

**Reflective and Formative Metrics of Relationship Value:
A Commentary Essay**

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Submission: November

Revision: December 2008

Acceptance: January 2009

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Abstract

The *Journal of Business Research* special issue (61/12) covers controversy about formative versus reflective model specification. This essay comments on that special issue and illustrates specific points relating to the controversy by discussing recent studies of business-to-business relationship value, comparing their differing specifications, and noting that the variations of specification result from quite distinct conceptualizations. The essay makes the more substantive conclusion that the differences in conceptualization result from more than one underlying streams of research and that each stream is conceptually quite distinct and needs to follow its own direction for future research. The specific case of relationship value illustrates the broad necessity for researchers to consider in-depth how they conceptualize models. Other research areas have distinct research streams that lie behind different conceptualizations and specifications that researchers must nurture explicitly if useful ontology is to develop effectively.

Key words: conceptualization; formative; reflective; relationship; value

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1. Introduction

A timely special issue of the *Journal of Business Research* (61/12) assembles a collection of papers that deal with the alternative use of formative and reflective specifications of models. The *JBR* issue addresses concern in the literature that many models are miss-specified as reflective, in accordance with classical measurement theory, when in fact they should be formative (Jarvis, Mackenzie, and Podsakoff, 2003; Law, Wong, and Mobley, 1998). The concern applies to both measurement and structural models. Behind this concern lies the point that the correct way to specify a model depends on how the researchers conceptualize it. However, a substantive issue lies deep behind the conceptualization and specification issue—quite distinct lines of research embed in the differing conceptualizations. This essay's focal issue is these distinct lines of research that researchers often do not seem to clearly recognize.

After commenting on the papers in the special issue, the essay takes some of the ideas in them and discusses in depth points that the papers make about differences in specifications, conceptualizations, and underlying lines of research enquiry. The essay illustrates its points by taking several different conceptualizations, and hence different specifications, of relationship value that appear in the marketing literature, it discusses them in depth, and applies analysis frameworks to them, particularly the framework of Law et al. (1998). The studies which the essay mainly uses to illustrate its points are those of Baxter and Matear (2004), Ulaga and Eggert (2005), and Walter, Ritter, and Gemünden (2001). Assessment of value is a critical issue for marketing practitioners and researchers, and research into performance and accountability

remain high on the Marketing Science Institute's current list of priorities, so the topic is a useful one. Further to this, the recent discussion of the service-dominant logic of marketing (e.g. Vargo and Lusch, 2004, 2008) notes the importance, for marketing as a discipline, to understand value as a key concept and notes the need to understand the conceptualization of value creation processes properly. Before discussing the special issue and the illustration of its ideas with relationship value, the essay provides a brief explanation of the formative versus reflective controversy.

2. The formative versus reflective controversy

The literature includes discussions on formative versus reflective specification of models and the issue exists at two somewhat distinct levels. Considering one level, measurement scales often employ reflective indicators, in accord with classical measurement theory. This means that questionnaire items are indicators of the domain of the measured construct, are "caused by" the construct, and overlap in meaning so that they correlate moderately strongly. However, formative scales (often called "indices", distinct from reflective scales) are more appropriate in some circumstances, where the indicators are independent "causes" of the construct being measured with little correlation between them, and all need to be present in order to adequately specify the measured construct. Researchers such as Diamantopoulos and Winklhofer (2001), Jarvis, Mackenzie, and Podsakoff (2003), and Diamantopoulos, Riefler, and Roth (2008) explore these issues of measurement in depth. Figure 1 exemplifies alternative formative and reflective conceptualizations of a set of three measures.

Figure 1 about here.

The relationship between constructs in a multi-dimensional measurement model or in a structural model expresses the second level at which concern exists. As Law, Wong, and Mobley (1998) and also Law and Wong (1999) note, constructs can relate to one another formatively or reflectively as the two models in Figure 2 illustrate. The formative model example conceptualizes constructs a, b and c as “causing” construct y, whereas the reflective model conceptualizes constructs a, b, and c as the effects of construct y.

Figure 2 about here.

Many published studies specify reflective measures and models in error, probably building on mistaken applications of classical measurement theory (e.g., Nunnally and Bernstein, 1994) to situations where that theory is inappropriate. Another possible reason for miss-specification is that when structural equation modeling is the analysis technique, formative models are rather more difficult to model in the commonly used packages such as LISREL and Amos than they are using the generally less well-known partial least squares technique. The concern in the literature arises from the fact that quite different results are obtainable from analysis depending on whether the conceptualization is formative or reflective. Spurious analysis results lead to incorrect conclusions and hence incorrect theory building which negatively affects the development of the body of knowledge. However, considerable controversy exists in the literature concerning the appropriateness of the use of formative indicators and models, especially with respect to theory-testing (Wilcox, Howell, and Breivik, 2008). As Wilcox et al.

point out (in their Fig. 1, page 3), the same list of items can be formative or reflective depending on the measurement conceptualization.

3. The special issue

The *JBR* special issue on specification provides conceptual and empirical articles that illustrate a range of specification perspectives, and clearly illustrate a number of the problems that researchers must address in specifying models as either formative or reflective. Some of the articles concern first-order measurement issues, others concern higher-order model structures, but the overall message is consistent and cogent: that blind adherence to a reflective or formative specification without first working through the logic of a model's conceptualization is dangerous. The review in this section provides commentary on interesting points that the special issue's papers make, particularly those that are relevant to the essay's focus.

