Mirror, mirror on the wall... Who's the most opportunistic and compliant of them all?

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Abstract

Purpose – The present research aims to revisit the relationships between buyer dependence on suppliers, relational norms between two parties in a buyer-supplier dyad, and a buyer's tendency to either engage in opportunistic behaviors or comply with a supplier's request as an exception condition. The authors adopt a supplier's perspective to examine the supplier's anticipation of the buyer's behaviors.

Design/methodology/approach – Based on the original studies conducted by Joshi and Arnold, the authors extend both works using a similar methodology but with a different data sample. The previously validated buyer-supplier relationship supply disruption scenario presented in the original studies is rewritten from a supplier's perspective to examine the supplier's anticipation of the buyer's behaviors. Subjects are asked to assume the role of an account manager within the key supplier firm for an electronic equipment manufacturer and to respond to how they deal with the supplier's expectation of how the buying firm may behave in terms of compliance and opportunism.

Findings – The results show that buyer dependence is positively related to buyer compliance behaviors and that this relationship holds irrespective of the buyer's or supplier's perspective on the supply disruption scenario and irrespective of professional or student subjects. Other findings include the contingency of the moderating effect of relational norms on the link between dependence and buyer compliance on various factors, and the existence of a boundary condition for the moderation effect of relational norms on the link between dependence and buyer opportunism.

Originality/value – The study should prove valuable to academics and professionals alike. It reinforces the notion that buyers that are more dependent and reliant on suppliers are more willing to comply with supplier's needs. Also, it considers the possibility that supply chain agents from both the buyer and supplier sides may value the effect of relational norms differently, with suppliers perceiving that relational norms have more of a direct influence on a buyer's behavior. Lastly, the replication study extends the understanding of the generalizability of the original studies.

Keywords Replication, Experiment, Behavior, Compliance, Buyer-supplier relationship, Opportunism, Generalizability

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> Replicability is almost universally accepted as the most important criterion of genuine scientific knowledge. Rosenthal and Rosnow (1984, p. 9).

Introduction

Replication studies, including pure replications and replications with extension, preserve the essential integrity of a cumulative empirical foundation. The two major benefits of replications and extensions are to ensure the reliability and validity of findings and to assess the generalizability of empirical results (Hubbard and Armstrong, 1994). Since there is always some possibility that the findings of any study may be due to pure chance, findings of a single study should be taken as tentative until they have been repeatedly tested. To "guard against the perpetuation of erroneous and questionable results" (Hubbard and Armstrong, 1994, p. 233) and to "convince ourselves that we are not dealing with a mere isolated 'coincidence'," (Popper, 1959, p. 45), classic replication (Frohlich and Dixon, 2006), or Type I replication (Mittelstaedt and Zorn, 1984), serves this purpose. This type of replication focuses on determining the reproducibility of the initial results and is defined as "a duplication of a previously published empirical study that is concerned with assessing whether similar findings can be obtained upon repeating the study" (Hubbard and Armstrong, 1994, p. 236). Thus, to ensure reliability, this replication type repeats all facets of the original study with another sample drawn from the same population (Hubbard and Lindsay, 1995). Further along this same line is validity replication (Frohlich and Dixon, 2006), or Type II replication (Mittelstaedt and Zorn, 1984), which focuses on assessing empirical validity and is a form of replication "done with another sample and an improved instrument" (Kerlinger, 1986, p. 593). In contrast, replication with extensions, also known as generalizability replications (Frohlich and Dixon, 2006) or Type III replication (Mittelstaedt and Zorn, 1984), is "a duplication of a previously published empirical study that serves to investigate the generalizability of earlier research findings" (Hubbard and Armstrong, 1994, p. 236).

In view of the critical value that replications and replications with extensions contribute to the development and accumulation of scientific knowledge, one might expect their conduct to be common in a given field. Unfortunately, publication of replication studies is relatively scant in various business disciplines (Hubbard *et al.*, 1998). Take the operations management/supply chain management field (OM/SCM) as an example. A review of the literature indicates that publication of replication studies over the past 20 years is relatively sparse despite a special issue on replication studies, i.e. 2006, Vol. 24, No. 6 in the *Journal of Operations Management*. Consequently, this paper addresses this paucity in the literature. The present research revisits the relationships between buyer dependence on suppliers, relational norms between two parties in a buyer-supplier dyad, and a buyer's tendency to either engage in opportunistic behaviors or comply with a supplier's request as an exception condition. The original study was conducted by Joshi and Arnold in 1997 and 1998, respectively.

As OM/SCM researchers, we focus on buyer-supplier relationships for two reasons. First, we are concerned that the dearth of replication studies may have damaging consequences for the development of a cumulative knowledge base as every discipline needs a healthy balance between publishing novel works and replication studies (Frohlich and Dixon, 2006). While the topic of buyer-supplier relationships has gained popularity since the 1980s, a review of the OM/SCM literature indicates that replication

studies in this area is particularly rare. Rather, quality management appears to be the most popular topic for replication studies. Several replication studies have been conducted and published, including Rungtusanatham *et al.* (1998), Vastag (2004), Kaynak and Hartley (2008) and Fisher *et al.* (2011), to name a few[1]. Second, complex phenomena such as buyer-supplier relationships often require multiple theories for better understanding and explanations. Conversely, a single theory often offers limited explanation and conflicting results are also common (Fink *et al.*, 2006). Replication studies, nonetheless, are of particular value when existing studies show inconclusive findings.

Accordingly, the purpose of this "generalizability replication study" (Frohlich and Dixon, 2006) is to expand the generalizability of the original studies by conducting a Type III replication (Mittelstaedt and Zorn, 1984). To extend both original works, we have attempted to use a similar method but collect different data. Specifically, we adopt a supplier's perspective to examine the supplier's anticipation of the buyer's behaviors in a potential supply disruption experimental scenario. We collect data from the supplier's perspective for two reasons. First, any buyer-supplier dyad involves two sides: a buyer and a supplier. Both parties in a dyad may attempt to anticipate the other party's behaviors in response to any special events. Thus, a logical extension of the original work is to investigate the same research question from another party's (supplier's) perspective. Second, existing studies (Tangpong and Ro, 2008, 2009; Hung *et al.*, 2009) have replicated Joshi and Arnold's (1997, 1998) using different samples (student samples) and compared the results obtained by student sample with the original work. Contributions of yet another replication with student sample will be marginal. In contrast, replication with a new perspective (i.e. the supplier's perspective) while using student samples not only contributes to generalizability but also complements the existing literature.

