

**An empirical analysis of multiple respondents' perceptual gaps in
dyadic research on buyer-seller relationships**

WORK IN PROGRESS - PAPER

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Abstract

The purpose of this work-in-progress paper is to provide (1) a brief overview of the discussion about the usage of single vs. multiple respondents in quantitative empirical research on dyadic interactions in business relationships and (2) empirical data describing the extent to which buyer and seller organizations and different hierarchical levels inside these organizations agree in their evaluations of an ongoing relationship. The data, collected from a total of 82 respondents in three dyads, show diverging views across actors. The authors interpret data and develop directions for future research.

Introduction

The IMP group has been interested in the management of business relationships ever since its beginning. It has produced a considerable body of empirical research that describes and/or explains different facets of relationships. This research is based on various research methods, e.g. case studies or large scale quantitative studies. In this paper we look at a specific aspect of survey research into business relationships: the selection of respondents. The selection of respondents is an important step in the definition of an empirical research design. Knowledgeable respondents who are willing to reveal all relevant information are required to assure that the data collected are reliable and valid.

Our study more specifically contributes to the methodological discussion on the use of single versus multiple respondents. In this article, we use empirical data collected in three long-term buyer-supplier relationships with the same focal buying company. The data is dyadic and on average there are about 15 respondents per organisation. This research design allows us to examine differences between respondents both within organisations and between organisations. Such an approach is quite uncommon and we believe our data provide an opportunity to improve our current knowledge with respect to the use of single and multiple respondents. Our results show large differences exist in the perceptions of buying and supplying firms with respect to their collaborative relationship. Moreover, the supplying company is generally somewhat less positive about the quality of the buyer-supplier relationship. Furthermore, there are also important differences in the perceptions on collaboration within the same company. Respondents who have a more strategic level generally are more positive about the collaborative relationship than those respondents working at a tactical level. This conclusion is relevant for both the buying and the supplying firm.

In this article, we first provide theoretical background on advantages and disadvantages of using single and multiple informants in survey research. Next, we describe the research design in more detail as an introduction to the analysis of our survey results. Finally, we discuss the main implications of our findings.

Theoretical background

Methodological discussions concerning survey research often focus on the use of key versus multiple respondents. Each of these approaches has its strengths and weaknesses. The use of key informants, for example, is often criticised for having perceptual biases (Teo and King, 1997). Van Bruggen, Lilien and Kacker (2002, pp. 476) state 'when there is an error in informants' responses, using

multiple versus a single informant improves the quality of response data and thereby the validity of reported relationships in organisational marketing research’.

From an IMP perspective one could argue that an organisation is a network in itself and that different actors inside this network have different views or network pictures on what is happening inside the organisation or between the organisation and other external network actors (Henneberg, Mouzas, and Naudé 2006). Thus, a multiple respondent approach would basically not only be in line with the IMP perspective, it would almost represent a necessity in order to develop meaningful empirical research on relationships in dyads or networks.

However, using multiple respondents for survey research has also its difficulties. Kumar, Stern and Anderson (1993) recognise two problems in conducting multi-respondent research: informant selection and obtaining perceptual agreement among multiple informants. The selection problem refers to the possibility of higher response errors for informants who are less knowledgeable about the studied phenomenon. A way of dealing with this problem is to verify the competence of the informant, as suggested by Kumar, Stern and Anderson (1993). In a more recent article, Hibbard, Kumar and Stern (2001) use an informant competency measurement in their study on the impact of destructive acts in marketing channel relationships.

Against this background an important question concerns the dominating practice today. In existing marketing research, most survey-based contributions have a single respondent design. It is important to stress that in this paper we are dealing with the topic of multiple informants in the context of business-to-business relationships. Advantages and limits of using multiple informants are discussed in various streams of research, e.g. in operations research (see Boyer and Verma 2000) or in international business (see Ghoshal and Bartlett 1988). In the marketing literature, the use of multiple respondents in empirical research is also a topic of discussion in other contexts, e.g. in research on buying processes in families or other social groups (B2C setting e.g. Kim and Lee 1997), in research on inter-functional relationships inside a firm (B2B setting but intra-company perspective e.g. Harker and Harker 1998).