As Diamantopoulos (2008) and Diamantopoulos et al. (2008) point out, the unquestioning use of the reflective specification according to classical measurement theory can bring problems. Incorrect specification can lead to under- or over-estimation of parameters in structural models (Jarvis et al., 2003; Law and Wong, 1999; MacKenzie, Podsakoff, and Jarvis, 2005). Incorrect specification can therefore potentially give quite wrong answers to research questions and hence potentially damage the directions of theory development and future research. Diamantopoulos et al. also point out (page 1210) that because reflective scale purification drops out items with low correlation and formative scale purification drops out items with high correlation, the meaning of a scale that is incorrectly specified as reflective can change the meaning of the construct and lead to underestimation of parameters. In addition, they note that structural equation models often can have good fit statistics despite scale miss-specification.

However, the Diamantopoulis et al. (2008) statement that incorrect specification leads to parameters being under-estimated or over-estimated as the case may be, while quite correct, can only be accurate if the specification and the indicator questions that express this specification do not match the conceptualization. If the researcher clearly defines the conceptualization, specifies a formative or reflective model accordingly, and words a questionnaire appropriately, then by definition the estimated parameters are correct. Because the need for correct conceptualization, then for correct model specification and further to that, for correct question wording, is an important point that comes out of the special issue, this essay further explores some of the issues that arise from the special issue.

With respect to correct conceptualization, the question of formative versus reflective specification is not as easily decided as the issue might appear at first sight--wrongly conceptualizing formative specifications can lead to major problems, just as can wrongly conceptualizing reflective specifications (Wilcox et al. 2008). Diamantopoulos et al. (2008) and others who highlight the need for researchers to use formative specification more frequently do point out that dealing with formative specifications analytically can have problems, but Wilcox et al. expand the discussion of what some of the problems and issues are. One particularly relevant point for this essay, as Wilcox et al. note, is that contrary to the inference in many discussions advocating formative specifications, and as will be illustrated in this essay with respect to relationship value, constructs are not inherently either formative or reflective. Further to that, as Edwards and Bagozzi (2000) suggest, "a simple formative/reflective categorization may be simplistic" (Wilcox et al.: 220).

Wilcox et al. (2008) canvass two questions, amongst others, that appear in the literature and are important to the discussion of the relationship value literature later in this essay: firstly,

do the observed measures of a construct affect its formative or reflective nature and secondly, to what extent do the specific outcome variables in a structural model determine the nature of a formative construct in that model? By providing examples of constructs that can have alternative specifications, they build a convincing argument that the answer with respect to observed measures depends on how the researcher conceptualizes the measured construct. In particular, they point out that Gaski and Nevin's (1985) indicators of coercive power and Kohli, Jaworski, and Kumar's (1993) market orientation measures could be either formative or reflective, depending on the way the researchers conceptualize them and notwithstanding the arguments that later articles in the special issue make for conceptualizations that would lead to formative specification (Cadogan, Souchon, and Procter, 2008; Coltman, Devinney, Midgley, and Venaik, 2008). On the second question, Wilcox et al. demonstrate clearly how the very meaning of a formative construct changes with a change of outcome variables in a structural model because the weighting of the same indicators of the same formative construct can be markedly different for the two different sets of outcome constructs.

Bruhn, Georgi, and Hadwich (2008) describe an empirical study of customer equity management (CEM) and provide an illustration of the points made in paragraphs above. The paper's study clearly and logically conceptualizes CEM and formatively specifies it as the second order outcome of three dimensions, CE analysis, CE strategy, and CE actions. Each of these dimensions has in turn three formative observed measures. The key to the conceptualization and specification is that CEM is an outcome of CE analysis, CE strategy, and CE actions. Hence the study's three reflective indicators of CEM that it uses to form a MIMIC model, such as "We are satisfied with the current status of implementation of our customer equity management", are expressions of satisfactory outcomes of a CEM implementation. The

presence of these reflective variables in a MIMIC model allows formative estimation in LISREL (Diamantopoulos and Winklhofer, 2001).

Two comments on the Bruhn et al. (2008) study are relevant to the later discussion in this essay. Firstly, their set of reflective CEM outcome indicators does give specific meaning to the CEM construct in this study, including its formative nature, as is observable in the wording of the questionnaire, “We are satisfied with”. However, this specification might change in a model that conceptualizes different sets of outcomes, as Wilcox et al. (2008) note can happen. Secondly, the study provides an example of a context where a change in definition, in a differently designed study, from “outcomes of successful CEM” to “the propensity to successfully manage customer equity” make reflective rather than formative specification the “correct” option. CE analysis, CE strategy, and CE actions are then reflective, rather than formative, dimensions of the propensity to successfully manage customer equity. In turn, the same set of indicators of CE analysis, CE strategy, and CE actions that Bruhn et al. (2008) use reflectively now indicate that each of these three dimensions exists. For example, “We determine the future potentials of our customers” is now a reflective indicator of the company’s propensity to manage its customer equity by analyzing its customers. This possibility that a researcher can perform a quite different study but use the same construct name, and even perhaps the same observed measures, illustrates how the literature creates confusion by its lack of clarity, as the essay’s later discussion of relationship value will show.

