Les résultats ont aussi montré la présence d'un lien important entre la tricherie à l'école et le favoritisme à l'égard de l'ingroup ($r = 0,61$). Ce lien reste significatif, y compris lorsque le PIB par habitant, comme indicateur du développement économique, est contrôlé. Néanmoins, une analyse en pistes causales a montré que si l'on prend en compte à la fois le PIB par habitant et le niveau du collectivisme (*in-group collectivism*), le lien entre le niveau de corruption du pays et la tricherie à l'école disparaît.

Conclusion. – Ces résultats suggèrent que le PIB par habitant et le collectivisme ont un effet sur la tricherie collective comme sur la perception de corruption.

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1. Introduction

Both collaborative cheating and corruption cause serious problems worldwide. There was a huge scandal in India in 2015 when parents and relatives tried to help their children cheat even by risking their own lives while climbing on the walls of the examination centers and bribing the policemen assigned to oversee these centers. Although not so blatantly, collaborative exam cheating, defined by McCabe, Trevino, and Butterfield (2001) as unpermitted collaboration among students on written assignments, still penetrates school systems worldwide. Corruption is another socially harmful practice with an estimated cost of 5% of global GDP, approximately 2.6 trillion USD (El-Sharkawy, Jarvis, & Petkoski, 2006); corruption can be defined as a “the abuse of entrusted power for private gain. Corruption can be classified as grand, petty and political, depending on the amounts of money lost and the sector where it occurs” (Transparency International, 2009a). It can entail the deliverance or acceptance of bribes or inappropriate gifts, double dealing, under-the-table transactions, election manipulation, fund diversions, and money laundering. The present study aimed to measure the link between collaborative cheating and corruption by considering the most important value-related and economic variables, namely in-group collectivism and GDP per capita.

Similarities between collaborative cheating in school and corruption include: (1) cooperation between two or more persons; (2) both are prohibited; (3) in both cases, participants are interested in hiding their behavior from authorities; (4) both violate the interest of the broader community and (5) in both cases, participants risk detection and potential punishment. The possibility of links between academic cheating and workplace dishonesty (Graves, 2008; Harding, Carpenter, Finelli, & Passow, 2004; Lawson, 2004; Nonis & Swift, 2001; Sims, 1993), as well as corruption has been suggested in previous studies (Ballantine, McCourt Larres, & Mulgrew, 2014; Crittenden, Hanna, & Peterson, 2009; Magnus, Polterovich, Danilov, & Savvateev 2002).

As a potential value-related variable within both corruption and collaborative academic dishonesty, in-group collectivism appeared to be a prime candidate. In-group collectivism reflects “the degree to which individuals express pride, loyalty, and cohesiveness in their organizations, families, circle of close friends, or other similar small groups to which they belong” (House, Hanges, Javidan, Dorfman, & Gupta, 2004). Countries characterized by high in-group collectivism have lower economic prosperity and lower scores on World Competitiveness Index (House et al., 2004). It thus appears that collectivism focused on smaller groups (as opposed to larger communities) leads to the malfunctioning of the society as a whole. However, the direction of causality is not clear. It is also possible that the “malfunctioning” of society promotes in-group collectivism. If social institutions, formal rules and state agencies cannot be trusted to function properly, it can be the small group and one's personal networks that the individual can rely upon.

Seleim and Bontis (2009) found a strong correlation ($r = .73$) between in-group collectivism and the pervasiveness of perceived corruption. Both corruption and collaborative cheating are per se collective forms of dishonesty in which using their previously established network, members of a smaller community (i.e. in-group) strive to obtain unfair advantages over individuals from the out-group (e.g., other classmates or the general public). In the present study, we expected to find results similar to Seleim and Bontis (2009) regarding the link between in-group collectivism and corruption. Nevertheless, we aimed to examine whether in-group collectivism is a good candidate as a possible value-related common denominator behind both corruption and collaborative academic cheating.

Several studies found that collectivism is one of the values that are clearly related to corruption. According to Hooper (1995), in Spain, there is a relationship between in-group favoritism and corruption. Furthermore, according to Banfield (1958), in Italy, favoritism for family members and bribe acceptance relate to each other. We suggest that a similar pattern can be expected between collaborative cheating and collectivism, especially in countries in which collectivism is restricted to smaller communities (families, close friends).