The most relevant literature from an industrial marketing and purchasing vantage point obviously is research on inter-organisational vertical relationships. But even when considering the other contexts in B2B and B2C, the general tendency seems to be the following: The large majority of studies uses single respondents. Many of the studies do not provide any reasons why single respondents have been chosen. Certain studies mention that drawing upon single informants is problematic but argue that the effort required to collect answers from multiple respondents is too large as compared to the value of the additional information obtained (e.g. Tatikonda and Montoya-Weiss 2001). Others cite studies which provide evidence that responses of multiple informants within the same company are often highly correlated and thus argue that relying on single or key informants is tolerable. Finally, certain authors provide explanations why –inside the unit of analysis they study – only one person is knowledgeable (e.g. Capron and Hulland 1999, Morgan et al. 2003) and hence the collection of additional answers would rather decrease than increase the validity of the data collected.

Apart from discussing the use of key or multiple respondents, there are also different ways of defining multi-respondent research. First, multi-respondent studies may have several informants within the same organisation. For example, Kumar, Stern and Anderson (1993) reveal that different positions within a firm can have different perspectives on the same relationship with a dealer company. They distinguish between sales managers and fleet managers and find significant differences between the reports of two informant positions on various facets. Second, multi-respondent studies can refer to dyadic research approaches, where data is collected on both sides of the dyad, including the buying and the supplying perspective (e.g. Hibbard, Kumar and Stern, 2001). From an IMP point of view, both aspects would be required to provide a comprehensive and realistic picture of focal relationships in survey research.

Research method

Our empirical data are based on an on-going research project on ‘collaboration in buyer-supplier relationships’ (see Van de Vijver and Vos, 2007). The research design allows for comparison of individual perceptions of collaboration across the buyer-supplier dyad, and for comparing perspectives within the buying and the supplying organisations. In 2005, we collected dyadic data from three buyer-supplier relationships with about 15 respondents for each participating organisation. The buying company is a large multinational firm operating in the high-tech industry and has recently established a platform with about 25 suppliers in order to enhance these ‘strategic’ relationships.

Our study differs from extant research. Kumar, Stern and Anderson (1993) and Hibbard, Kumar and Stern (2001) ensure the competence of the informants differently compared to our study. They use an informant competency measurement, while we work directly with contact persons to determine which selection of informants best covers all aspects of the relationship. There is a contact person for the buying organisation and one for the supplying organisation in each of the studied relationships. These organisations are large multinational companies and have been working together for a considerable amount of time. The contact persons contributed to the definition of a list of around 15 respondents for each organisation. These informants work in different areas of the relationship and may thus have different perspectives. When using a key informant approach, it would not be possible to recover this kind of detailed information nor to make a comparison of the intra-firm perspectives of collaboration in a specific buyer-supplier relationship. All respondents of the buying firm are only involved in one of the studied relationships.

In total, we received complete responses from 82 of 89 respondents (response rate 92 %). Such a high response rate is extraordinary and to a large extent the result of using key contact persons within each of the organisations. These contact persons were responsible for sending out the surveys and reminding the respondents. High response is especially important for our study since we compare individual perceptions across the dyad. Low response within the buyer and supplier organisation would imply an even sharper fall in the matched pairs available for data analysis. The summary of the data collection is provided in Table 1.

	Relationship I		Relationship II		Relationship III		Total
	Buyer A	Supplier B	Buyer C	Supplier D	Buyer E	Supplier F	
# surveys	16	21	16	15	10	11	89
response rate	94%	90%	75%	100%	100%	100%	82 (92%)

Table 1 Sample composition and response rates per organization

By using dyadic data with multiple respondents from the buying and supplying organisation, we intend to show the value of using multiple respondents in marketing research. Our analyses focus on two main areas. First, we examine the extent of perceptual agreement between informants of the buying and the supplying company. This part of our analysis builds on the work by Hibbard, Kumar and Stern (2001) and other authors using a dyadic research approach with matched pairs. We elaborate on the differences and agreements between informants of different sides of the dyad, often also referred to as boundary spanners. These persons regularly interact within the relationship and our analysis sheds light on their perceptions of the extent of collaboration in the working relationship. Our second contribution lies in contributing to the discussion on the use of multiple respondents within the same organisation. For example, we compare the scores of the higher management within an organisation with the scores of the informants operating on a tactical level. Such an approach resembles that of Kumar, Stern and Anderson (1993), who look at the intra-firm perceptual differences and agreements of sales managers and fleet managers.