Franke, Preacher, and Rigdon (2008) discuss in more depth the problems with outcome variables of formatively specified constructs in structural models that Wilcox et al. (2008) note. If, as formative specification of a construct suggests, that construct fully mediates the relationships between the formative indicators and the construct’s outcomes, then the

proportional effect of each indicator should be the same on each outcome variable. Franke et al. provide a clear example that does not meet the proportionality requirement, which means that in fact the formatively specified corporate citizenship only partially mediates some of the paths between its proposed dimensions and its proposed outcomes. They also give an example of personal attractiveness research (Franke et al., 2008: 1233) which illustrates that “choice of outcome variables may determine the fit, significance, and magnitude of the effects of hypothesized formative indicators.”

Gudergan, Ringle, Wende, and Will (2008) present a technique, with illustration, for confirmatory tetrad analysis in partial least squares (PLS) as a statistical test of the suitability of reflective versus formative observed indicators. Again, what is clear from this study is that correct specification relies very much on correct conceptualization. Another point, which the authors do not note but which Coltman, Devinney, Midgley, and Venaik (2008) make in the next paper in the special issue, seems relevant. This point is that researchers need to be careful that the wording of indicators they use to operationalize constructs is consistent with the formative or reflective specification. Coltman et al. provide an organizing framework for testing reflective versus formative specification and apply it to two extant models in the literature: an international business pressures model and to a market orientation model. They use PLS software for the statistical analysis. They conclude that for the international business pressures model, the use of reflective indicators is “debatable” and that for the market orientation model, their analysis supports formative measurement. Coltman (2008: 1254) note that the tetrad analysis is useful as a confirmatory test of specification rather than a stand-alone test and in their “Consideration 5”, they allude to an important point that other authors (Franke et al., 2008; Wilcox et al., 2008) note, the specification of a formative latent variable depends on the outcome variables of the

latent variable in the model. More overt discussion of this point may be useful in extending the Coltman et al. article's message.

Cadogan, Souchon, and Procter (2008) also study the modeling of market orientation. They show how the construct's conceptualization affects the construct's specification and operationalization. Much of the extant market orientation research assesses the firm's capabilities and propensity for market orientation, rather than assessing what drives market orientation, so its models should specify reflective outcomes. This contrasts with models which assess drivers of market orientation and are formative, because their constructs are causes of this orientation, rather than outcomes. Following this distinction, Cadogan et al. describe their study, which identifies a set of factors "forming" market orientation. They conclude, from estimation of a set of MIMIC models, that market orientation conceptualized in this way is a more complex construct dimensionally than researchers test in the past, and that formative dimensions better represent market orientation. The Cadogan et al. paper is a clear example that differences in conceptualization may arise from quite distinct lines of enquiry.

Ruiz, Gremler, Washburn, and Carrion's (2008) paper conceptualizes and tests a model of service value to the customer. Their model is formative rather than the reflective models that many prior conceptualizations of service value use, and has more levels of dimensions than prior conceptualizations. Observed indicators are reflective, except for a sacrifice dimension. The reasons for formative specification of the sacrifice dimension are not too clear. The model has good fit in structural equation modeling software, but it is not clear that this is the result of formative specification with causal direction from the first order dimensions to the "service value index". Perhaps the good fit is simply because the formative model has multiple levels of dimensions rather than having a single dimensional as do many service value models in the

literature. The comparison in the Ruiz et al. paper with a reflective specification of an alternative model does not seem to provide the answer to the question about the claimed superiority of the formative specification, because the alternative model is one-dimensional, so the comparison is not a comparison of equivalents and certainly not of nested models.

The Ruiz et al. (2008) paper remarks on the fact that a paper by Brady, Knight, Cronin, Tomas, Hult, and Keillor (2005) has a much stronger path from service value to a similar, but not identical, behavioral intentions outcome construct. This seems again not to be a useful comparison without further explanation, because the models are quite different, with a somewhat different conceptualization of the intentions construct and with only one outcome construct, whereas it is clear from other papers in the special issue that different outcome variables will give different answers and will in fact alter the meaning of the formatively specified construct for which they are the outcomes (e.g. Wilcox et al., 2008, question 4, p. 1223). In fact, the comparison with the Brady et al. paper raises the question (e.g. Franke et al., 2008) of whether or not the formatively specified construct fully mediates between its lower order dimensions and outcome variables, which are satisfaction and repurchase intentions. The comparison emphasizes this question because Brady et al. do test for and find direct effects on behavioral intentions in their structural model, meaning that their value construct does not fully mediate.

To summarize the commentary on the special issue, its papers canvass a broad range of concerns on the question of reflective versus formative specification and they provide an excellent collection of knowledge on this subject. The essay now uses some examples from the relationship value literature to illustrate and extend some of the special issue's points.

