Negotiation Style Measurement Scale Development and Testing

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Abstract

Based on the results from factor analysis, Rasch analysis and Mokken analysis, we present the findings of a preliminary assessment of the proposed measurement scales for four negotiation predisposition styles: accommodating, avoiding, collaborative and competing predispositions. While the three analyses identify a common set of measurement items for each scale, they also suggest that other items are appropriate to measure the styles—not all consistent across the three analyses. Methodologically, the inconsistent results raise some concerns about the use of these three analyses for evaluating measurement scales as they are commonly used in structural equation modelling (SEM). Conceptually, we contribute to providing an initial basis for measuring negotiation styles within contexts such as account relationships and a variety of other sales management contexts.

Keywords: negotiation styles, predisposition, measurement scales

Introduction

Negotiating channel relationships is a continuing issue for marketers. The literature is short of empirical studies that unequivocally focus on negotiation aspects in these contexts. This leads to a range of relevant research issues around negotiation behaviour such as the use of particular negotiation styles in such relationships. In this paper, to provide a foundation for understanding the intricacies of negotiation behaviour and styles, we will first provide a brief discussion of the literature addressing relevant aspects of negotiation. Then, we will discuss the development and testing of negotiation style measurement scales. This will include a description of the methodologies used for the empirical testing and a description of the findings. We will conclude with a discussion of the implications for understanding and future research opportunities.

Existing literature

The literature on negotiation styles provides several conceptual frameworks of negotiation behaviour. For example, Thomas and Kilmann (1987) assume that negotiation styles are independent of a particular context, thus that individual negotiation behaviours can be assessed across situations. Accordingly, negotiation styles are relatively stable behaviours that arise in negotiation encounters. They are patterns in individuals' behaviour that reappear in negotiation situations through the mechanism of predisposition toward particular courses of conduct (Gilkey and Greenhalgh 1986). On the other hand, Hall (1969) argues that negotiation behaviour is influenced by the situation, Rahim (1983) by the target, and Putnam and Wilson (1982) by both the situational context and the target. The literature identifies numerous negotiation styles and associated measurement instruments—most of them being

inconsistent. For example, Putnam and Wilson (1982) identify three negotiation styles—control, solution-oriented and non-confrontation modes. These three negotiation styles are similar to those identified by authors such Mnookin et al (2000) and Weider-Hatfield (1988). Other authors specify five negotiation styles—integrating, obliging, dominating, avoiding and compromising (Rahim 1983) or collaborating, compromising, competing, accommodating and avoiding (Thomas and Kilmann, 1987). While there are inconsistencies in respect to how negotiation styles are conceptualised, there are problems with the substantiative focus of measurement: many authors do not distinguish clearly between negotiation predisposition, negotiation strategy and negotiation tactics; with many authors using all three foci interchangeable within a single study. Empirical justification is often weak with only limited information regarding the reliability of the scales. To overcome the existing limitations, in this paper, we explore a refined measurement instrument. Leaning on the dual-concerns model, in the instrument examined in this paper we have focused on negotiation predisposition and grouped the styles into the following four facets of negotiation behaviour—avoiding, accommodating, collaborative, and competitive.

A Preliminary Set of Measurement Scales for Negotiation Predisposition Styles

Based on existing scales (e.g., Thomas and Kilmann, 1987), we have formulated a set of seven measurement items for each of the four styles. We define a predisposition towards an avoiding negotiation style as a stable trait on how to come to an agreement, characterized by values and beliefs reflecting an unassertive and uncooperative orientation; a predisposition towards an accommodating negotiation style as a stable trait on how to reach an agreement, characterized by values and beliefs reflecting an unassertive and cooperative orientation; a predisposition towards a competitive negotiation style as a stable trait on how to come to an agreement, characterized by values and beliefs reflecting an assertive and uncooperative orientation; and a predisposition towards a collaborative negotiation style as a stable trait on how to reach an agreement, characterized by values and beliefs reflecting an assertive and cooperative orientation. The abstract nature of these constructs requires using reflective measurement scales (see Figure 1).