The complete survey instrument includes 41 items. The survey is based on a questionnaire using items developed in earlier articles on issues related to relationship management. The full list of survey items

and their original references are available in Van de Vijver and Vos (2007). The survey items cover different aspects of collaboration, for example commitment, communication, trust, problem solving, and performance. For this study, we omitted some items and focus specifically on those regarding commitment, dependence, trust, and satisfaction, since these constructs are commonly used in existing research in relationship marketing. The majority of the items is formulated in such a way that respondents need to indicate their perception of the buyer and the supplier score.

Comparison of dyadic perspectives on collaboration

The dyadic multi-respondent design of this study provides the possibility to compare survey results of groups of respondents. We first examine the scores of groups across the dyad. In other words, we compare the scores of the ‘strategic’ respondents of the buying company with those of the supplying company, and the same holds for the ‘tactical’ respondents. In Table 2, an overview is provided of the number of strategic and tactical respondents per organisation (n = 82).

	Relationship I		Relationship II		Relationship III	
	Buyer A	Supplier B	Buyer C	Supplier D	Buyer E	Supplier F
Strategic	5	5	12	5	4	6
Tactical	7	10	7	10	6	5

Table 2 Distribution of respondents across strategic and tactical level of participating organizations

As indicated before, the focus of this study is specifically on perceptions of commitment, dependency, satisfaction, and trust. The survey includes 11 perceptual measures for these topics: buyer senior management commitment (B_COMMIT), supplier senior management commitment (S_COMMIT), buyer devoted time and effort (B_TIMEEFF), supplier devoted time and effort (S_TIMEEFF), buyer dependency (B_DEPEND), supplier dependency (S_DEPEND), buyer trustworthiness (B_TRUSTW), supplier trustworthiness (S_TRUSTW), trust in the buyer-supplier relationship (TRUST), buyer overall satisfaction (B_SATISF), and supplier overall satisfaction (S_SATISF). For each of these items, we calculated average scores per group of respondents (see Table 3).

LEVEL	ITEM	Buyer A	Seller B	DIFF AB	Buyer C	Seller D	DIFF CD	Buyer E	Seller F	DIFF EF
STRAT	B_COMMIT	5,60	5,40	0,20	6,00	6,00	0,00	6,00	5,67	0,33
	S_COMMIT	6,00	6,20	-0,20	6,08	6,40	-0,32	5,00	6,50	-1,50
	B_DEPEND	4,60	4,20	0,40	3,83	4,20	-0,37	5,00	4,00	1,00
	S_DEPEND	4,40	4,80	-0,40	2,83	3,00	-0,17	2,75	4,67	-1,92
	B_TIMEEFF	6,00	4,80	1,20	6,00	6,00	0,00	5,00	4,67	0,33
	S_TIMEEFF	5,40	6,20	-0,80	6,00	6,60	-0,60	4,75	6,17	-1,42
	B_TRUSTW	3,80	5,80	-2,00	5,42	6,20	-0,78	5,50	6,50	-1,00
	S_TRUSTW	5,00	5,60	-0,60	5,58	5,80	-0,22	5,25	5,17	0,08
	TRUST	2,80	4,80	-2,00	5,33	5,80	-0,47	4,50	5,33	-0,83
	B_SATISF	3,40	5,20	-1,80	5,00	5,80	-0,80	5,00	5,00	0,00
	S_SATISF	4,00	5,00	-1,00	5,08	5,40	-0,32	4,75	4,67	0,08
TACT	B_COMMIT	4,43	4,40	0,03	5,71	4,80	0,91	5,17	4,00	1,17
	S_COMMIT	4,57	5,70	-1,13	5,71	6,40	-0,69	4,50	6,00	-1,50
	B_DEPEND	4,71	3,80	0,91	3,14	3,70	-0,56	5,00	3,00	2,00
	S_DEPEND	3,71	4,40	-0,69	2,86	3,90	-1,04	2,00	4,20	-2,20
	B_TIMEEFF	4,43	4,30	0,13	5,43	4,00	1,43	5,33	4,60	0,73
	S_TIMEEFF	4,71	5,10	-0,39	5,14	6,30	-1,16	5,50	6,20	-0,70
	B_TRUSTW	4,86	5,20	-0,34	5,14	5,70	-0,56	5,50	6,20	-0,70
	S_TRUSTW	5,14	4,70	0,44	5,14	5,10	0,04	5,17	4,20	0,97
	TRUST	4,29	4,40	-0,11	4,43	4,80	-0,37	4,67	5,00	-0,33
	B_SATISF	4,14	4,60	-0,46	4,57	4,50	0,07	5,50	4,00	1,50
	S_SATISF	4,14	4,30	-0,16	4,14	4,40	-0,26	4,00	3,60	0,40