According to Hofstede (2001), it is important to take into consideration economic development and to “control” it in order to examine the effect of culture. Seleim and Bontis (2009) found relationships between corruption and in-group collectivism practices when they controlled GDP per capita as a macro-level indicator of economic development. Consequently, in the present study, it is expected that the relationship between in-group collectivism and collaborative academic cheating will be significant after controlling for GDP per capita. Furthermore, based on these results we suppose that besides in-group Collectivism, GDP per capita will be a predictor of corruption.

The present study aimed at assessing the strength of the relationship between the proportion of students who self-reported collaborative cheating during exams and perceived corruption. Based on previous studies (Ballantine et al., 2014; Crittenden et al., 2009; Magnus et al., 2002) we expected that collaborative academic cheating is an antecedent of perceived corruption. Furthermore, we aimed to identify a common denominator at the level of societal values – in terms of in-group collectivism practices – underlying both phenomena.

2. Methods

2.1. Literature search strategy

In order to gather the appropriate cheating-related articles reporting data on collaborative cheating frequencies, four online databases (Google Scholar, PsycINFO, Web of Science and ERIC) were used to conduct a literature search reviewing articles for published and unpublished articles on this topic, up until August 2015.

In order to find the maximum number of appropriate studies, two combinations of search terms were used: (1) “academic cheating” and “corruption”; and (2) “academic dishonesty” and “corruption”. In the case of unpublished papers, the authors were contacted and were asked to send a copy of their work. Following the comprehensive literature search, 410 empirical studies were identified and selected as a basis for this study.

2.2. Inclusion criteria

The inclusion criteria upon which the studies were selected were the following: (a) inclusion of close-ended survey data (resulting in 130 articles); (b) each country could be represented by a maximum of one study (121); (c) the percent of college or university students who self-reported collaborative, offline, academic cheating behavior during their studies (118); and (d) one article could not be translated. Duplicates were removed. After examining the collected articles, 40 remained in the final analysis, and they cover data from 39,905 college or university students on self-reported collaborative cheating (see [Table 1](#)).

2.3. Measures

2.3.1. Perceived corruption

Data regarding perceived corruption [Corruption Perception Index (CPI)] were obtained from Transparency International's website. The CPI is an aggregate indicator that measures the degree of perceived corruption among public officials and politicians in different countries. Data of CPI derives from reputable organizations such as the World Bank, World Economic Forum, Freedom House, etc. CPI's goal is the measurement of the overall extent of corruption (in terms of frequency and/or size of corrupt transactions) in the public and political sectors. It is measured on a 10-point scale, in which low numbers show the widespread and pervasive presence of corruption in a given-country, while high numbers reflect on the perceived transparency and lack of corruption ([Transparency International, 2009b](#)). When the exact date was not mentioned we took the year before publication from the CPI database in order to harmonize the data. This decision was made because CPI scores reflect on the two previous years. Therefore, in this way, CPI data were adjusted to the studies' data collection periods. If more than one study was carried out in a given-country, the average of the years was calculated to provide a point of reference.

2.3.2. In-group collectivism

In-group collectivism practices scores were obtained from [House et al.' data set \(2004\)](#) that includes 62 countries and 18,000 managers as respondents from different business sectors.

2.3.3. GDP per capita

Similarly to [Seleim and Bontis \(2009\)](#), data concerning the GDP per capita from The World Bank, 2010 constant value database ([The World Bank, 2010](#)), were used as a control variable to eliminate the effect of economic development that could potentially mask the impact of in-group collectivism. GDP per capita scores were adjusted to the years of the estimated year of data collection.

2.4. Statistical analyses

Based on prior work ([Maraz, Urbán, & Demetrovics, 2016](#)), path analysis within structural equation modelling (SEM) was used to test the proposed model with maximum likelihood estimation (ML). All models were fully saturated; therefore, the usual fit indices (χ^2 , CFI, RMSEA) of overall model fit were not applicable because of zero degrees of freedom. Descriptive analyses and Pearson product-moment correlation among continuous variables

were calculated using SPSS 22.0 statistical software package, and all SEM analyses were performed using AMOS21.