Figure 1: Preliminary Set of Measurement Scales for Negotiation Predisposition Styles

When interacting with other people ...	
Avoiding Predisposition Style AVOA - I am quiet and strong-willed AVOB - I am reserved and firm on my thinking AVOC - I am introspective and stick to my opinion AVOD - I am headstrong and uncommunicative AVOE - I am subtle and stick to my ideas AVOF - I am introverted and not automatically supportive AVOG - I withdraw when conflict arises	*Accommodating Predisposition Style* ACOA - I am reserved and caring ACOB - I am low key and helpful ACOC - I am introspective and agreeable ACOD - I am quiet and supportive ACOE - I am contemplative and obliging ACOF - I am happy for others being in charge ACOG - I am docile and considerate
Collaborative Predisposition Style COLA - I persist to work together through differences COLB - I am hands-on and respectful COLC - I am constructive and encouraging COLD - I am proactive in working out a solution with others COLE - I am self-assured but fair to people	*Competitive Predisposition Style* COMA - I am persuasive and stand up for my opinion COMB - I push people to get what I want COMC - I am strong-willed and forceful COMD - I assert my goals COME - I impose my way upon others

| COLF - I am outspoken and supportive | COMF - I am hard-nosed |
| COLG - I am self-confident and caring | COMG - I press people to accept my views |

Preliminary Empirical Testing of Measurement Scales

The purpose of this preliminary empirical assessment is to identify those items that are not suitable for measuring the respective styles and suggest a set of statements that can be used for further testing with the aim of identifying a set that is valid and reliable for measuring the four negotiation predisposition styles. A survey instrument has been developed in which the 28 statements have been listed randomly and respondents were asked to select those seven items which reflected their position best providing categorical data for each of the items. For this preliminary evaluation a convenience sample of MBA students has been used resulting in 118 usable responses. In order to have a more comprehensive assessment three different scale evaluation methodologies have been employed that can handle categorical data: Factor analysis, Rasch analysis (1960) and Mokken analysis (1971). The results for each analysis are reported in the following sections.

Factor Analysis

Data reduction of binary data poses special requirements, but a number of advanced methods are available for factor analysis of dichotomous variables. Bock *et al* (1988) for example suggest a maximum-likelihood estimation of multidimensional latent trait models, while factor analysis based on a tetrachoric correlation matrix of all items seems to be the most common approach. Several not positive definite tetrachoric correlation matrices however limited the usefulness of this approach for the present study. The LISCCOMP method, which was developed by Muthen (1978) and can be computed with the software package Mplus, offers an alternative. An exploratory factor analysis was conducted to identify the structure of relationships among the 28 items. The initial estimation allowed for a maximum of eight factors, accounting for the two-dimensional constructs of each predisposition style. The results indicated that seven factors best fit the data (eigenvalues greater than one). Based on these seven initial factors, items with ambiguous or unsatisfactorily low factor loadings were eliminated, resulting in a subset of eleven items (ACOA .68, ACOD .97; AVOA 1.00, AVOC .63; COLC .59, COLD .65, COLF .51; COMC .74, COME .90, COMF .86, COMG .66) loading onto four distinct factors. Note that Mplus does not provide statistics of overall fit such as total variance explained. Confirmatory factor analysis using unweighted least square extraction method was then carried out suggesting four latent dimensions representing the four negotiation styles. The following items represent best the different styles (see Figure 2):

Figure 2: Confirmatory Factor Analysis Results

Factor	Estimates	Standardised Estimates
ACOA - I am reserved and caring	1.000	0.916
ACOD - I am quiet and supportive	0.862	0.790
AVOA - I am quiet and strong-willed	1.000	0.940
AVOC - I am introspective and stick to my opinion	0.784	0.737
COLD - I am proactive in working out a solution	1.000	0.515

with others COLF - I am outspoken and supportive	1.519	0.783
COME - I impose my way upon others	1.000	0.621
COMG - I press people to accept my views	1.520	0.943