The rest of the paper is structured as follows. In Section 2, we review the two original works and related replication studies. Section 3 details the method we employed for replication with extension, including developing mirrored versions of the experimental vignettes, developing measurements by revising questions from the supplier's perspective, and describing sample and statistical approaches for analysis. Section 4 contains our study's hypotheses and results of hypothesis testing. We conclude the paper with a discussion and implications of our findings.

Literature review

In the extant buyer-supplier relationship literature, Joshi and Arnold (1997, 1998) are among the first studies that investigate the interplay between a buyer's degree of compliance, a buyer's extent of opportunism, buyer dependence, and relational norms. The degree of buyer compliance can be defined as the amount of willingness on the part of a buyer to accommodate a request from its supplier despite potential costs incurred by such a request (Heide and John, 1990). On the other hand, buyer opportunism is characterized as the striving to keep true intensions and objectives from another party in order to gain benefit from another party or to pressure another party to make concessions (Joshi and Arnold, 1997; Williamson, 1975, 1979). In the supply chain context, opportunistic behaviors have been found to result in negative economic impacts, adverse consequences on supply chain performance, the hindering of alliance formations, and even supply chain disruptions (Morgan *et al.*, 2007;

McCarter and Northcraft, 2007; Hendricks and Singhal, 2005). Dependence has been described in the supply chain literature as the cost of replaceability (Heide and John, 1988). A buyer is said to be dependent on a supplier if the switching and termination costs are high (Gassenheimer and Calantone, 1994). Relational norms may be defined as the common values shared with exchange partners about what constitutes appropriate behavior in the relationship (Heide and John, 1992; Morgan and Hunt, 1994).

Using a scenario-based experiment in a context where the buyer has a temporary advantage over its supplier, Joshi and Arnold (1997) investigated the interplay between buyer opportunism, dependence, and relational norms with industrial purchasing professionals as experimental subjects. The main result of their study is that the level of relational norms moderates the effect of a buyer's dependence on buyer opportunism. In a low relational norms environment, increasing buyer dependence leads to higher levels of buyer opportunism. In contrast, in a high relational norms environment, increasing buyer dependence actually reduces the level of buyer opportunism. That is, the buyer tends not to behave opportunistically under both high levels of dependence and relational norms (Joshi and Arnold, 1997). In a follow-up study, instead of considering the buyer's opportunism as the outcome variable, Joshi and Arnold (1998) investigated the interplay between buyer compliance, buyer dependence, and relational norms using the same scenario-based experiment. They examined whether a buyer would forfeit the opportunity to extract benefits from its supplier and comply with the supplier's request (i.e. compliance). The key results of their 1998 study are that:

- buyer dependence is positively related to the degree of buyer compliance; and
- the level of relational norms moderates the effect of dependence on compliance: buyer dependence has a positive effect on compliance under high relational norms but has no effect on compliance under low relational norms (Joshi and Arnold, 1998).

A few studies have since replicated and extended both Joshi and Arnold (1997, 1998). Tangpong and Ro (2008) replicated Joshi and Arnold (1998) but used undergraduate and graduate students in OM courses as experimental subjects instead of purchasing managers as in the original study. The objective of their study was to use a different sample (i.e. students) to investigate the topic of student-manager surrogacy in supply chain decision contexts. They found that buyer dependence had a positive effect on buyer compliance under both high and low relational norms. That is, the level of relational norms had no moderating effect. Tangpong and Ro (2008) found that students could be used as surrogates for managers only in high relational norms and high dependency supply chain contexts. Hung *et al.* (2009) also replicated Joshi and Arnold (1998) with the same scenario-based experiment, using a different sample population. Although not the primary interest of their study, the statistical models analyzed in Hung *et al.* (2009) showed that buyer dependence and relational norms were both positively related to buyer compliance, which supported the results of the original Joshi and Arnold (1998) study. Furthermore, the statistical results showed a negative interaction effect between relational norms and dependence significant at the $p = 0.1$ level (p. 61). Interestingly, this negative interaction effect contradicts findings in both Joshi and Arnold (1998) and Tangpong and Ro (2008) although the coefficient is not strongly significant. Another study done by Tangpong and Ro (2009) replicated Joshi and Aronld (1997). Using the same experiment scenario, they investigated an

agent's negotiating behaviors towards buyer opportunism with buyer dependence and relational norms as control variables. The empirical results from their study demonstrated that dependence and relational norms had no interaction effect on the level of buyer opportunism (Tangpong and Ro, 2009, p. 67). That is, the level of relational norms had no moderating effect, which also contradicts the main findings of Joshi and Arnold (1997) that state that the level of relational norms moderates the effect of dependence on buyer opportunism.

In summary, prior studies have shown that, from a buyer's perspective, the level of dependence and relational norms increases the level of buyer compliance. Also, high levels of relational norms decrease the level of buyer opportunism. Several studies also demonstrated the moderating effects of dependence and relational norms. However, can these findings apply to another party's perspective? Are there boundary conditions to the extant findings in the literature? Our current replication study extends the original studies and the existing replication studies by adopting a supplier's perspective and investigates the interplay between the same variables: dependence, relational norm, compliance, and opportunism. Table I summarizes the findings from the original studies and related replication studies.

Methodology

Various scholars have suggested the use of experiments as a viable research methodology in investigating behavioral phenomena associated with operations and supply chains (Bendoly and Swink, 2007; Mantel *et al.*, 2006). Regarding the validity of experimental studies in buyer-supplier relationships, scenario-based role-playing experiments have been proven useful for eliciting decisions regarding complex phenomena in SCM (Rungtusanatham *et al.*, 2011; Siemsen, 2011), including buyer-supplier relationships (Tangpong *et al.*, 2010; Thomas *et al.*, 2013), and various areas in business research. Its validity in policy and decision making research was empirically supported (Key, 1997). Moreover, the use of scenario-based experiments has a few advantages such as reducing retrospective biases associated with questions pertaining to *ex post* perceptions and behaviors (Wathne *et al.*, 2001), making it a more reliable and more valid method for studying respondent attitudes than opinion surveys (Alexander and Becker, 1978).

