

Buffering and Amplifying Effects of Relationship Commitment in Business-to-Business Relationships

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WEB APPENDIX A

EXPERIMENTAL MANIPULATIONS OF STUDIES 1, 2 AND 3¹

High Calculative Commitment: As purchasing manager responsible for microchips, you find yourself in a situation in which it is difficult to find a suitable replacement for your existing supplier. If you were to decide to stop purchasing from this supplier, it would be difficult to replace the components they provide with similar purchases from alternative suppliers. You would not be able to find a suitable replacement without spending a great deal of time and effort to locate the best possible new supplier. Switching suppliers would also negatively affect your manufacturing processes. Your production system cannot be adapted easily to use components from a new supplier. The procedures and routines that you have developed are non-standard and tailored to the current supplier of this component. Your employees have acquired substantial skills in the process of working with the current supplier, and these skills cannot be easily used to fit the new supplier's specifications. Your company has made substantial investments that are specific to the relationship with your current supplier, and it will not be easy to shift your company's business to other suppliers.

Low Calculative Commitment: As purchasing manager responsible for microchips, you find yourself in a situation in which it is not difficult to find a suitable replacement for the existing supplier. If you were to decide to stop purchasing from this supplier, you could easily replace the components they provide with purchases from alternative suppliers. You could switch to any of these alternative suppliers without spending much time and effort to locate the best new supplier. Switching suppliers would not negatively affect your manufacturing processes. Your production system can be easily adapted to use components from a new supplier. The procedures and routines that you have developed are standard and equally adaptable to any other supplier of this component. The skills that your employees have acquired in the process of working with this supplier can be easily transferred to coordinate with a new supplier. Your company has made little investment specific to the relationship with the current supplier, and it would be easy to shift your company's business to other suppliers.

High Affective Commitment: You have a close relationship with your supplier, which is based on strong mutual commitment. You enjoy working with this supplier and find it easy and pleasurable to do business with the people you deal with in the supplier's organization. The supplier has regularly invited you to socialize over lunch and dinner, as well as at sports events and other social occasions. Through the friendship you have developed, you have felt

¹ In studies 1 and 2, we manipulate all the factors (affective commitment, calculative commitment, ethical violations and opportunistic behavior). In study 3, we manipulate only two factors (level of ethical violations and opportunistic behavior). Both affective and calculative commitment are measured in study 3.

increasingly comfortable sharing your personal thoughts, as well as your business considerations, with the supplier. If this supplier were to encounter an unexpected difficulty, you would not hesitate to help them out. You believe the level of trust and understanding is high in the relationship.

Low Affective Commitment: You have an arm's-length (i.e., not very close) relationship with your supplier. Neither party is strongly committed to the relationship. You benefit from working with this supplier, but often find the people you do business with difficult. Infrequently, the supplier has invited you to lunch or to a sports event, but only once have you accepted. On that occasion, conversation focused mainly on business matters, and you did not feel comfortable sharing your personal thoughts outside of business. You consider your relationship with this supplier strictly a matter of business. If this supplier were to encounter an unexpected difficulty, you would think carefully before offering assistance to help them out. You believe the level of trust and understanding in the relationship is modest at best.

Severe Opportunism: During a review of the current supplier's performance, you note that the current supplier has behaved opportunistically when dealing with you. For example, the supplier has repeatedly engaged in behaviors that were explicitly or implicitly prohibited by your company. In one instance, the current supplier leaked the design of a new version of the microchip that you developed to your direct competitor. The specifications related to this design are considered proprietary and confidential. In another instance, they demanded a big price increase from your firm when the specifications for the microchip changed. Although your contract does not expressly prohibit such an increase, you had an informal agreement that prices would remain the same. In addition, they have been very slow to adapt to agreed upon changes in product specifications. You strongly believe that the current supplier has taken undue advantage of the loopholes in your current contract. These are major breaches, and, as a result, you are very concerned about the behavior of the current supplier.

Mild Opportunism: During a review of the current supplier's performance, you note that the current supplier has behaved opportunistically when dealing with you. For example, the supplier has on a few occasions engaged in behaviors that were explicitly or implicitly prohibited by your company. In one instance, the current supplier shared news of a new microchip that you were developing with a competitor. In another instance, they asked for a small price increase from your firm when the specifications for the microchip changed. Although your contract does not expressly prohibit such an increase, you had an informal agreement that prices would remain the same. In addition, they have been slow to adapt to agreed upon changes in product specifications. Although these are relatively minor breaches, you still are becoming concerned about the behavior of the current supplier.