Rasch Analysis

Given some limitations of factor analysis (see for example Maraun, 1996; Smith, 1996; Wright, 1996), we have used the Rasch model (1960)—an Item Response Theory (IRT) latent trait model designed to analyse responses to dichotomous items—employing RUMM2010™ (Andrich et al., 2001). Parameter estimation used the pairwise conditional algorithm (Andrich, 1988; Zwinderman, 1995), an iterative maximum likelihood procedure. The convergence limit for both item and person parameters was set at 0.0001. Figure 3 presents the results of the analysis. The "Measure" column contains the item measurements in logit units and standard errors; the "Residual" column contains the standardised residual fit statistics, whose distribution approximates the standard normal. Residual values greater than 1.96 indicate underfit of the data to the Rasch model; and values greater than -1.96 indicate overfit. *Accommodating Items:* Most of the items fit the Rasch model with the exception of item ACOF. Item ACOB's chi-square is significant, however, its residual is acceptable. Another method of investigating fit in IRT psychometrics is visual inspection of an item's expected value or characteristic curve (ICC). For ACOB the steep slope of the empirical curve suggests the item overfits the Rasch model. Also, for ACOF the empirical curve is non-monotonic, suggesting misfit of the item. *Avoiding Items:* (AVOD is excluded as no-one responded to it). Item AVOC is the worst fitting item, with a significant chi-square and large negative residual. AVOF also displayed a significant chi-square. Again examining the ICC, for AVOC the steep curve suggests overfit; and for AVOF the non-monotonic curve suggests that the misfit of this item to the Rasch model is severe. *Collaborative Items:* All items fit the Rasch model, however, the residual of item COLA suggests underfit. *Competitive Items:* All items fit the Rasch model.

Figure 3: Rasch Analysis Results

Accommodating Predisposition (*$p < .05$)				Collaborative Predisposition (*$p < .05$)			
Item	Measure (S.E.)	Residual	Chi-Square	Item	Measure (S.E.)	Residual	Chi-Square
ACOA	-.59 (.314)	-.204	2.013	COLA	.279 (.212)	1.996	3.843
ACOB	.149 (.37)	-.932	6.77*	COLB	.087 (.211)	1.535	.463
ACOC	.428 (.401)	.922	3.97	COLC	-.805 (.223)	-.248	1.089
ACOD	-.136 (.344)	.256	1.049	COLD	-.891 (.225)	.519	.628
ACOE	-.618 (.313)	1.435	.969	COLE	-.306 (.213)	1.858	2.691
ACOF	-.78 (.305)	2.533	6.559*	COLF	1.619 (.253)	-.366	2.16
ACOG	1.546 (.595)	-.465	1.392	COLG	.017 (.211)	.626	3.397

Avoidance Predisposition (*$p < .05$)				Competitive Predisposition (*$p < .05$)			
Item	Measure (S.E.)	Residual	Chi-Square	Item	Measure (S.E.)	Residual	Chi-Square
AVOA	-1.251 (.288)	.845	.768	COMA	-2.466 (.242)	.259	2.034
AVOB	-.67 (.302)	1.573	2.558	COMB	-.256 (.303)	.378	.875
AVOC	1.186 (.469)	-1.329	7.559*	COMC	-.357 (.296)	-1.083	2.513
AVOE	-.27 (.321)	.538	.118	COMD	-2.009 (.239)	.625	.533
AVOF	.901 (.429)	-.489	8.937*	COME	2.27 (.662)	-1.586	1.982
AVOG	.105 (.347)	1.197	3.504	COMF	1.658 (.535)	-.422	2.956
				COMG	1.16 (.453)	-.137	2.11

Mokken Analysis

The Rasch model is a parametric IRT latent trait model as it calculates interval scale measurements for both persons and items. These measurements, however, may not be accurate with small sample sizes and small numbers of items (van Schuur, 2003). Hence an IRT model which analyses dichotomous items but does not calculate measurements may be more appropriate to use. The relevant model is the Mokken model (1971), which is a non-parametric IRT version