For the experimental vignette used in our study, we revised Joshi and Arnold's (1997, 1998) previously validated buyer-supplier relationship scenario (please see Table II for a description of the revised vignette. For the original vignette, consult Joshi and Arnold (1997, 1998)). This experimental scenario manipulated dependence and relational norms, two of our independent variables, into a 2×2 full factorial between-subjects design of low vs high relational norms and low vs high dependence. In the original validated Joshi and Arnold (1997, 1998) vignette, subjects were asked to assume the role of a purchasing manager at a midsize electronic equipment manufacturer responsible for the purchase of microchips from an external supplier partner. However, in the modified vignette, subjects were asked to assume the role of an account manager within the key supplier firm for the electronic equipment manufacturer (the OEM) since our investigation dealt with the supplier's expectation of how the buying firm would behave in terms of compliance and opportunism. As with the original scenario, the modified supplier's perspective scenario still had the external supplier providing microchips to the electronic equipment manufacturer, with the supplier still facing a potential labor dispute that could disrupt supply of microchips to

Table I.
Summary of key findings across studies

Independent variable	Dependent variable: opportunism			Dependent variable: compliance			
	Original Joshi and Arnold (1997)	Tangpong and Ro (2009)	Current study	Original Joshi and Arnold (1998)	Tangpong and Ro (2008)	Hung *et al.* (2009)	Current study
Main effect							
Dependence		Positive	Negative	Positive**	Positive**	Positive**	Positive (*H2*)**
Relational norm	Negative[a]	Negative	*Post hoc* (negative)**			Positive***	*Post hoc* (positive)***
Moderation effect							
Dependence × relational norm	Presence of moderation*	Presence of moderation	Presence of moderation (*H1*)	Presence of moderation*		Presence of moderation***	Presence of moderation (*H3*)
Relational norm: high	Negative*			Positive**	Positive**		
Relational norm: low	Positive*			N.A.**	Positive***		

Notes: Significant at: $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$ and $^{****}p < 0.1$; [a] Joshi and Arnold (1997) noted a "strong main effect of relational norms" on opportunism (p. 834); however, since it was not the main research interest of their study, corresponding statistics were not reported in that paper; while it was not investigated in the original studies, we conducted a *post hoc* analysis (refer to Table III for details) to assess the main effect of relational norms since we failed to find support for the moderation effects associated with it

Table II.
Experimental vignette (supplier's perspective)

Introduction	You are a key account manager responsible for the production and delivery of microchips to a midsize electronic equipment manufacturer. Microchips are an important component for the equipment that the manufacturer produces; therefore they need to be delivered on a regular basis. You are the one existing supplier for this component
High dependence	Being responsible for the purchase of microchips, the manufacturer finds itself in a situation wherein it is difficult for them to find a suitable replacement for your company. If the manufacturer decides to stop purchasing from your company, they could not easily replace their volume with purchases from alternative suppliers. There are very few, if any, competitive suppliers for microchips and the manufacturer cannot switch to them without incurring significant search and verification costs. Switching suppliers is also going to have negative effects on the quality or design of the equipment that they manufacture. Their production system cannot be easily adapted to use components from a new supplier. The procedures and routines that the manufacturer has developed are unique and hence they are not applicable with any other supplier of this component. The skills that their people have acquired in the process of working with your company cannot easily be changed to fit another supplier's situation. The manufacturer cannot therefore terminate their relationship with your company without incurring significant costs
Low dependence	Being responsible for the purchase of microchips, the manufacturer finds itself in a situation wherein it is not difficult for them to find a suitable replacement for your company. If the manufacturer decides to stop purchasing from your company, they could easily replace their volume with purchases from alternative suppliers. There are many competitive suppliers for microchips and the manufacturer can switch to them without incurring significant search and verification costs. Switching suppliers is not going to have any negative effects on the quality or design of the equipment that they manufacture. Their production system can be easily adapted to use components from a new supplier. The procedures and routines that the manufacturer has developed are standard and they are equally applicable with any other supplier of this component. The skills that their people have acquired in the process of working with your company can easily be changed to fit another supplier's situation. The manufacturer can therefore terminate their relationship with your company without incurring significant costs
High relational norms	Both you and your manufacturer bring an open and frank orientation to the relationship. Exchange of information in this relationship takes place frequently, informally, and not only according to the terms of a pre-specified agreement. They keep you informed of any event or change that might affect your company. Flexibility is a key characteristic of this relationship. Both sides make ongoing adjustments to cope with the changing circumstances. When some unexpected situation arises, both of you would rather work out a new deal than hold each other responsible to the original terms. You tend to help each other out in case of unexpected crises. If your company is unable to fulfill an order, you recommend an alternative source of supply for the same. Above all, the manufacturer has a sense that your company is committed to them and that your company works with them keeping their best interests in mind. You see each other as partners, not rivals
Low relational norms	Both you and your manufacturer bring a formal and contract-governed orientation to the relationship. Exchange of information in this relationship takes place infrequently, formally, and in accordance to the terms of a pre-specified agreement. Even if they do know of any event or change that might affect your company, the manufacturer does not divulge this information to you. Strict adherence to the terms of the original agreement characterizes your relationship with this manufacturer. Even in the face of unexpected situations, rather than modifying the contract, both of you adhere to the original terms. The manufacturer has a distant "arm's length" relationship with your company. They do not think that your company is committed to their organization – in fact, they think that if they did not carefully monitor your company's performance, you would slack off from the original terms. Above all, the manufacturer sees your company as an external economic agent with whom they have to bargain in order to get the best deal for themselves
Conclusion	Recently, you informed the manufacturer that your company is involved in a labor dispute. Consequently, you are temporarily unable to guarantee on-schedule delivery. This creates some uncertainty for the manufacturer. Delayed delivery of microchips may, for example, cause problems for the manufacturer in meeting delivery schedules to customers. Your company has called the manufacturer to get your regular order. Drawing from experience, how would you expect the manufacturer to most likely react in this situation?

the OEM. And as with the original vignette, this potential dispute could ultimately threaten the OEM's delivery schedules to its own customers.

The subject sample used in our study consisted of 126 different students (both undergraduate and graduate) from one urban and one rural Midwestern US university. The subjects had previous exposure to OM and SCM courses, and so were familiar with relevant topics in buyer-supplier relationship dealings. 120 (out of 126) subjects had at least some form of working experience, with an average of 5.68 years. Moreover, 112 of these 120 subjects provided additional information concerning their working experience. 44 out of 112 subjects possessed experience in a purchasing or a purchasing-related position, with an average of 1.07 years of purchasing or related experience, whereas the remaining 68 did not have purchasing or related experience. 69 percent of the respondents were male and 31 percent were female. 77.9 percent were Caucasian, and 22.1 percent were non-Caucasian.