4. Relationship value illustrates research and specification issues

Studies of relationship value illustrate many of the research, conceptualization, and specification issues that the special issue highlights. These studies use quite distinct analysis approaches that depend on the conceptualization of their models. For example, Baxter and Matear (2004) justify their use of a reflective model whereas Ulaga and Eggert (2006) use a formative approach and note the following: that “researchers have conceptualized value as a reflective construct without justifying their approach”; that modeling of value should take a formative approach; and that “more research is needed in this area.” Although questions concerning specification are clearly worth discussing from an analytical point of view, there is another, more substantive, reason. This reason is that the specification issues in relationship value studies highlight the quite distinct lines of enquiry underlying the different specifications. A need exists to clarify the theory that lies behind the conceptualization of relationship value with respect to what relationship value is, to how researchers define relationship value, and to the perspective they take in doing so. The variety of conceptualizations arises in turn from the variety of perspectives that underlie the one term “relationship value” and will help research into relationship value to advance on a sound theoretical basis. The relevant perspectives include: to what extent the study considers tangible versus intangible value; whether the study considers future, past or present value; whether the study considers the “causal” drivers of relationship value or considers dimensions as outcomes of relationship value; and the study’s unit of analysis.

4.1 Relationship value: formative or reflective?

The focus of this essay is on formative versus reflective inner models of value rather than on formative versus observed measures. Baxter and Matear (2004), Ulaga and Eggert (2005), and Walter et al. (2001) establish and test the base conceptualizations for three well-established

relationship value research streams. These three conceptualizations are the basis for discussion of value specification issues, using the Law et al. (1998) taxonomy classification. This framework relies on clearly establishing the theoretical relations between a construct and its dimensions, without using covariation as an indicator of reflective specification, because covariation can have misleading causes such as response bias or single source bias. One Law et al. criterion is the “relational level” of the model and the other is the “relational form”. “Relational level” needs establishment first and requires an assessment of whether or not a multidimensional construct exists at the same level of abstraction as the construct’s dimensions or components. If the construct exists at a different level from the dimensions, then the model is a “latent model”. Classification as a latent model determines the model’s status for operationalization, as the dimensions are reflections of the higher order construct and have commonality. If the multidimensional construct does exist at the same level as the components, then the model is not latent. A model whose components can combine algebraically is an “aggregate model” and is formative, whereas one whose components cannot combine algebraically is a “profile model”. The essay does not mention the “profile” model of Law et al. further, because that model does not apply to any of the value models discussed.

4.2 The Ulaga and Eggert (2005) model

The Ulaga and Eggert (2005) value model identifies a set of drivers of relationship value from the buyer’s perspective as Figure 3 illustrates. Ulaga and Eggert refer to their constructs as both “dimensions” and “drivers”, but the convention in this essay will be to refer to causes of value as drivers rather than as dimensions. The Ulaga and Eggert model has a third order construct, relationship value, which has two second order drivers, named relationship benefits

and relationship sacrifices. In turn, each of these second order drivers reflects in several first order drivers. Relationship benefits has five first-order drivers, named product benefits, service relationship benefits, know-how relationship benefits, time-to-market relationship benefits and social relationship benefits. The relationship sacrifices construct has two first-order drivers, named process costs and price. The model therefore has two sets of levels that need consideration in classifying the types of relationships between the constructs and hence in providing the rationale for the proposed formative structure. The following sections discuss classification of these two sets of levels and then of the overall model.

Figure 3 about here.

The first step in applying the Law et al. (1998) taxonomy to the Ulaga and Eggert (2005) model requires establishment of the “relational level” at the upper level of the model. Establishment of the level means establishing whether or not the third order construct, relationship value, exists at the same level of abstraction as the two second order dimensions, which are relationship benefits and relationship sacrifices. Although both levels comprise latent constructs that have no measures in the study, their conceptualization as benefits and sacrifices, with domain descriptions as provided in the paper, suggest they are at a similar level. The two second-order constructs of relationship benefits and relationship sacrifices could sum algebraically (benefits being positive and sacrifices being negative) to give the third-order relationship value, so the constructs comprise what Law et al. categorize as an aggregate model. This view in turn suggests a formative model specification, as does the fact that, similarly to the conceptualization of service value provided by Ruiz et al. (2008), the benefits and sacrifices

constructs clearly do not correlate well, because one can change without the other changing at all.

The second step in applying the Law et al. (1998) taxonomy to the Ulaga and Eggert (2005) model is to establish the “relational level” at the lower level of the model. The argument is similar to the application to the upper level. The four first-order benefit constructs, namely product benefits, service relationship benefits, know-how relationship benefits, appear to be at a similar level of abstraction to the second order relationship benefits construct for which they act as first-order drivers and could sum algebraically as components of the second-order relationship benefits construct. This potential for algebraic combination in turn suggests an aggregate model. Similarly, the first-order process costs and price constructs appear to be at a similar level of abstraction to the second order relationship sacrifices constructs and the first order constructs are able to sum algebraically as components of the total sacrifice. So again, this conceptualization suggests an aggregate model. Given that both the upper and lower sections of the Ulaga and Eggert (2005) model are of aggregate model format, the whole model appears to be an aggregate model. This classification means, for each of the sets of paths at the different levels that “each construct is formed from” (Law et al., 1998) the component constructs. This application then means that the model has formative paths and that estimation can be formative, which is the approach to analysis that Ulaga and Eggert use.