Table 3 Comparison of buyer and supplier perspectives on collaboration

The differences in Table 3 are calculated by subtracting the supplier average from the buyer average, and all items are measured on a 7-point Likert-scale. A score of '1' indicates 'strongly disagree' and a score of '7' is similar to 'strongly agree'. Based on these data, two types of observations are possible. First, it is possible to compare the magnitude of perceptual differences between the buying and supplying organisation. In Relationship I (Buyer A and Supplier B) there are 6 items with a difference of 1 or more on a 7-point Likert scale between the perceptions of the buying and supplying companies, whereas there are only 3 items with such a high difference. However, most diverging are the perspectives of Buyer E and Supplier F, whose assessments differ 1 or more on a 7-point Likert-scale for 10 out of 22 items. The largest differences concern the mutual dependency in the relationship, since on a tactical level the perceptual differences for both buyer and supplier dependency are 2 or larger on a 7-point scale. Also on a strategic level, the perceptual differences on dependency are large.

Secondly, it is interesting to look at the signs of the differences, since positive values of DIFF indicate a more positive assessment by the buyer respondents, while negative values indicate that supplier respondents are more positive about a certain aspect of their buyer-supplier relationship. When considering all three buyer-supplier relationships, there are 36 items with a lower average on the buying side, 3 items without a difference, and 22 items with a more positive assessment by the supplier. When looking more closely, we find that especially in relationships I and II, the scores by the supplier are generally better than those of the buyer. Relationship III (Buyer E and Supplier F) is more ambiguous, since there is no clear pattern between the buyer and supplier scores.

Intra-firm comparison of perspectives on collaboration

Apart from comparing perspectives of collaboration across the buyer-supplier dyad, we can also compare within each of participating companies. For this purpose, we have compared each of the dimensions commitment, dependency, satisfaction, and trust between the strategic and the tactical level within the same organisation. Table 4 illustrates the intra-firm comparison of perceptual differences on collaboration in a specific buyer-supplier relationship. For example, the value 1,17 for B_COMMIT for Buyer A means that the average score regarding the top management commitment by company A is valued higher by strategic respondents than by those on a tactical level. In addition, the strategically oriented respondents are also more positive about the time and effort devoted to the relationship by Buyer A and Supplier B (B_TIMEEFF and S_TIMEEFF). The shaded cells in Table 4 highlight those items where respondents working at a tactical level have provided higher scores.

ITEM	Relationship I		Relationship II		Relationship III	
	Buyer A	Seller B	Buyer C	Seller D	Buyer E	Seller F
B_COMMIT	1,17	1,00	0,29	1,20	0,83	1,67
S_COMMIT	1,43	0,50	0,37	0,00	0,50	0,50
B_DEPEND	-0,11	0,40	0,69	0,50	0,00	1,00
S_DEPEND	0,69	0,40	-0,02	-0,90	0,75	0,47
B_TIMEEFF	1,57	0,50	0,57	2,00	-0,33	0,07
S_TIMEEFF	0,69	1,10	0,86	0,30	-0,75	-0,03
S_TRUSTW	-1,06	0,60	0,27	0,50	0,00	0,30
B_TRUSTW	-0,14	0,90	0,44	0,70	0,08	0,97
TRUST	-1,49	0,40	0,90	1,00	-0,17	0,33
B_SATISF	-0,74	0,60	0,43	1,30	-0,50	1,00
S_SATISF	-0,14	0,70	0,94	1,00	0,75	1,07