Regarding the validity of research findings using student samples, the use of student subjects as substitutes for practicing managers in business research is common. Several studies in multiple business fields show that both undergraduate and graduate business students display similar decision-making patterns to professional managers in various decision-making contexts such as accounting (Ashton and Kramer, 1980; Liyanarachchi and Milne, 2005), marketing (Corfman and Lehmann, 1994; Roering *et al.*, 1976), investing (Bateman and Zeithaml, 1989a), operations and supply chain management (Tangpong *et al.*, 2010; Tangpong and Ro, 2008), human resources (Bachrach *et al.*, 2006; Dineen *et al.*, 2007), organizational studies (Ford and Hegarty, 1984) and business ethics (Deshpande *et al.*, 2005; Wimalasiri, 2001; Wyld and Jones, 1997). Since our study's experimental vignette concerned a decision making scenario in a multi-faceted purchasing/buyer-supplier relationship context involving different aspects of marketing, operations, and dilemmas regarding firm compliance and opportunism, it is reasonable to assume that student subjects can serve as viable substitutes for professional managers in this context.

Student subjects were randomly assigned to one of four different versions of the scenario. Each scenario contained identical introductory and concluding sections but possessed a different combination of dependence and relational norms manipulations. Upon reading the scenario, respondents were asked to score their reaction in terms of their expectation of whether the buying firm (the electronic equipment manufacturer) would comply (six questions) or act opportunistically (three questions) to their request for a delay in chip supply, as opposed to the original Joshi and Arnold (1997, 1998) study that scored subjects' reactions to whether they (as a purchasing agent for the OEM) would comply or act opportunistically towards the supplier. Similar to our revision of the experimental vignette, questions were revised based on the original measurements used in the original studies. For example, instead of asking subjects to rate their reactions to the statement of "I would not be completely honest with the supplier", subjects were asked to respond to the statement "I would *expect the manufacturer* to not be completely honest with my company." Similarly, instead of asking subjects to rate their reactions to the statement of "I would continue to buy microchips from the supplier", subjects were asked to respond to the statement "I would *expect the manufacturer* to continue to buy microchips from my company." Subject responses were captured on each questionnaire using a seven-point Likert scale, with 1 – strongly disagree and 7 – strongly agree. We also added a realism check

to determine if subjects perceived the supplier's perspective vignette as capturing a potentially realistic situation that a typical supply chain manager might face.

Hypothesis and analytical approach

Hypothesis

The three sets of hypotheses are re-stated as follows. The first set of hypotheses, relating to firm opportunism, is from Joshi and Arnold's study in 1997. The main hypothesis (Hypothesis 1) states that the effect of dependence on a supplier's perception of a buyer's behavior is contingent on the level of relational norms. Hypotheses 1a and 1b each state the specific effect of dependence on the supplier's perception of buyer opportunism given the level of relational norm:

H1. The effect of dependence on the supplier's perception *of* buyer opportunism is moderated by relational norms.

H1a. Under conditions of low relational norms, the dependence of a buyer on a supplier is positively related to the supplier's perception of buyer opportunism.

H1b. Under conditions of high relational norms, the dependence of a buyer on a supplier is inversely related to the supplier's perception of buyer opportunism against the supplier.

The remaining two sets of hypotheses pertain to the supplier's perception of buyer compliance behaviors. Hypothesis 2 is about the main effect of dependence on the supplier's perception of buyer compliance, whereas Hypothesis 3 is the moderation effect associated with the level of relational norms. Both sets of hypotheses are restated based on Joshi and Arnold's study in 1998:

H2. Buyer dependence will be positively related to the supplier's perception of buyer compliance.

H3. Relational norms moderate the effect of dependence on the supplier's perception of buyer compliance.

H3a. Under high relational norms, buyer dependence on the supplier will be positively related to the supplier's perception of buyer compliance with requests made by the supplier.

H3b. Under low relational norms, buyer dependence on the supplier will not be related to the supplier's perception of buyer compliance with requests made by the supplier.

Experimental validity

We performed manipulation and realism checks to ensure the validity of the experiment. The manipulation check assessed whether subjects accurately perceived the appropriate levels of the factors as they were manipulated (Wetzel, 1977). For the manipulation check, we performed an analysis of variance (ANOVA). Subjects in the high relational norms condition reported higher levels of averaged relational norms than subjects in the low relational norms condition (5.12 vs 3.00, $p < 0.001$). Similarly, subjects in the high dependence condition reported higher levels of averaged dependence than subjects in the low dependence condition (5.40 vs 3.11, $p < 0.001$).

In addition to our full factorial design, which avoids confounding effects, the orthogonality of these manipulations was also ascertained: the averaged relational norms reported by subjects in the high vs low dependence conditions were not statistically different (4.31 vs 3.94, $p = 0.22$). Likewise, the averaged dependence reported by subjects in the high vs low relational norm conditions were not statistically different (4.50 vs 3.97, $p = 0.10$).

As aforementioned, because our experimental vignette is somewhat new, we also performed a realism check. Realism checks assess the extent to which subjects find the experimental scenario to be realistic (believable) and assume their roles seriously (Louviere *et al.*, 2000). For the realism check, we assessed subjects' responses to a set of four questions borrowed from Pilling *et al.* (1994) using a five-point Likert scale (1 – strongly disagree, 5 – strongly agree). Subjects indicated that they found the scenario realistic ($\mu = 4.33$), took their role seriously ($\mu = 4.61$), encountered similar issues before ($\mu = 2.75$, reverse coded), and were aware of the issues discussed in the scenario ($\mu = 4.32$). Moreover, subjects indicated that they would make the same decision if they were faced with the same situation at their workplace ($\mu = 4.10$). Overall, statistical results provided evidence to the integrity of our experiment.

In addition to the theoretical precedence regarding the use of student subjects in business research presented earlier, existing studies suggest that experimental subjects' context-specific experience appears to be a major threat to the validity associated with using student samples (Stevens, 2011). To address this potential concern and further ensure validity of our experiment, we empirically assessed whether subjects who possessed professional purchasing and related experience responded differently to our questionnaire compared to those who lacked such experience. Accordingly, we separated the compiled data into two groups, with one group collecting data from those who had purchasing and related working experience ($n = 44$, as aforementioned in the methodology section) and the other group collecting data from those who had no purchasing related experience ($n = 68$). We performed three ANOVA tests, one for each dependent variable (i.e. opportunism, compliance, continuance), and found no significant differences between the mean responses ($p = 0.214$, 0.507, and 0.452). This suggests that whether participants had previous professional experience did not apparently influence their responses to the experiment, providing empirical validity for our experiment despite the usage of students as surrogates. We therefore pooled all the data together for our hypothesis testing (Table III).