Severe Ethical Violations: During a review of the current supplier's performance, you have obtained conclusive evidence from other suppliers that the current supplier has on many occasions behaved unethically – in ways that are neither fair nor honest. You have obtained evidence that the current supplier has provided false information about the specifications of the

microchip to potential and current customers. In other situations, sources you trust claim unequivocally that the supplier manipulated data about the performance of their microchips in presentations to prospective clients. The current supplier also has a reputation for repeatedly using high-pressure sales and negotiation tactics to close business with customers. These are major breaches of ethical conduct and, even though they are not directed specifically at you or your company, you are very concerned about the behavior of the current supplier that explicitly violates societal norms of fairness and honesty.

Mild Ethical Violations: During a review of the current supplier's performance, you have noted rumors from other suppliers that the current supplier has on a few occasions behaved in ways that might lead some to question their fairness and honesty, and perhaps even consider them unethical. In one instance, the current supplier allegedly provided false information about the specifications of a microchip to a potential customer. In another situation, you suspect that the current supplier manipulated data about the performance of their microchips in a presentation to a prospective client. The current supplier also has a reputation for occasionally using high-pressure sales and negotiation tactics to close business with customers. Although these are relatively minor breaches of ethical conduct and are not directed at specifically at you or your company, you are somewhat concerned about the behavior of the current supplier that seemingly violates societal norms of fairness and honesty.

WEB APPENDIX B

MEASURES AND MANIPULATION CHECKS

All items are measured on a seven-point Likert Scale where 1 = strongly disagree and 7 = strongly agree

Manipulation check for calculative commitment

1. I do not have enough options to consider dropping the current supplier.
2. The costs associated with switching to a new supplier might far exceed the benefits from such a move.
3. It would cost my company a lot of time, effort, and money to switch to a new supplier.
4. Our relationship with the current supplier is based on an assessment of the costs and benefits of continuing the relationship.

Manipulation check for affective commitment

1. I am emotionally attached to the current supplier.
2. I have a close relationship with the current supplier.
3. I really enjoy working with the current supplier.
4. It is easy to do business with the current supplier.
5. I feel as if this supplier's problems are my own.
6. I feel comfortable sharing personal thoughts and business considerations with this supplier.

Manipulation check for ethical violations

1. The current supplier has behaved unethically.
2. The violations by the current supplier are relatively minor.
3. The current supplier's behavior has violated societal norms of fairness and honesty.
4. The current supplier has behaved unfairly.
5. The current supplier has behaved in a dishonest manner.

Manipulation check for opportunism

1. The current supplier has taken undue advantage of our relationship.
2. The current supplier has broken "the rules of our relationship".
3. The current supplier's behavior violates the spirit of the contract between us.
4. The current supplier has failed to fulfill their promises and obligations.
5. The current supplier has repeatedly behaved opportunistically with us.

Calculative commitment (adapted from Burnham, Frels, and Mahajan 2003 and Gremler 1995)

Please indicate your level of agreement to the following statements [Measured on a seven-point Likert Scale where 1= Strongly disagree and 7 = Strongly agree]

a) Search costs

1. It takes a great deal of time and effort to locate a new supplier.
2. Finding information about other suppliers is difficult.
3. It would be costly to search for information about other suppliers.
4. We cannot afford the time to fully evaluate a new supplier.

b) Sunk costs

1. We have invested in procedures specific to this supplier.
2. We have significant investments in capital equipment specific to this supplier.
3. Our production system has been tailored to use particular products supplied by this supplier.

c) Setup costs

1. Not much time and effort is involved in changing to a new supplier. (*reversed*)
2. We would have to do a lot of initial work in starting to procure from a new supplier.
3. Getting used to how a new supplier works will be difficult.
4. Switching to a new supplier involves some upfront costs.