3. Results

[Table 1](#) includes the descriptive data that was used for further analyses. Strong correlation was found between CPI and the percentage of self-reported collaborative dishonesty $r_{N=38} = -.54$, $p < .001$, 95% CI: $-.73, -.27$: the lower the CPI score was (i.e., the more widespread corruption is) the higher the frequency of self-reported academic dishonesty (see [Fig. 1](#)). The percentage of self-reported collaborative academic cheating also strongly correlated with the in-group collectivism scores $r_{N=28} = .61$, $p < .001$, 95% CI: $.31, .80$: the higher the level of in-group collectivism, the higher the frequency of self-reported academic dishonesty. Even after controlling for the effects of GDP per capita (an indicator of economic development), the correlation between in-group collectivism and collaborative cheating remained significant $r_{N=25} = .46$, $p = .013$, 95% CI: $.07, .72$ ([Table 2](#)). Thus, our data suggests that in-group collectivism is strongly related to academic cheating independently of the economic development of the country. Therefore, the present results and those from [Seleim and Bontis \(2009\)](#) suggest that one potential value behind both self-reported collaborative cheating and corruption is in-group collectivism.

Assuming that in-group collectivism represents one of the most important cultural value variables and GDP per capita represents the overall economic condition of the measured countries, they can be considered as antecedents of both collaborative academic cheating and corruption. On the basis of the work from [Ballantine et al. \(2014\)](#), [Crittenden et al. \(2009\)](#) and [Magnus et al. \(2002\)](#), it can be assumed that academic cheating can also be a predictor of corruption. For this reason, we examined the relationship patterns between these variables with structural regression (path) analysis. The fully saturated model was estimated.

The economic- and value-related background variables were strongly related: higher GDP per capita is related to lower in-group collectivism. However, they have complementary effects on collaborative academic cheating and corruption. While collaborative cheating was only predicted by in-group collectivism, corruption was only predicted by GDP per capita. Most importantly, including these two background variables, the link between collaborative academic cheating and corruption diminished (see [Fig. 1](#)).

4. Discussion

Corruption and collaborative academic cheating are strongly related as well as their economic and cultural value-related background variables. However, taking into account both in-group collectivism, as a value-related variable, and GDP per capita, reflecting the economic situation of the given-country, the relationship between corruption and academic cheating disappears. The effect of these two background variables is differentiated: whereas collaborative cheating was only predicted by in-group collectivism, corruption was only predicted by GDP per capita.

The societal-level impact of in-group collectivism, reflecting on the individuals' loyalty towards those smaller groups they belong to, is multifaceted. This cultural dimension also affects the socialization of youngsters, for example, in the form of collaborative cheating. In-group collectivist societies provide a social context in which students are socialized to routine norm-violation and to profit from their close social network, which may then impact their attitudes toward corruption. However, in the light of the present results, it seems to be more appropriate to suppose that instead of in-group collectivism, economic conditions play the main role in the presence of corruption.

Table 1
Collaborative cheating, in-group collectivism, GDP/Capita data from 40 countries included in the analyses.