Analytical approach

For *H1* (including *H1a* and *H1b*), the supplier's perception of the buyer's opportunistic behavior (hereafter, opportunism) is the dependent variable. For *H2* and *H3* (including *H3a* and *H3b*), the supplier's perception of the buyer's compliance (hereafter, compliance) is the dependent variable. Before testing our hypotheses,

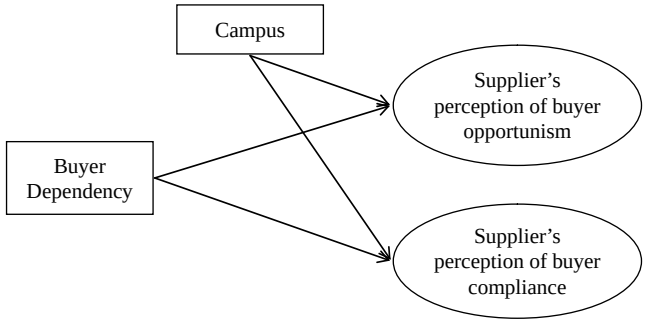
Table III.
ANOVA tests using purchasing experience as a grouping variable

	With experience ($n = 44$)	Without experience ($n = 68$)	$F_{1,110}$ (p-value)
Mean response of perceived compliance	3.803 (SD = 0.845)	3.554 (SD = 1.132)	1.564 (0.214)
Mean response of perceived opportunism	3.546 (SD = 1.789)	3.784 (SD = 1.532)	0.443 (0.507)
Mean response of perceived continuity	5.144 (SD = 0.919)	4.995 (SD = 1.286)	0.569 (0.452)

we first compared whether there were significant differences in mean responses (both opportunism and compliance) across the two campuses in our sample. The ANOVA results suggested no such differences: the mean responses for opportunism were 3.30 and 4.08 ($p = 0.008$) and the mean responses for compliance were 3.78 and 3.53 ($p = 0.18$). Similarly, we compared and found no systemic differences for the two dependent variables between genders ($p = 0.96$ and 0.14, respectively), nor among ethnic groups ($p = 0.16$ and 0.89, respectively). Since the geographic location (i.e. campus) appears to be the only variable that may potentially influence the mean responses (i.e. opportunism), we pooled the data together and controlled for campus when performing our hypothesis testing.

To establish the validity of the dependent variables, the properties of the measure were initially assessed in the total data set ($n = 126$). Cronbach's α scores for opportunism and compliance were 0.84 and 0.73, respectively, providing evidence for the reliability of these two measures. We then performed a confirmatory factor analysis (CFA) to assess the construct validity for opportunism and compliance. All factor loadings were significant and exceeded the accepted level of 0.4 (Nunnally, 1978). Discriminant validity was assessed by using two-factor CFA models with the correlation between the two constructs first set as unconstrained and then constrained to one (Bagozzi and Yi, 1994). The χ^2 difference was significantly lower for the unconstrained model compared to the constrained model ($\Delta\chi^2 = 57.21$, $p < 0.01$), indicating discriminant validity.

A structural equation model with both measurement and structural components shown in Figure 1 was used to test the hypothesis. The overall goodness of fit indices were above or close to the recommended cutoff points ($\chi^2 = 74.52$, $\chi^2/\text{df} = 1.817$, TFI = 0.873, CFI = 0.90, RMSEA = 0.081), indicating a satisfactory fit (Bentler, 1990, 1992; Hu and Bentler, 1995). Following the original two studies (i.e. Joshi and Arnold, 1997, 1998), we performed a group analysis to determine the existence of differences between high relational norms and low relational norms for hypotheses testing. To test *H1*, the relationship between dependence and opportunism was first constrained between groups and a Wald test was used to determine the existence of group differences. Similarly, to test *H2* and *H3*, the relationship between dependence and compliance was first constrained between groups and followed by a Wald test.



Notes: Relational norm is treated as a group variable; the figure includes only the structural component (not the measurement component) to increase clarity

Figure 1.
Model of buyer dependency on supplier's perception of buyer opportunism and compliance

Results

H1 is said to be supported if the χ^2 statistic of the unconstrained model is significantly lower than that of the constrained model (Bagozzi and Yi, 1994). The Wald test indicated that there was no significant difference between the high and low relational norm groups ($\chi^2 = 0.01$, df $= 1$, $p = 0.92$) regarding the effect of dependence on opportunism. Our findings indicated that dependence had no significant relationship with opportunism under low or high relational norm conditions, indicating no support for *H1a* nor *H1b*. *H1* is therefore not supported.

When testing *H2*, the structural model indicated a positive and significant main effect of dependence on compliance ($\beta = 0.547$, $p = 0.005$), supporting *H2*. For testing *H3*, the Wald test indicated no significant difference between the high and low relational norm groups ($\chi^2 = 0.229$, df $= 1$, $p = 0.63$) regarding the effect of dependence on compliance. The main effect of dependence was found to be significant and positively related to compliance under low relational norms ($\beta = 0.646$, $p = 0.07$), but only marginally significant under high relational norms ($\beta = 0.499$, $p = 0.058$). *H3* is, therefore, not supported. Table IV summarizes the results of the main hypotheses testing. In summary, our main analysis indicates that relational norms have no moderating effect.

A follow-up *post hoc* analysis was then performed to explore the main effect of relational norm on both opportunism and compliance. We combined both groups: high and low relational norms for the *post hoc* analysis since the main results indicated no difference between groups. Interestingly, the *post hoc* findings indicated that the level of relational norm had a negative and significant effect on Opportunism ($\beta = -0.870$, $p = 0.002$) and a positive and significant effect on compliance ($\beta = 0.842$, $p < 0.001$). We discuss some implications of these findings in the discussion section.