4.3 The Baxter and Matear (2004) model

The Baxter and Matear (2004) model of intangible relationship value is seen from the seller’s perspective as Figure 4 illustrates. Their model has a third order construct, intangible relationship value, which is reflected in two second order dimensions, named human intangible

value and structural intangible value. Structural intangible value assesses the resources of the buyer to which the seller potentially has access through the relationship, so this construct reflects in paths to three dimensions which are: relationships in the buyer's network that may have value to the seller; the buyer's internal resources and processes; and the buyer's skill in new product and process development. Human intangible value reflects in three first order dimensions that describe the attributes of the boundary personnel who facilitate information flow in the relationship, which are their competence, their attitude, and their intellectual agility. Questionnaire items measure all six of the first-order dimensions.

Figure 4 about here.

The Baxter and Matear (2004) model has two sets of levels that need consideration in classifying the types of relationships between the constructs and hence in providing the rationale for the proposed reflective structure. The sections below discuss classification of these two sets of levels, and then of the overall model. Some of the arguments apply also to the discussion of the Walter et al. (2001) model in the next sub-section.

The first consideration is of the upper level of the Baxter and Matear (2004) model. In reviewing the current intellectual capital literature in the social sciences citations index, Swart (2006) identifies a set of distinct sub-components of intellectual capital that have been established in that literature. With particular relevance to the Baxter and Matear model, which is based on a set of "distinctions" identified by Roos et al. (1997), intellectual capital in that literature is a higher-level latent construct than the lower levels and not a simple combination of those lower level distinctions. With respect to this differentiation between intellectual capital and

the two proposed dimensions as Figure 1 shows, intellectual capital is the “structure” of social systems (Olesen, 2006). Intellectual capital is the instantiation of the human capital (e.g., attitude, mental agility) and the other elements of intellectual capital such as databases and processes that are included in the domain of the structural intangible value in the Fig. 1 model. This instantiation results from the interaction between the human and structural elements of the relationship. The social theorist, Anthony Giddens (1979; 1984), gives the definition of “structure” as an abstract property that humans interacting with structural elements create via social practices. This reinforces the concept that intellectual capital, though inextricably intertwined with the two constructs that the intellectual capital literature describes as human capital and structural capital, is a higher order construct at a greater level of abstraction, and that a simple additive index of these lower-order constructs cannot assess them.

Thus, specific to the relationship focus of their study and to their use of the relationship as the unit of analysis in their questionnaire items, the Baxter and Matear (2004) third order intangible relationship value construct is an embedded attribute which expresses the ability of the relationship to provide intangible resources to the seller from the attributes of the buyer. This attribute embeds conditions in the relationship that make the buyer’s resources accessible to the seller and enable the buyer’s boundary personnel to facilitate this access. A greater level of this capability for intangible relationship value provision provides the potential to in turn provide superior human intangible value in terms of its ability to facilitate the flow of resources from the buyer to the seller and superior structural intangible value in terms of the resources that are available through the relationship.

Each of the two second order dimensions, human intangible value and structural intangible value, is therefore “a different manifestation or realization of” (Law et al., 1998) the

model's relationship value construct, which is very intangible and future-oriented. Two different sets of first-order constructs specifies each second-order dimension and therefore comprises a distinct sub-group of intangible relationship value, although there is commonality and the availability of the buyer's resources to the seller is to some extent dependent on the capabilities of the buyer's boundary personnel to facilitate their provision. The higher-order section of the model therefore appears to fit into the category classed by Law et al. as a "latent model", because the "different manifestation or realization" of the higher order construct is the relevant criterion that is specified by Law et al. The fact that the outcome variable is financial performance in the future, with appropriate questionnaire instructions about the future, rather than the past (Wilcox et al., 2008: 1220), supports this higher order.

At the lower level of the Baxter and Matear (2004) model, the human intangible value construct reflects in a set of first order dimensions which are human attributes of the people who participate in the relationship and are their competence, attitude, and intellectual agility. A relationship that is stronger in terms of value provision capabilities (Walter, Mueller, and Helfert, 2000) and atmosphere is likely to be one that provides more capable people from the seller's organization to participate in the relationship. These will be people who have superior attributes that enable them to facilitate the resource transfers that will lead to value for the seller. The domain descriptions of these attributes of competence, attitude, and intellectual agility that Baxter and Matear provide suggest they are distinct from the relationship's human intangible value that they reflect, and that they have commonality, because they interact with one another rather than just adding together. For example, the attitude of boundary personnel affects the outcomes of their intellectual agility, so in turn affects their effectiveness in providing resources to the seller. If the buyer's boundary personnel have a good attitude to their work with the seller,

that will have a positive effect on how they apply their intellectual capabilities. In the taxonomy of Law, Wong and Mobley (1998) the human intangible value and the three sub-dimensions of that value therefore form a latent model. Similarly, the resources that reside within the buyer (the structural dimensions named relationships, organization, and renewal and development) are distinct from the relationship capability that makes them accessible, the structural intangible value, so they comprise a latent model. Thus, the provision of all the study's six constructs as first-order value dimensions depends on the way the partners manage and develop the relationship and each of the constructs "is a different manifestation or realization of" the reflection in the second order construct, either human or structural. The lower section of the Baxter and Matear (2004) model therefore again fits into the Law et al. latent model category.