Nations	Number of respondents	Collaborative exam cheating (%)	CPI index	GDP/capita (US\$)	In-group collectivism practices	CPI and GDP/capita year	References	Exact questions and answers
Albania	114	92.11	2.5	2727.418	5.74	2003	Grimes (2004)	In college, have you ever been asked to help someone else cheat on an exam/course assignment? No = 0, yes = 1
Argentina	75	44.6	2.9	9112.113	5.51	2006	Teixeira & Rocha (2010)	How frequently have you observed other students copying in exams? Never = 0, rarely = 1, sometimes = 1, many times = 1, always = 1
Australia	1174	20	8.8	47817.899	4.17	2004	Brimble & Stevenson-Clarke (2005)	Copying from another student during a test. Never = 0, 1–2 times = 1, 3–5 times = 1, > 5 times = 1
Austria	509	71.6	8.6	45737.516	4.85	2006	Teixeira & Rocha (2010)	How frequently have you observed other students copying in exams? Never = 0, rarely = 1, sometimes = 1, many times = 1, always = 1
Belarus	111	72.07	4.2	3369.726	–	2003	Grimes (2004)	In college, have you ever been asked to help someone else cheat on an exam/course assignment? No = 0, yes = 1
Brazil	100	83	3.3	9761.876	5.18	2006	Teixeira & Rocha (2010)	How frequently have you observed other students copying in exams? Never = 0, rarely = 1, sometimes = 1, many times = 1, always = 1
Canada	13,644	8	8.5	46170.920	4.26	2004	Hughes & McCabe (2006)	Getting Q/A from someone who has taken test. No = 0, yes = 1
China	1097	48	3.6	4971.545	5.80	2011	Ma et al. (2013)	Copying from another student during a test or examination. Never = 0, occasionally = 1, sometimes = 1, often = 1
Colombia	44	72.7	3.9	5596.735	5.73	2006	Teixeira & Rocha (2010)	How frequently have you observed other students copying in exams? Never = 0, rarely = 1, sometimes = 1, many times = 1, always = 1
Croatia	827	52.2	3.8	12108.003	–	2003	Hrabak et al. (2004)	Copying answers from a colleague during an examination. No = 0, yes = 1
Denmark	78	5.1	9.5	60892.767	3.53	2006	Teixeira & Rocha (2010)	How frequently have you observed other students copying in exams? Never = 0, rarely = 1, sometimes = 1, many times = 1, always = 1
France	62	83.8	7.4	40987.552	4.37	2006	Teixeira & Rocha (2010)	How frequently have you observed other students copying in exams? Never = 0, rarely = 1, sometimes = 1, many times = 1, always = 1
Germany	305	50.7	8	40456.857	4.27	2006	Teixeira & Rocha (2010)	How frequently have you observed other students copying in exams? Never = 0, rarely = 1, sometimes = 1, many times = 1, always = 1
Hungary	340	62.1	5.4	13459.746	5.25	2013	Orosz et al. (2015)	Helping someone else to cheat on a test. 0 = never; 1 = one or two times, 1 = three–five times, 1 = six–ten times, 1 = more than 10 times

Table 1 (Continued)

Nations	Number of respondents	Collaborative exam cheating (%)	CPI index	GDP/capita (US\$)	In-group collectivism practices	CPI and GDP/capita year	References	Exact questions and answers
India	166	74	3.4	1237.340	5.92	2009	Babu et al. (2011)	Copying from their friends. No = 0, yes = 1
Iran	124	67	2.7	6428.941	6.03	2011	Mortaz Hejri et al. (2013)	Helping others to cheat in examinations. No = 0, yes = 1 (randomized response technique)
Italy	279	63.4	4.9	37872.168	4.94	2006	Teixeira & Rocha (2010)	How frequently have you observed other students copying in exams? Never = 0, rarely = 1, sometimes = 1, many times = 1, always = 1
Jordan	435	39.5	5.7	3557.303	–	2006	Al-Omari et al. (2009)	Copying another's exam. Never = 0, infrequently = 1, frequently = 1
Kyrgyzstan	206	80.49	2.1	716.264	–	2003	Grimes (2004)	In college, have you ever been asked to help someone else cheat on an exam/course assignment? No = 0, Yes = 1
Latvia	133	82.57	3.8	8859.029	–	2003	Grimes (2004)	In college, have you ever been asked to help someone else cheat on an exam/course assignment? No = 0, yes = 1
Lebanon	1317	58	3	7764.058	–	2007	McCabe et al. (2008)	Helping someone else to cheat on a test. Never = 0, once = 1, more than once = 1
Lithuania	162	96.91	4.7	8931.520	–	2003	Grimes (2004)	In college, have you ever been asked to help someone else cheat on an exam/course assignment? No = 0, yes = 1
Mozambique	115	66.3	2.8	361.745	–	2006	Teixeira & Rocha (2010)	How frequently have you observed other students copying in exams? Never = 0, rarely = 1, sometimes = 1, many times = 1, always = 1
New Zealand	1126	22.1	9.5	32019.416	3.67	2003	De Lambert et al. (2010)	Copying from another student during a test
Nigeria	237	42.6	2.2	1976.708	5.55	2006	Teixeira and Rocha (2010)	How frequently have you observed other students copying in exams? Never = 0, rarely = 1, sometimes = 1, many times = 1, always = 1
Poland	20	100	4.0	8815.437	5.52	2002	Teixeira & Rocha (2010)	How frequently have you observed other students copying in exams? Never = 0, rarely = 1, sometimes = 1, many times = 1, always = 1
Portugal	2805	50.3	6.6	22306.284	5.51	2006	Teixeira & Rocha (2010)	How frequently have you observed other students copying in exams? Never = 0, rarely = 1, sometimes = 1, many times = 1, always = 1
Romania	369	71.8	3.6	7418.416	–	2006	Teixeira & Rocha (2010)	How frequently have you observed other students copying in exams? Never = 0, rarely = 1, sometimes = 1, many times = 1, always = 1
Russia	442	92.01	2.7	6491.001	5.63	2003	Grimes (2004)	In college, have you ever been asked to help someone else cheat on an exam/course assignment? No = 0, yes = 1