of the Rasch model (van Schuur, 2003). The key statistic in Mokken scaling is Loevinger's H (1948). This statistic is bounded between 0 and 1, with weak items having a value between .3 and .4; moderate items between .4 and .5; and strong items between .5 and 1 (Molenaar and Sijtsma, 2000). An item is deemed unacceptable if its H value is less than .3. A positive H value indicates that the item has a non-decreasing ICC. Mokken scale analyses were performed using MSPWIN-5™ (Molenaar et al., 2000). Figure 4 contains the results of the hierarchical Mokken analysis. The "Mean" column is the proportion of persons scoring "1" on the item. The "H" column contains the H value for each item. The "Z" column is a null hypothesis significance test for each H, with the null hypothesis being that the H value is zero and the alternative hypothesis being that the H value is positive (Molenaar and Sijtsma, 2000). *Accommodating Items:* The analysis suggests one scale comprising items ACOA, ACOB and ACOD. The H and Z values for the whole scale were .39 and 6.15, respectively. The scale reliability coefficient p had a value of .54. ACOC and ACOF were rejected due to negative pairwise H values between them and the selected items. The remaining items were rejected for having H values less than .3. *Avoiding Items:* The analysis suggested that there were two scales. The H, Z and p for the first scale were .41, 4.55 and .49, respectively. For the second scale they were .43, 2.8 and .43, respectively. Interestingly, AVOF had a negative pairwise H value with AVOB. This and the fact that it formed a separate scale with item AVOE suggests that AVOF and AVOE may assess a different dimension to that assessed by AVOA, AVOB and AVOC. *Collaborative Items:* The analysis found one scale comprised items COLA and COLD. Items COLB and COLF were rejected due to negative pairwise H values with these items. The remaining items were rejected for having item H values less than .3. Scale H, Z and p values were .42, 2.87 and .44, respectively. *Competitive Items:* The analysis found three scales. The first and strongest scale consisted of COMA, COMC and COME. Remaining items were excluded due to item H values less than .3. Scale H, Z and p values were .68, 3.94 and .54, respectively. The second scale consisted of COMF and COMG. Scale H, Z and p values were .30, 2.52 and .38, respectively. COMB and COMD were rejected from this scale due to negative pairwise H values with COMF. The final scale comprised items COMB and COMD rejected from the second scale. Thus, these items may assess another dimension. Scale H, Z and p values were .34, 1.78 and .32, respectively.

Figure 4: Mokken Analysis Results

Accommodating predisposition items				Collaborative predisposition items			
Item	Mean	H	Z	Item	Mean	H	Z
ACOA	.14	.53	6.53	COLA	.42	.42	2.87
ACOB	.08	.32	4.06	COLD	.65	.42	2.87
ACOD	.10	.33	4.37	First - Competitive predisposition items			
First - Avoidance predisposition items				Item	Mean	H	Z
Item	Mean	H	Z	COMA	.48	.69	3.32
AVOA	.25	.36	3.55	COMC	.14	.63	3.51
AVOB	.18	.33	3.36	COME	.03	.76	3.02
AVOC	.05	.68	4.68	Second - Competitive predisposition items			
Second - Avoidance predisposition items				Item	Mean	H	Z
Item	Mean	H	Z	COMF	.03	.30	2.52
AVOE	.13	.43	2.8	COMG	.04	.30	2.52
AVOF	.05	.43	2.8	Third - Competitive predisposition items			
				Item	Mean	H	Z
				COMB	.13	.34	1.78
				COMD	.39	.34	1.78

Findings & Implications

The results from carrying out factor, Rasch and Mokken analyses are not consistent for each of the four styles. Common items identified from the proposed accommodating predisposition scale are ACOA and ACOD; for the avoiding scale AVOA; for the collaborative scale COLD; and for the competing scale COMC and COME. In order to undertake a second pre-test, we are in the process of collecting additional data using a set of 22 items in total (i.e., excluding those items that have been rejected by all three analyses). This time, respondents are asked to select items which reflect their position without constraining them to select an exact number of items to avoid

preference structures. Methodologically, the inconsistent results raise some concerns about the use of analyses for evaluating measurement scales as they are commonly used in SEM. This would suggest that the standard procedure using factor analysis for scale evaluation in marketing is sometimes questionable. In conclusion however, conceptually, this paper contributes to providing an initial basis for measuring negotiation styles within contexts such as marketing partnerships and account relationships—measurement scales which are at present examined empirically with a slightly varied research design.

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