Because both the upper and lower sections of the Baxter and Matear (2004) model are latent in form, the whole model is a latent model. This classification means, for each of the sets of paths at the different levels, that researchers "may view the dimensions as common factors underlying the indicators and operationalize the overall multidimensional construct as a higher-order factor underlying the dimensions" (Law et al., 1998). The model has reflective paths for estimation, which is the approach to analysis that Baxter and Matear (2004) use.

4.4 The Walter, Ritter and Gemünden (2001) model

Walter et al. (2001) test a model of relationship value as perceived by the supplier. This model again has three levels of constructs and hence two sections that need consideration using the Law et al. (1998) framework. Figure 5 re-draws their model and lists the seven first-order dimensions in the lower level, as a set of bullet points underneath each construct. The paths between the first and second order constructs, and their directions, either formative or reflective,

do not appear in the Walter et al. figure and so do not appear in Figure 5. For example, the first order constructs for “Direct functions of a relationship” are the profit, volume, and safeguard functions. The Walter et al. study sums each of the first order dimensions to assess the respective second order dimension for a structural model, with the implication that the first order dimension specifications are reflections of each of their two second order dimensions, which are “direct functions” and “indirect functions” of a customer relationship. The second order direct and indirect functions appear, from the domain descriptions and from the wording of the questionnaire items in the Walter et al. paper, to be benefits or utility available to the supplier from the customer, at a higher level of abstraction than the first-order dimensions. The first order dimensions, on the other hand, are processes such as “joint development of new products” or provision of “information about the market”, at a lower level of abstraction. On the basis of the Law et al. (1998) framework, the study appears therefore to model the lower levels reflectively.

Figure 5 about here.

At the upper level of the Walter et al. model, the third order dimension is value and the single-item measure of value asks how the respondent would rate the profitability of the relationship, which effectively asks the respondent to assess benefits minus costs. The literature conceptualizes value as an algebraic total of benefits and costs, as Walter et al. (2001) note. Third order value is therefore at the same level of abstraction as the second order benefits and costs, whose questionnaire items in the Walter et al. survey ask respondents to “rate the benefit/utility that your company gains through the relationship.” The model appropriately specifies the upper level as formative as in Figure 5, which is logical for a model of the drivers of

value. In contrast, reflective specification at the upper level would require a “propensity to deliver value” type of conceptualization (Wilcox et al., 2008: 1221).

4.5 Why the specification differences?

The models of Ulaga and Eggert (2005), Baxter and Matear (2004) and Walter et al. (2001) all differ in terms of their units of analysis and the objective of the value assessment, so the differences between the conceptualizations and the specifications are not surprising. The confusion arises because the same construct name in the three studies, “relationship value”, has quite different meanings. The Walter et al. and Ulaga and Eggert value constructs both use historical measures, in contrast with the more intangible future orientation of the Baxter and Matear value construct, determined by its outcome variable, which is future financial performance. Ulaga and Eggert’s drivers lead “causally” to relationship value and their unit of analysis is a supplier firm, as shown by the questionnaire items, for example: “Compared to our second best supplier, Supplier A provides us with better product quality” and “Compared to our second best supplier, Supplier A costs us more in terms of time”. The Walter et al. model has the relationship as the unit of analysis and implicitly uses a reflective specification at its lower level, but it is a model of drivers of value, so its specification is formative at the upper level. Baxter and Matear’s (2004) unit of analysis is the relationship and their conceptualization of the relationship is as “an enabler for resource exchange.” Their items ask, for example, “To what extent does your relationship with your chosen customer allow you to gain benefits from the following in their organization?” Hence, their dimensions are indicators of the extent to which a relationship has these characteristics and the specification is reflective. These differences all conspire to make the three conceptualizations quite different, but valid, so that Ulaga and

Eggert's suggestion that "value represents a formative construct" depends on context: both formative and reflective specifications for relationship value are valid.

4 Discussion and implications

This essay explores several important points from the *JBR* special issue and illustrates these points with examples from the relationship value literature. The first point is that a construct is not intrinsically either formative or reflective: construct conceptualization determines the formative or reflective nature. Further, there are often quite different possibilities for conceptualization of what might at first sight appear to be the same construct and, most importantly, there may be quite distinct lines of research enquiry underlying the multiple possible conceptualizations. Lastly, researchers need to carefully consider these different possible conceptualizations when designing a study, including the appropriate words for the study's manifest variables. From an analytical point of view the discussion supports the contention in the literature that the conceptualization of a set of constructs needs consideration in depth before deciding on the specification for a study (Wilcox et al., 2008).