Table 1 (Continued)

Nations	Number of respondents	Collaborative exam cheating (%)	CPI index	GDP/capita (US\$)	In-group collectivism practices	CPI and GDP/capita year	References	Exact questions and answers
Singapore	518	54.2	9.1	33390.058	5.64	2000	Lim & See (2001)	Copying from a neighbor during a quiz, test, or exam without him or her realizing. Never = 0, other frequency measures = 1
Slovenia	321	84.6	6.4	23201.258	5.43	2006	Teixeira & Rocha (2010)	How frequently have you observed other students copying in exams? Never = 0, rarely = 1, sometimes = 1, many times = 1, always = 1
South Africa	550	14.00	4.5	7362.761	4.80	2010	Theart & Smit (2012)	Giving another student answers in a test or examination with the help of signals. No = 0, yes = 1
South Korea	655	3.8	5.4	22724.706	5.54	2011	Park et al. (2013)	Copied from another student during an exam with his or her knowledge. None = 0, once = 1, twice or more = 1
Spain	974	73.3	6.8	31865.399	5.45	2006	Teixeira & Rocha (2010)	How frequently have you observed other students copying in exams? Never = 0, rarely = 1, sometimes = 1, many times = 1, always = 1
Sweden	322	1	9.3	53421.020	3.66	2007	Trost (2009)	Copying from a neighbor during an exam without them realizing. Never = 0, other frequency measures = 1
Taiwan	2068	84.8	5.9	–	5.59	2006	Lin & Wen (2007)	Copied from other students. Never to do = 0, other frequency measures = 1
Turkey	528	79.6	3.8	10251.047	5.88	2006	Teixeira & Rocha (2010)	How frequently have you observed other students copying in exams? Never = 0, rarely = 1, sometimes = 1, many times = 1, always = 1
Ukraine	541	92.13	2.3	2349.932	–	2003	Grimes (2004)	In college, have you ever been asked to help someone else cheat on an exam/course assignment? No = 0, yes = 1
UK	943	14	8.6	30599.792	4.08	1995	Newstead et al. (1996)	Copying from a neighbor during an exam without them realizing. Never = 0, other frequency measures = 1
USA	6069	52	7.8	38677.715	4.25	1995	McCabe et al. (2001)	Copied on test or exam. Never = 0, other frequency measures = 1

Collaborative cheating numbers refer to the percentages of respondents who self-reported this kind of dishonesty. Regarding in-group collectivism scores of Germany, the average of East German and West German IGC scores was used. In the case of CPI scores, high numbers refer to the lack of perceived corruption, while low numbers indicate the higher perceived levels of corruption in the given-country. In the case of Taiwan, this information was not available in the World Bank database.

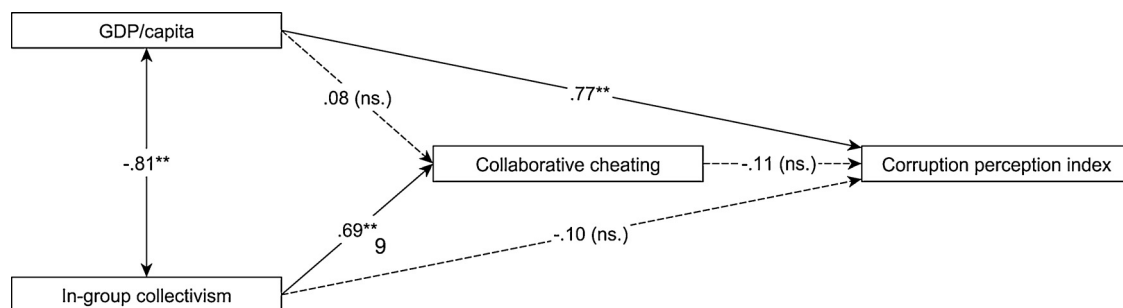


Fig. 1. Relationship pattern of the background variables, collaborative cheating and corruption. Note. Values on the arrows represent standardized regression coefficients. Continuous lines represent significant paths, whereas dashed ones represent non-significant ones. ** $p < .01$.