Robustness check

As with existing replication studies, we also performed two ANOVA tests. For *H1*, the first ANOVA test considered dependence as the independent variable and opportunism as the dependent variable under both low and high relational norms conditions. The results, shown in Table V, indicated that the means of the low and high dependence groups are not different under both low and high relational norms conditions, $p = 0.73$ and $p = 0.97$, respectively. In short, there is no evidence to support *H1*, nor *H1a* or *H1b*, and this is consistent with results obtained by the structural equation modeling approach. For *H2* and *H3*, the second ANOVA test considered dependence as the independent variable and compliance as the dependent variable under both low and high

Table IV.
Hypothesis testing and *post hoc* results of SEM

	DV = opportunism Effect of dependency	DV = compliance Effect of dependency
Main analysis		
Relational norm = low	−0.068 ($p = 0.866$)	0.646 ($p = 0.007$)
Relational norm = high	−0.047 ($p = 0.887$)	0.499 ($p = 0.058$)
Wald test χ^2 (comparing group difference)	$\chi^2 = 0.01$ ($p = 0.92$) (*H1*)	$\chi^2 = 0.229$ ($p = 0.63$) (*H3*)
Post hoc analysis		
Dependency	−0.095 ($p = 0.717$)	0.575 ($p = 0.003$)
Relational norm	−0.870 ($p = 0.002$)	0.842 ($p = 0.000$)

relational norms conditions. The results support *H2*, that the level of dependence had a positive effect on compliance, $F_{1,124} = 7.983$ and $p = 0.006$, and this is consistent with results obtained by the structural equation modeling approach. However, contrary to *H3a* and *H3b*, the results, shown in Table V (Panel b), also indicated that the means of the low and high dependence groups were significantly different under the low relational norms but not different under the high relational norms conditions, $p = 0.002$ and $p = 0.17$, respectively. While *H3a* was not supported due to a lack of significance, the results indicated a positive relationship under the high relational norms condition.

Collectively, results of both the SEM and ANOVA approaches were consistent. We found evidence to support *H2*. Neither approach supported *H1* nor *H3*, suggesting the absence of moderation effects associated with relational norms.

Discussion and conclusion

Comparing our findings with existing studies, several interesting observations emerge. First, buyer dependence was found to be positively related to buyer compliance behaviors in this study (in support of *H2*), which was also supported in the original studies. This finding indicates that, irrespective of whose viewpoint is taken (buyer stated behaviors vs supplier's perception of buyer behaviors), there is strong support for the idea that higher levels of dependence lead to higher levels of compliance. Both suppliers and buyers believe that buyers that are more dependent and reliant on suppliers are more willing to comply to supplier's needs.

Second, this replication study did not find the moderation effect of relational norms on either buyer compliance or buyer opportunistic behaviors (*H1* and *H3*). This is in stark contrast to the findings of the previous studies, taken from a buyer's perspective, conducted by Joshi and Arnold (1997, 1998) and Hung *et al.* (2009) where moderating effects were found only in the professional sample. It is possible that the moderation effect is actually contingent on perspectives (buyer's vs supplier's). Decision makers assuming different perspectives could value the effect of relational norms very differently. This would indicate that there are differences between the manner in which buyer firms and supplier firms may view the same potential supply chain disruption scenario. Due to this perspective difference, it would be worthwhile to investigate various supply chain phenomena from the perspective of the supplier rather than from the perspective of the buyer, which seems to be more prevalent in the extant literature (Chen, 2013).

Third, we find that although relational norms do not have an apparent moderating effect on other factors, it does have a universal main effect on buyer compliance and opportunism. In short, our study's results indicate that suppliers perceive that relational norms have more of a direct influence on buyer's behavior. Again, this is

	DV = opportunism group mean		DV = compliance group mean	
	Relational norms = high (*H1b*)	Relational norms = low (*H1a*)	Relational norms = high (*H3a*)	Relational norms = low (*H3b*)
Dependence = low	3.15	4.29	3.86	2.89
Dependence = high	3.16	4.13	4.19	3.62
F value (*p* value)	$F_{1,65} = 0.002$ ($p = 0.97$)	$F_{1,57} = 0.124$ ($p = 0.73$)	$F_{1,65} = 1.896$ ($p = 0.17$)	$F_{1,57} = 10.577$ ($p = 0.002$)

Table V. Results of ANOVA (robustness check)

different from what actions buyers might actually take according to previous studies. As a result, business practices such as open communication, long-term commitment, gain sharing, and other aspects of partnerial relations espoused in the literature for some time have been shown to create effective buyer-supplier relationships. However, our study implies that these relationship building practices might benefit the supplier and buyer differently since both their reactions to the same disruptive event might simply not be the same. High relational norms could lead a supplier to strongly believe that the buyer will react in a certain manner but the buyer simply might not. That is, our results seem to indicate that suppliers tend to have an overly simplistic view of the buyer's behavior regarding the effect of relational norms. A supplier may be able to observe the direct actions of the buyer with regards to its actions toward the supplier, but the supplier is not able to perceive or observe the different moderating effects influencing the buyer. Thus, one practical implication would be to suggest that supplier agents (e.g. key account managers) should carefully observe a buyer's behavior because the buyer appears to be considering, handling, and managing nuances of the relationship that may not be readily visible or apparent to the supplier. Therefore, the supplier should not underestimate, or take too lightly, the nuances that a buyer's behavior may reveal.

In conclusion, our replication study implies that only the effect of dependence on compliance is generalizable. The moderating effect of relational norms cannot be generalized to students as surrogate decision makers nor to the supplier's perception of buyers' behaviors, indicating the existence of boundary conditions. These findings extend our understanding of the generalizability of the original studies. This study also sets the groundwork for several interesting future research investigations. Clearly, more detailed comparisons between the buyer's and supplier's views on the same disruptive supply chain phenomenon would reveal whether a supplier tends to underestimate a buyer's behavior and under what conditions this may occur. In addition, it could also be that there are some individual level factors that lead to the perspective differences. Dependence and relational norms are essentially manipulated at the firm relationship level in our current study. However, it is possible that agent characteristics, which are at the individual level, or the interaction between agent characteristics and relational norms contribute to this perspective difference. Thus, future research could focus on finding what behavioral characteristics may be contributing to or mitigating the gap between the supplier's perception and the buyer's actual behavior when both parties face a potential supply chain disruption situation.

Note

1. Other replication studies in the OM/SCM literature examine the relationship between flexibility and environmental uncertainty (Pagell and Krause, 2004), rigid flexibility (da Silveira, 2006), JIT purchasing (Kaynak and Hartley, 2006), the theory of production competence (Schmenner and Vastag, 2006), information systems outsourcing (Samaddar and Kadiyala, 2006), purchasing and corporate social responsibility (Carter, 2004), and so on.