The three distinct conceptualizations of relationship value that this essay discusses all make important, but different, points. The source of relationship value is important to both researchers and to managers, so the studies by Ulaga and Eggert (2005) and by Walter, Ritter and Gemünden (2001) advance knowledge in this area by identifying drivers of value for the buyer and seller respectively. These are important as the basis for managers' tools to optimize relationship outputs. The Baxter and Matear (2004) conceptualization focuses more on manifestations of value in the relationship in terms of the potential for knowledge transfer through the relationship, and focuses on what are the indicators of sound potential value

processes as the basis for a value outcome assessment tool for managers to measure results of their actions. The *JBR* special issue provides, as noted above, several examples of other marketing research areas where quite distinct lines of enquiry underlie argument about reflective versus formative specification. Wilcox et al. (2008) point out that coercive power might be either a cause or an outcome, using differing wording of the questionnaire instructions. Bruhn et al. (2008) model customer equity management (CEM) formatively with the definition “outcomes of successful CEM”, but the essay notes that a reflective model is better for a study in which the CEM definition is “the propensity to successfully manage customer equity”. Gudergan et al. (2008) and Cadogan et al. (2008) work with the market orientation construct, but again, that construct’s specification depends on its modeling and its questionnaire instructions.

In conclusion, this essay demonstrates that researchers need to clarify conceptualization issues before specifying models, because there may be quite different lines of research underlying the possible specifications. This necessity to carefully consider underlying issues is more substantive than the formative versus reflective controversy. There are errors of specification in the literature, but for marketing knowledge to advance, researchers need to be careful that the pendulum does not swing too far in the direction of the use of formative specifications and does not distract them from carefully considering and clearly stating the reasoning for their conceptualization, their specification, and their empirical study design, whether formative or reflective.

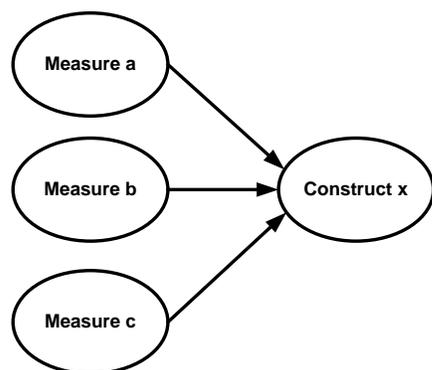
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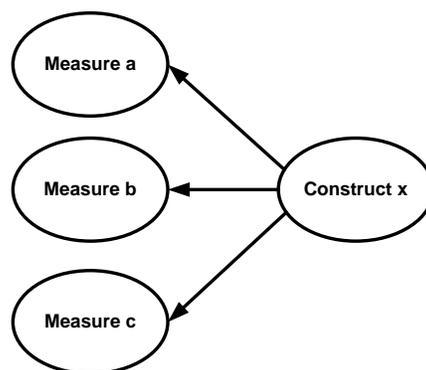
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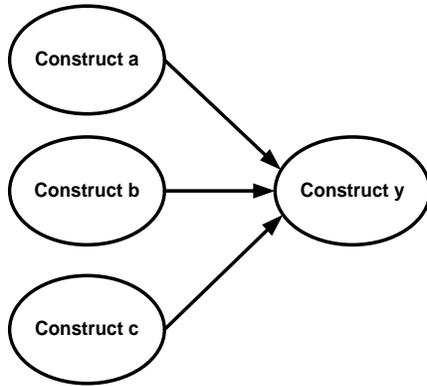