Table 2
Correlations between the examined variables.

Scales	(1)	(2)	(3)
(1) Collaborative academic cheating	–		
(2) Corruption Perception Index	–.54 ^a	–	
(3) GDP per capita	–.49 ^a	.90 ^a	–
(4) In-group collectivism	.61 ^a	–.79 ^a	–.82 ^a

^a $p < .001$.

Examining the corruption-GDP per capita link, O'Connor and Fischer (2012) conducted both within and between country analyses and found wealth to be the only reliable predictor of within country variance of corruption: the wealthier the countries are the less corrupt they are. The present study supports these results: despite the strong link between in-group collectivism and corruption, if we include both collaborative cheating and GDP per capita, the only link which remains (strongly) significant is that of corruption and GDP per capita. However, one should not forget relevant values as potential predictors of corruption. O'Connor and Fischer (2012), in their between country analyses, found that besides higher wealth, larger government size and higher self-expression (individual autonomy, social diversity, and egalitarianism) lead to lower levels of corruption. However, they found no effect of 'rational' or democratic values. Therefore, further examination is needed in order to identify the relative importance and role of specific values, which promote corruption.

Examining the link between values and cheating, one can go beyond individualism and collectivism (Bernardi, Giuliano, Komatsu, Potter, & Yamamoto, 2004; Grimes, 2004; McCabe, Feghali, & Abdallah, 2008), and consider opportunism, positivism, idealism, detachment, tolerance (Rawwas, Al-Khatib, & Vitell, 2004), religiousness (Waugh, Godfrey, Evans, & Craig, 1995), and anomie (Magnus et al., 2002). However, regarding these dimensions GLOBE data is less informative compared to collectivism. Based on our results, and in line with the explanations of Grimes (2004) and McCabe et al. (2008), among potential societal-level variables, in-group collectivism appears to be a relevant factor predicting collaborative forms of academic cheating. In countries in which students have stronger loyalty towards the smaller groups to which they belong to, self-reported collaborative cheating is more prevalent.

Considering the model, two questions arise: "Why corruption is unrelated to in-group collectivism?" and "Why collaborative cheating is unrelated to GDP per capita?". Regarding the first question, besides the very dominant role of GDP per capita, one can suppose that Transparency International has a rather individualistic definition of corruption¹. One may suppose that a more collectivistic conception of corruption might be more related to in-group collectivistic values. Putting more emphasis on the social psychological aspects of both—cooperation between the involved individuals, the common interest, the violation of the interest of the broader community and the consideration of potential gains and risks—one might expect that the value of in-group collectivism would predict corruption besides GDP per capita.

Corruption can also be more dependent on structural and situational factors like power, resources, and the formal and informal systems of organizations (Jávör & Jancsics, 2016). Participants of corrupt transactions may be motivated by several factors: consumerism (make money to sustain a socially desirable, i.e. high living standard); negative attitudes towards the state; need to

break regulations they otherwise could not meet (e.g. getting an old car in a poor condition through the regular inspection test); extortion from gatekeepers; and even by orders received from one's superiors (Jancsics, 2015). From this point of view, the attenuation of the link between collectivism and corruption when GDP per capita is controlled for does make sense: in-group collectivism is only one of corruption's potential causes, all of which together may be better captured at the country level by an indicator of economic wealth.

Regarding the second question ("Why collaborative cheating is unrelated to GDP per capita?"), it is possible to suppose that not economic advancement per se can account for the high level of cheating, but its consequences can appear in more indirect ways in terms of poor educational infrastructures, which allow more collaboration between students during exams. In poorer countries, in relation to an average exam, the student-teacher ratio can be higher than in richer countries, for instance in Ethiopia (Teferra, 2001) or in Eastern Europe (Grimes, 2004). In these cases, teachers have to supervise more students during an exam, which can result in a lower risk of detection from the perspective of the student. In those countries, in which in-group collectivism is prevalent, this situation can open the doors towards collaborative cheating. Unfortunately, data about the average teacher-student ratio is very rarely available in the existing literature.