References

Alexander, C.S. and Becker, H.J. (1978), "The use of vignettes in survey research", *Public Opinion Quarterly*, Vol. 42 No. 1, pp. 93-104.

Ashton, R.H. and Kramer, S.S. (1980), "Students as surrogates in behavioral accounting research: some evidence", *Journal of Accounting Research*, Vol. 18 No. 1, pp. 1-15.

Bachrach, D.G., Powell, B.C., Bendoly, E. and Richey, R.G. (2006), "Organizational citizenship behavior and performance evaluations: exploring the impact of task interdependence", *Journal of Applied Psychology*, Vol. 91 No. 1, pp. 193-201.

Bagozzi, R.P. and Yi, Y. (1994), "Advanced topics in structural equation models", in Bagozzi, R.P. (Ed.), *Advanced Methods of Marketing Research*, Blackwell, Cambridge, MA, pp. 1-52.

Bateman, T.S. and Zeithaml, C.P. (1989), "The psychological context of strategic decisions: a model and convergent experimental findings", *Strategic Management Journal*, Vol. 10 No. 1, pp. 59-74.

Bendoly, E. and Swink, M. (2007), "Moderating effects of information access on project management behavior, performance and perceptions", *Journal of Operations Management*, Vol. 25 No. 3, pp. 604-622.

Bentler, P.M. (1990), "Comparative fit indexes in structural models", *Psychological Bulletin*, Vol. 107 No. 2, pp. 238-246.

Bentler, P.M. (1992), "On the fit of models to co variances and methodology to the Bulletin", *Psychological Bulletin*, Vol. 112 No. 3, pp. 400-404.

Carter, C.R. (2004), "Purchasing and social responsibility: a replication and extension", *Journal of Supply Chain Management*, Vol. 40 No. 4, pp. 4-16.

Chen, Y.-S. (2013), "Buyer-supplier relationship dissolution: a critical review", working paper.

Corfman, K.P. and Lehmann, D.R. (1994), "The prisoner's dilemma and the role of information in setting advertising budgets", *Journal of Advertising*, Vol. 23 No. 2, pp. 35-48.

da Silveira, G.J. (2006), "Effects of simplicity and discipline on operational flexibility: an empirical re-examination of the rigid flexibility model", *Journal of Operations Management*, Vol. 24 No. 6, pp. 932-947.

Deshpande, S.P., Joseph, J. and Shu, X. (2005), "The impact of emotional intelligence on counterproductive behavior in China", *Management Research News*, Vol. 28 No. 5, pp. 75-85.

Dineen, B.R., Noe, R.A., Shaw, J.D., Duffy, M.K. and Wiethoff, C. (2007), "Level and dispersion of satisfaction in teams: using foci and social context to explain the satisfaction-absenteeism relationship", *Academy of Management Journal*, Vol. 50 No. 3, pp. 623-643.

Fink, R.C., Edelman, L.F., Hatten, K.J. and James, W.L. (2006), "Transaction cost economics, resource dependence theory, and customer-supplier relationships", *Industrial and Corporate Change*, Vol. 15 No. 3, pp. 497-529.

Fisher, C.M., Elrod, C.C. and Mehta, R. (2011), "A replication to validate and improve a measurement instrument for Deming's 14 points", *International Journal of Quality & Reliability Management*, Vol. 28 No. 3, pp. 328-358.

Ford, J.D. and Hegarty, W.H. (1984), "Decision makers' beliefs about the causes and effects of structure: an exploratory study", *Academy of Management Journal*, Vol. 27 No. 2, pp. 271-291.

Frohlich, M.T. and Dixon, J.R. (2006), "Reflections on replication in OM research and this special issue", *Journal of Operations Management*, Vol. 24 No. 6, pp. 865-867.

Gassenheimer, J.B. and Calantone, R.J. (1994), "Managing economic dependence and relational activities within a competitive channel environment", *Journal of Business Research*, Vol. 29 No. 3, pp. 189-197.

Heide, J.B. and John, G. (1988), "The role of dependence balancing in safeguarding transaction-specific assets in conventional channels", *The Journal of Marketing*, Vol. 52 No. 1, pp. 20-35.

Heide, J.B. and John, G. (1990), "Alliances in industrial purchasing: the determinants of joint action in buyer-supplier relationships", *Journal of Marketing Research*, Vol. 27 No. 1, pp. 24-36.

Heide, J.B. and John, G. (1992), "Do norms matter in marketing relationships?", *The Journal of Marketing*, Vol. 56 No. 2, pp. 32-44.

Hendricks, K.B. and Singhal, V.R. (2005), "An empirical analysis of the effect of supply chain disruptions on long-run stock price performance and equity risk of the firm", *Production and Operations Management*, Vol. 14 No. 1, pp. 35-52.

Hu, L.-T. and Bentler, P.M. (1995), "Evaluating model fit", in Hoyle, R.H. (Ed.), *Structural Equation Modeling: Concepts, Issues, and Applications*, Sage, Thousands Oaks, CA, pp. 76-99.

Hubbard, R. and Armstrong, J.S. (1994), "Replications and extensions in marketing: rarely published but quite contrary", *International Journal of Research in Marketing*, Vol. 11 No. 3, pp. 233-248.

Hubbard, R. and Lindsay, R.M. (1995), "Caveat emptor applies to the consumption of published empirical research results, too", *Management Research News*, Vol. 18 Nos 10/11, pp. 49-55.

Hubbard, R., Vetter, D.E. and Little, E.L. (1998), "Replication in strategic management: scientific testing for validity, generalizability, and usefulness", *Strategic Management Journal*, Vol. 19 No. 3, pp. 243-254.

Hung, K.T., Ro, Y.K. and Tangpong, C. (2009), "Agent characteristics and compliance behavior in supply chain disruptions", *Journal of Business & Management*, Vol. 15 No. 1, pp. 51-71.

Joshi, A.W. and Arnold, S.J. (1997), "The impact of buyer dependence on buyer opportunism in buyer-supplier relationships: the moderating role of relational norms", *Psychology & Marketing*, Vol. 14 No. 8, pp. 823-845.

Joshi, A.W. and Arnold, S.J. (1998), "How relational norms affect compliance in industrial buying", *Journal of Business Research*, Vol. 41 No. 2, pp. 105-114.

Kaynak, H. and Hartley, J.L. (2006), "Using replication research for just-in-time purchasing construct development", *Journal of Operations Management*, Vol. 24 No. 6, pp. 868-892.