Table 4 Intra-firm comparison of perspectives on collaboration

The main observation from Table 4 is that in general strategically oriented respondents are more positive about the quality of the buyer-supplier relationship than the respondents who work on a tactical level. This is most prevalent for supplier B, where all items on commitment, dependency,

satisfaction, and trust are valued higher by the strategic respondents. The largest observed difference is in relationship II where respondents working at a strategic level for Seller D are far more positive than those working at tactical level about the time and effort devoted to the relationship by Buyer C. This is illustrated by a difference of 2,0 on a 7-point Likert-scale.

Discussion

Our results show large differences exist in the perceptions of buying and supplying firms with respect to their collaborative relationship. Moreover, the supplying company is generally somewhat less positive about the quality of the buyer-supplier relationship. Furthermore, there are also important differences in the perceptions on collaboration within the same company. Respondents who have a more strategic level generally are more positive about the collaborative relationship than those respondents working at a tactical level. This conclusion is relevant for both the buying and the supplying firm.

A possible explanation of the more negative view that respondents at the tactical level hold of the relationship compared to those respondents working at a strategic level is that the tactical people are more close to daily problems and hence are also more acquainted with the downsides of the relationship. This could imply those respondents are more conservative in their scores. In addition, the strategic respondents are often responsible for (part of) the relationship, which could result in social desirability bias (Phillips and Clancy 1972): they will not often be negative about the relationship since the quality of the relationship is part of their responsibilities.

These results are relevant for future research on industrial marketing and purchasing. It points to the necessity of using more multiple informant instead of key informant approaches in empirical research. In the IMP literature, multiple respondents are widely used in case study research. This is an almost natural situation and given the relative dominance of case study type of research within the IMP group, the issue may appear to be of small importance. However, concerning various topics IMP scholars have started moving from case study to cross-sectional, survey based quantitative research. In the larger-scale quantitative IMP studies reliance on key informants remains the dominating practice. Our data indicate that there may be a gap between this data collection approach and the IMP school of thought. It may be necessary to collect data from multiple respondents in order to reflect the different vantage points that actors in company-internal and –external networks have on their relationship. Some authors start arguing in this direction. For example Medlin (2003) analyses the implications which varying perceptions of a relationship on both sides of a dyad or among actors of a network have. He suggests the use of “clusterwise regression methodologies capable of examining dyadic data” (p.64). However, there still is much room for future research to contribute to a coherent methodological foundation for quantitative studies on industrial marketing and purchasing in various ways.

But further research relying on multiple informants is not only needed in general. We also need to clarify specific dimensions of perceptual differences. For example, it would be important to examine more closely the inter-personal differences across the buyer-seller dyad. Currently, we have concentrated on intra-firm differences and group differences across the dyad. An interesting research area would be to consider individuals working together and analyse perceptual differences at an inter-personal level. Furthermore, additional attention should be paid to the effect of the respondents' position on the survey outcome. If indeed it is true that respondents with a more strategic position are more positive in assessing the quality of collaboration in buyer-supplier relationships, than the interpretation of the research results becomes more difficult. Another important point would be to analyse whether different functional areas within each organization hold different perceptions of the relationship. The classical perspective would be to collect data from the sales, logistics, operations, finance etc. departments. But other perspectives appear just as fruitful. For example differences might exist between the people involved in value creating processes (innovation, cooperative offers etc.) and those involved in value sharing or claiming processes. Intuitively one might assume that those actors

involved in the more rewarding activities contributing to joint value creation hold more positive views of the dyad than those who need to claim their organization's "part of the pie", potentially in a conflictual atmosphere. This latter perspective is different from the one distinguishing operative and tactical hierarchical levels because both levels are usually present within one functional area.

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