Formative scale example

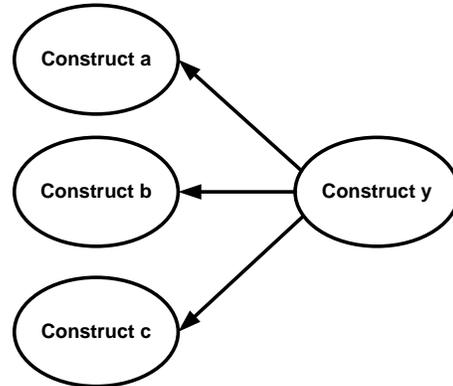


Reflective scale example

Figure 1: Formative versus reflective scales



Formative model example



Reflective model example

Figure 2: Formative versus reflective models

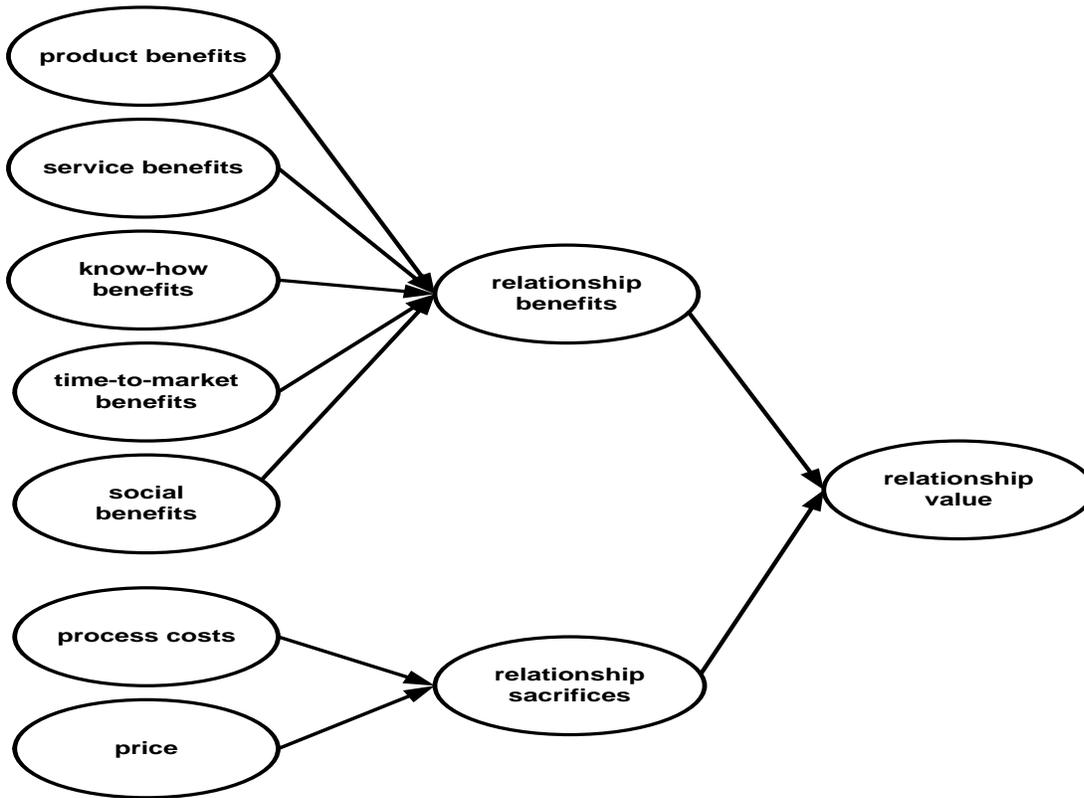


Figure 3: Ulaga and Eggert's model of relationship value

Source: Adapted from Ulaga and Eggert (2003)

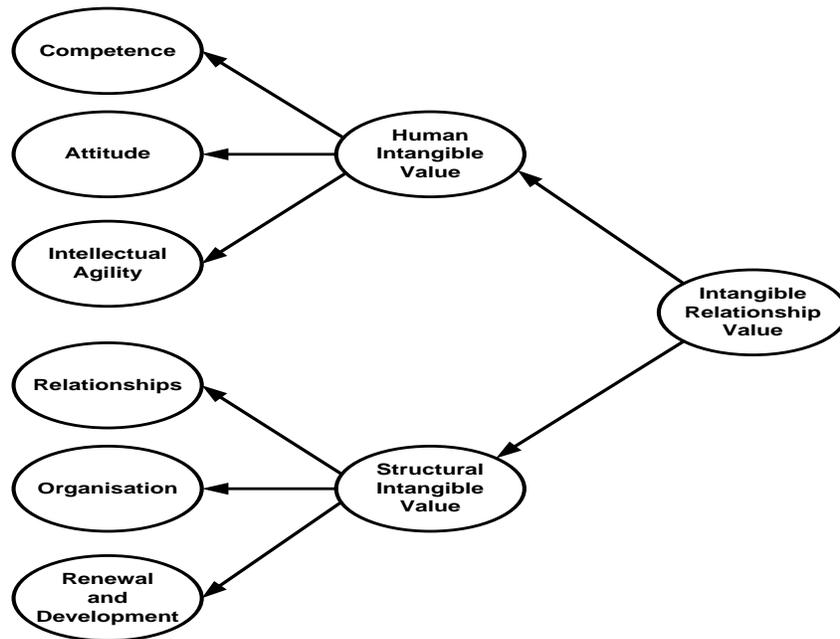


Figure 4: Baxter and Matear's model of relationship value

Source: Adapted from Baxter and Matear (2004)

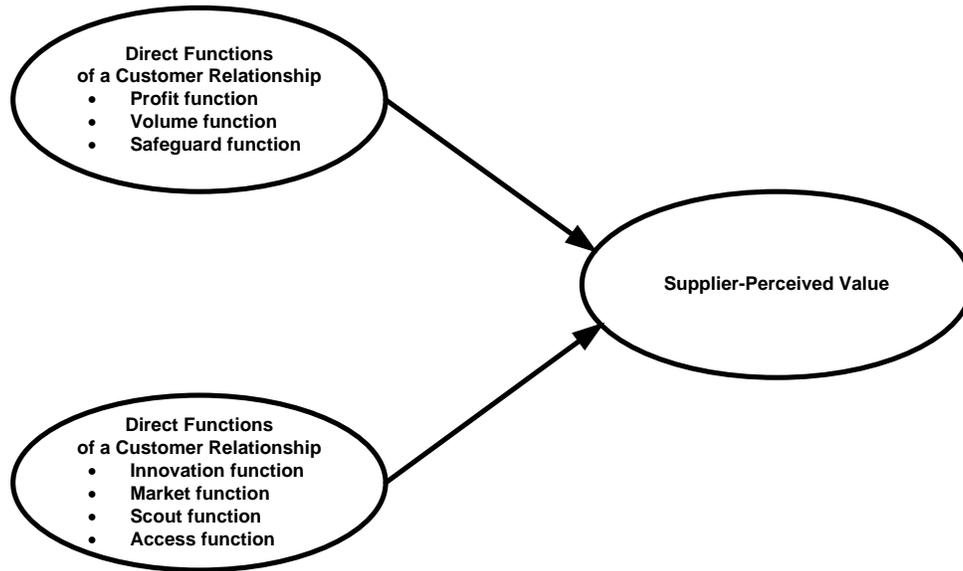


Figure 5: Walter et al. model of relationship value

Source: Re-drawn from Walter et al. (2001)