However, one can also take the complete disappearance of the GDP-cheating link at face value and interpret this result as in-group collectivism explaining the zero-order relationship between GDP per capita and collaborative academic cheating. One may simply accept that less affluent societies tend to be higher on in-group collectivism, and it is higher in-group collectivism that promotes collaborative cheating in an academic context. While we listed five similarities between corruption and cheating at school, some differences should also be noted. Collaborative academic cheating does not need to involve a participant in a position of power; on the contrary, it is the powerless (i.e. the students) who illegally conspire to deceive the—perhaps overloaded, perhaps under-motivated—authority figures. Besides, in the case of academic cheating, resource allocation is either not an issue (if all students can get a good grade) or is not as apparent as in the case of corruption, where money, goods or services are directly involved. Therefore, the lack of direct links between collaborative academic cheating on the one hand, and GDP and corruption on the other can also be interpreted by noting the differences as well as the indirect relationships among these phenomena.

The present study is a good example of finding a strong relationship between two variables (corruption and cheating) with even stronger influences of background variables. Furthermore, if we only consider in-group collectivism—without economic variables—results could be misleading. However, it would also be misleading if we only dealt with either corruption or collaborative cheating as an outcome variable. Seleim and Bontis (2009) found that in-group collectivism is related to corruption after controlling for GDP per capita. The model presented in Fig. 1 would support these results if we left out the collaborative cheating variable from it. Therefore, it might be useful to include more than one related outcome variable. This is also true for including economic development as a control (Hofstede, 2001), especially if we can suppose both value-related and economy-related variables behind the outcome variables.

The present study is not without limitations. The variables used were based on self-reports. This is especially important in the present case, because in some countries, societal norms can support both kinds of illicit behaviors. For example, in Sweden, only 1% of the students reported that they have cheated (Trost, 2009). It is very possible that societal norms are different in Sweden compared to those in Lithuania, where almost 97% of the students

¹ Corruption is defined as the abuse of entrusted power for private gain. Corruption can be classified as grand, petty and political, depending on the amounts of money lost and the sector where it occurs (Transparency International, 2009a, 2009b).

self-reported cheating. These societal norms cannot only influence the prevalence of cheating behavior, but also they might allow the confession of cheating. The same can also be true for corruption. Therefore, we have to keep in mind that—regarding both cheating and corruption—one might merely measure the permissive societal norms towards illicit behaviors in general. Despite the careful and thorough literature review, another limitation of the present study can be that we might not have found all relevant, unpublished manuscripts. Another issue is that there are 18 years between the earliest and latest published paper. This difference cannot reflect on the precise current situation regarding cheating. The in-group collectivism score was derived from professionals in different business-related sectors, whereas the cheating percentages are from college students. We have to mention here that such comprehensive examination of in-group collectivism was not assessed on worldwide level besides GLOBE study. Therefore, the responses of the business professionals can be carefully used as a proxy representing national level in-group collectivism practices. Finally, despite using path models with unidirectional links, causality cannot be inferred. In relation to causal links, it is possible that, in those countries where corruption is prevalent and reported frequently by the media, students may think that confessing school cheating as a petty misconduct is not a problem at all. Therefore, we may also presume the existence of a link going from corruption to academic cheating. Furthermore, if one perceives that the majority is corrupted, this person can highly value closer relationships (i.e., sticking together with family or friends) in order to preserve the already acquired resources.

Keeping in mind that academic cheating and corruption have different backgrounds predictors have practical implications. For example, building small communities has many advantages. However, in those countries where in-group collectivism is strong, it is important to contextualize when and where these values are supported. Teachers should support these values in those settings where cooperation is permitted; such as in sport teams and group projects. However, teachers should not support these values in individual exam settings. There are many easy forms to do so; for example, teachers can provide seating orders in which friends cannot be seated next to each other. Another strategy to minimize cheating is to provide opportunity for the groups of students to gather arguments as to why it is better to demonstrate their individual knowledge during the exams (Lewin, 1947).

5. Conclusion

The link between corruption and collaborative cheating is not a straightforward one. If we dealt with them separately from their economic- and value-related background variables, they are strongly associated. However, considering their cultural and economic contexts, collaborative academic cheating is a value-related construct in terms of in-group collectivism practices, whereas corruption is predominantly influenced by GDP per capita. Therefore, tackling these illicit behaviors appears to require different strategies.

Disclosure of interest

The authors declare that they have no competing interest.

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