Affective commitment (adapted from Allen and Meyer 1990 and Kumar, Hibbard, and Stern 1994)

Please indicate your level of agreement to the following statements [Measured on a seven-point Likert Scale where 1= Strongly disagree and 7 = Strongly agree] (Study 1: alpha = 0.73, Study 2: alpha = 0.87)

1. I have little, if any, emotional attachment to this supplier. (*reversed*)
2. It is a pleasure to deal with this supplier.
3. I really enjoy working with this supplier.
4. It is easy to do business with this supplier.
5. I feel as if the supplier's problems are my own.

Switching Intentions

How likely is it that you would switch to a new supplier? (Measured on a 0 – 100 scale where 0 is “Not at all likely to switch to the new supplier” and 100 is “Extremely likely to switch to the new supplier”)

Conformance to Normative Standards

1. Please rate the extent to which you believe this supplier's behavior conforms to what you would typically expect from a supplier (1 -7 scale with 1 being “Does not confirm at all” and 7 being “Conforms to a high degree”)
2. Please rate the extent to which you believe this supplier's behavior is typical of incumbent supplier behavior (1 -7 scale with 1 being “Not at all typical” and 7 being “Highly typical”)
3. Please rate the extent to which the supplier's behavior is acceptable for the situation (1 -7 scale with 1 being “Not at all acceptable” and 7 being “Highly acceptable”)

Results of Manipulation Checks – Study 1

We assessed the efficacy of the four manipulations using checks as described in Appendix B. A t-test showed higher calculative commitment reported in the high than in

the low calculative commitment condition (4.42 vs. 2.83, $t = 6.52, p < .001$). Subjects in the high affective commitment condition also reported higher affective commitment than those in the low condition did (5.09 vs. 2.39, $t = 24.66, p < .001$). Participants in the severe ethical violations condition reported greater severity of violations than did those in the mild condition (5.42 vs. 4.90, $t = 3.27, p < .001$), and participants in the high opportunism condition reported more severe opportunism than those in the low opportunism condition (5.65 vs. 4.87, $t = 4.73, p < .001$).

Results of Manipulation Checks – Study 2

We assessed the efficacy of the four manipulations (affective commitment, calculative commitment, opportunism, and ethical violations) using the checks described in Appendix B. The manipulation check for calculative commitment showed higher commitment in the high than in the low condition (4.76 vs. 2.67, $F = 227.52, p < .001$). The affective commitment manipulation check indicated higher commitment in the high than in the low condition (4.83 vs. 2.42, $F = 294.03, p < .001$). Likewise, participants in the severe ethical violations condition reported greater severity of violations than did those in the mild condition (5.00 vs. 4.70, $F = 4.05, p < .05$), and those in the high opportunism condition reported higher opportunism than those in the low condition (5.87 vs. 5.33, $F = 14.29, p < .001$).

Results of Manipulation Checks – Study 3

The manipulations performed as expected. Participants in the severe ethical violations condition reported more severe violations than those in the mild condition (6.27 vs. 5.25, $F = 18.80, p < .001$), and participants in the high opportunism condition reported higher opportunism than those in the low opportunism condition (6.2 vs. 5.7, $F = 3.01, p < .10$).

Measurement Model Validation – Study 3

Calculative Commitment. We conceptualized calculative commitment as buyers' reluctance to leave a relationship because of perceived material benefits of staying and costs of leaving. As such, we operationalized it as a second-order latent construct, consisting of three first-order dimensions: search costs, set-up costs, and sunk costs. We developed multi-item scales for each first-order dimension (four items for search costs, four items for setup costs, and three items for sunk costs) based on Burnham, Frels, and Mahajan (2003) and Gremler (1995).

We conducted a hierarchical confirmatory factor analysis of these scales and obtained a fit of $\chi^2_{41 \text{ d.f.}} = 73.82$, CFI = .96, RMSEA = .04, SRMR = 0.07) indicating that the model provides an acceptable representation of the data.² All 11 measurement items loaded highly on the intended first-order factors, and the first-order factors loaded highly on the second-order factor. Our final measure of calculative commitment consisted of the mean of the first-order factors.

Affective Commitment. Consistent with prior research (Allen and Meyer 1990; Gruen, Summers, and Acito 2000; Kumar, Hibbard, and Stern 1994), we conceptualized AC as buyers' psychological attachment to a supplier. We adapted measurement items from Allen and Meyer (1990) and Kumar, Hibbard, and Stern (1994).