Kaynak, H. and Hartley, J.L. (2008), "A replication and extension of quality management into the supply chain", *Journal of Operations Management*, Vol. 26 No. 4, pp. 468-489.

Kerlinger, F.N. (1986), *Foundations of Behavioral Research*, 3rd ed., Holt, Rinehart & Winston, New York, NY.

Key, S. (1997), "Analyzing managerial discretion: an assessment tool to predict individual policy decisions", *International Journal of Organizational Analysis*, Vol. 5 No. 2, pp. 134-155.

Liyanarachchi, G.A. and Milne, M.J. (2005), "Comparing the investment decisions of accounting practitioners and students: an empirical study on the adequacy of student surrogates", *Accounting Forum*, Vol. 29 No. 2, pp. 121-135.

Louviere, J., Hensher, D. and Swait, J. (2000), *Stated Preference Modeling: Theory, Methods and Applications*, Cambridge University Press, Cambridge.

McCarter, M.W. and Northcraft, G.B. (2007), "Happy together? Insights and implications of viewing managed supply chains as a social dilemma", *Journal of Operations Management*, Vol. 25 No. 2, pp. 498-511.

Mantel, S.P., Tatikonda, M.V. and Liao, Y. (2006), "A behavioral study of supply manager decision-making: factors influencing make versus buy evaluation", *Journal of Operations Management*, Vol. 24 No. 6, pp. 822-838.

Mittelstaedt, R.A. and Zorn, T.S. (1984), "Econometric replication: lessons from the experimental sciences", *Quarterly Journal of Business and Economics*, Vol. 23 No. 1, pp. 9-15.

Morgan, R.M. and Hunt, S.D. (1994), "The commitment-trust theory of relationship marketing", *The Journal of Marketing*, Vol. 58 No. 3, pp. 20-38.

Morgan, N.A., Kaleka, A. and Gooner, R.A. (2007), "Focal supplier opportunism in supermarket retailer category management", *Journal of Operations Management*, Vol. 25 No. 2, pp. 512-527.

Nunnally, J.C. (1978), *Psychometric Theory*, McGraw-Hill, New York, NY.

Pagell, M. and Krause, D.R. (2004), "Re-exploring the relationship between flexibility and the external environment", *Journal of Operations Management*, Vol. 21 No. 6, pp. 629-649.

Pilling, B.K., Crosby, L.A. and Jackson, D.W. (1994), "Relational bonds in industrial exchange: an experimental test of the transaction cost economic framework", *Journal of Business Research*, Vol. 30 No. 3, pp. 237-251.

Popper, K. (1959), *The Logic of Scientific Discovery*, Routledge, London.

Roering, K.J., Schooler, R.D. and Morgan, F.W. (1976), "An evaluation of marketing practices: businessmen, housewives and students", *Journal of Business Research*, Vol. 4 No. 2, pp. 131-144.

Rosenthal, R. and Rosnow, R.I. (1984), *Essentials of Behavioral Research: Methods and Data Analysis*, McGraw-Hill, New York, NY.

Rungtusanatham, M., Wallin, C. and Eckerd, S. (2011), "The vignette in a scenario-based role-playing experiment", *Journal of Supply Chain Management*, Vol. 47 No. 3, pp. 9-16.

Rungtusanatham, M., Forza, C., Filippini, R. and Anderson, J.C. (1998), "A replication study of a theory of quality management underlying the Deming management method: insights from an Italian context", *Journal of Operations Management*, Vol. 17 No. 1, pp. 77-95.

Samaddar, S. and Kadiyala, S. (2006), "Information systems outsourcing: replicating an existing framework in a different cultural context", *Journal of Operations Management*, Vol. 24 No. 6, pp. 910-931.

Schmenner, R.W. and Vastag, G. (2006), "Revisiting the theory of production competence: extensions and cross-validations", *Journal of Operations Management*, Vol. 24 No. 6, pp. 893-909.

Siemsen, E. (2011), "The usefulness of behavioral laboratory experiments in supply chain management research", *Journal of Supply Chain Management*, Vol. 47 No. 3, pp. 17-18.

Stevens, C.K. (2011), "Questions to consider when selecting student samples", *Journal of Supply Chain Management*, Vol. 47 No. 3, pp. 19-21.

Tangpong, C. and Ro, Y.K. (2008), "Student-manager surrogacy in supply chain decision making", *Journal of Business and Management*, Vol. 14 No. 1, pp. 77-91.

Tangpong, C. and Ro, Y.K. (2009), "The role of agent negotiation behaviors in buyer-supplier relationships", *Journal of Managerial Issues*, Vol. 21 No. 1, pp. 58-79.

Tangpong, C., Hung, K.T. and Ro, Y.K. (2010), "The interaction effect of relational norms and agent cooperativeness on opportunism in buyer-supplier relationships", *Journal of Operations Management*, Vol. 28 No. 5, pp. 398-414.

Thomas, S.P., Thomas, R.W., Manrodt, K.B. and Rutner, S.M. (2013), "An experimental test of negotiation strategy effects on knowledge sharing intentions in buyer-supplier relationships", *Journal of Supply Chain Management*, Vol. 49 No. 2, pp. 96-113.

Vastag, G. (2004), "Revisiting ISO 14000 diffusion: a new 'look' at the drivers of certification", *Production and Operations Management*, Vol. 13 No. 3, pp. 260-267.

Wathne, K., Biong, H. and Heide, J. (2001), "Choice of supplier in embedded markets: relationship and marketing program effects", *Journal of Marketing*, Vol. 65 No. 2, pp. 54-66.

Wetzel, C.G. (1977), "Manipulation checks: a reply to kidd", *Representative Research in Social Psychology*, Vol. 8 No. 2, pp. 88-93.

Williamson, O.E. (1975), *Markets and Hierarchies*, The Free Press, New York, NY, pp. 26-30.

Williamson, O.E. (1979), "Transaction-cost economics: the governance of contractual relations", *Journal of Law & Economics*, Vol. 22 No. 2, pp. 233-261.

Wimalasiri, J.S. (2001), "Moral reasoning capacity of management students and practitioners: an empirical study in Australia", *Journal of Managerial Psychology*, Vol. 16 Nos 7/8, pp. 614-634.

Wyld, D.C. and Jones, C.A. (1997), "An empirical look at the use of managerial and non-managerial student subjects for inquiries into ethical management", *Management Research News*, Vol. 20 No. 9, pp. 18-30.

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