Discriminant Validity. We assessed the discriminant validity of the affective and calculative commitment measures with a confirmatory factor analysis model using LISREL 8.71. All factor loadings were significant, and fit indices met or exceeded recommended levels ($\chi^2_{19 \text{ d.f.}} = 101.77$, CFI = .95, NNFI = .93, RMSEA = .056, SRMR = .063). The composite reliabilities ranged from .78 to .90, indicating acceptable levels of

² We specified an alternative model wherein all three dimensions were correlated. Although the model fit was acceptable [$\chi^2_{41 \text{ d.f.}} = 103.76$, CFI = .91, RMSEA = .089, SRMR = 0.091], a comparison of the fit indices across the correlated and higher-order model indicated that the higher-order model fit the data better.

reliability for the constructs (Fornell and Larcker 1981). The AVEs ranged from 55% to 70%, which are above the recommended level of 50% (Bagozzi and Yi 1988; Grewal, Cote, and Baumgartner 2004), and all exceeded the largest shared variance between constructs.

Control Variables. We included as control variables the number of years the buyer personally has dealt with the supplier, the number of years the buying organization has dealt with the supplier, the number of suppliers in the product category, and the percentage of procurements in a product category provided by the supplier. Length of relationship has previously been shown to affect relationship continuance (Anderson and Weitz 1989), and we included the number of suppliers in a product category because having few alternatives may make it difficult for buyers to switch. Similarly, if a supplier accounts for a large percentage of procurements in a product category, it may reduce the likelihood of a buyer to switch.

WEB APPENDIX C

MEDIATION TESTS

Specifically, we reasoned that controlling for conformance to normative standards would cause the observed buffering and amplification effects, indicated by the interactions reported above, to become non-significant. That is, we expected a pattern of mediated moderation, in which an intervening process variable (i.e., conformance to normative standards) accounts for an interaction effect (Muller, Judd, and Yzerbyt 2005). We tested for mediation by conformance to normative standards for all four of the observed interactions, but for brevity we provide only a summary description here, as the results were very consistent across all four hypotheses.³

We first regressed conformance to normative standards against the two manipulations and the interaction between them to test whether the mediator was related to the independent variables. We found that conformance to normative standards was strongly related to the interaction of commitment and supplier misbehavior for all four commitment x misbehavior combinations (i.e., calculative commitment x unethical behavior, calculative commitment x opportunism, affective commitment x unethical behavior, and affective commitment x opportunism). Then, we inserted conformance to normative standards into the switching intentions equation and observed the effect on the parameter estimate for the interaction effect. For all four interactions, we found that inserting conformance to normative standards caused the interaction parameter to drop to non-significance. This indicates that controlling for conformance to normative standards accounts for (completely mediates) the observed buffering and amplification effects in a manner consistent with the assimilation and contrast framework.

³ Exact results for all tests can be obtained from the first author.

WEB APPENDIX D

METHODOLOGICAL DETAILS OF STUDY 3

The sampling frame consisted of a national list of over 750 purchasing agents belonging to SIC Groups 34, 35, 36 and 38, and representing 500 companies. We sent personalized e-mail messages to the 750 executives, explaining the purpose of the study and including a link to the questionnaire. Approximately 350 of these e-mails did not reach viable targets because they were returned or blocked by spam filters, or because addressees indicated an inability to participate in the survey (e.g., because they were not in the purchasing function or had moved to a different organization). We offered a \$10 gift certificate for completing the survey.

Details of Analysis

Although we measured switching intentions at the status-quo or baseline position (i.e., before the manipulations), we did not use it as a control variable, as both affective and calculative commitment were significantly related to switching intentions. Including the baseline switching intentions along with affective and calculative commitment resulted in high level of multicollinearity and unstable parameter estimates. Because previous studies have shown that affective and calculative commitment are strong predictors of switching intentions (Ganesan 1994; Morgan and Hunt 1994), we realize the source of multicollinearity and acknowledge that baseline switching intention is affected by affective and calculative commitment.

To test for order effects, we included sequence as an additional variable. However, it was not significantly related to switching intentions in any of the analyses, so we did not include it in the models reported below. We also included in each model the manipulated factor that was not a part of the decision task to control for any extraneous or residual effect of the previous manipulation. In both models, the manipulation that was not the primary focus had no effect on the corresponding switching intentions.

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