Saarbrücken Working Paper Series in Logistics and Supply Management No. 2

Oral Communication Capabilities of Purchasers
- Measurement and Typology -

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Saarbrücken

2004

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Summary

As Supply Chain Management (SCM) has become increasingly important, information sharing and oral communication has also expanded. This has resulted in the need to have an instrument to measure managers' oral communication capabilities. The main objectives of this paper are: to identify the main dimensions of the oral communication capability and to develop an instrument to measure this capability. To achieve this, a survey has been conducted among German and Spanish buyers and supply managers. The results show that the oral communication capability construct shows a second order structure with three dimensions: the ability to pass on information, the ability to persuade and the ability to listen and understand. The study also investigates the typology of purchasers based on their oral communication capabilities.

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Keywords

Oral communication capability, human resource management, measurement, purchasing.

1 Introduction

Recent management approaches, such as Supply Chain Management (SCM) or Supplier Relationship Management, emphasize communication with people from different companies. Mentzer et al. (2001) argue that the mutual sharing of information is required to implement a SCM philosophy successfully. Bechtel and Jayaram (1997) emphasize frequent information sharing as the backbone of effective SCM. Gammelgaard and Larson (2001), based on the results of a survey among the Council of Logistics Management members, rated oral and written communication as highly important SCM skill areas. Giunipero and Pearcy (2000) identified interpersonal communication as the most important skill required by purchasers to perform efficiently. Large (2003), based on structural equation modelling, found evidence for a strong impact of the oral communication capability on the supplier management performance of German purchasers. And, in a recent publication on the key issues in global supply base management, Handfield and Nichols (2004) emphasized that purchasers should be effective communicators, both within their organization and with their suppliers.

Oral communication is a topic of interest and importance among purchasing managers and researchers because it has been considered a source of better supplier management performance (Large, 2003; and Large & Gimenez, 2004). This paper analyses the main dimensions of the oral communication capability and develops an instrument to measure this capability. The primary objectives of this study are:

1. to identify the dimensions of the oral communication capability,
2. to develop an oral communication capability measure for purchasers and
3. to obtain a communicator typology of purchasers based on their oral communication capabilities.

In the literature, there are several suggestions for scales to measure oral communication capabilities (Sypher & Sypher, 1983; McCroskey et al., 1985; Rubin, 1985; and Penley et al., 1991). However, most of them were designed to exam the capabilities of pupils and students. There is no special instrument for managers, especially in the purchasing and supply field. We believe that the instrument developed in this paper will be both informative and insightful to researchers and managers. Researchers will be provided with a new measure of oral communication capability and some lines of further research regarding this instrument. And, managers will be able to use this instrument to take oral communication competencies into consideration in staff selection and human resource development and/or to measure their own oral communication capability to identify their possible communication capability gap.

The remainder of the paper is structured as follows. Section two briefly examines the literature on oral communication measurement; section three describes the research

methodology; section four presents the research results; and section five draws the conclusions from the research.

2 Oral Communication Capability Measurement

In the literature, there are several suggestions for scales to measure oral communication capabilities (Sypher & Sypher, 1983; McCroskey et al., 1985; Rubin, 1985; and Penley et al., 1991).

Sypher & Sypher (1983) explored various communication abilities and their relationship to an employee's job level in an organization. Perceptions of communication abilities were measured by the following three scales: persuasive ability, perspective-taking ability and communication effectiveness. The scale items had been selected on the basis of a prestudy conducted with 250 students. The reliability of these scales was measured by the Cronbach alpha coefficient. All these scales had a Crobanch alpha above the benchmark value of 0.7.

McCroskey et al. (1985) developed a measure of communication apprehension, the PRCA-24. The scale consists of 24 indicators and it is formative in nature.[1] It measures the degree of communication apprehension and communication avoidance in four different communication contexts: public speaking, speaking in small groups, speaking in meetings and speaking in dyads. The reliability of the scale, measured by the Cronbach alpha, was estimated very high. This was due to the large number of indicators. In a recent publication, Bline et al. (2003) analysed the structure of the PRCA-24 using exploratory factor analysis. The results suggested that three factors are more appropriate for McCroskey's construct. These factors are: oral communication in an informal setting, speech communication apprehension and conversation with new acquaintances. McCroskey's instrument is on communication apprehension, and not on communication capability. Therefore, the benefit of the PRCA-24 is, unfortunately, limited for the research addressed in this paper.

Rubin (1985) developed a 19-item communication competence self report (CCSR) to calculate a formative measure of students' communication capabilities. In contrast to the PRCA-24, Rubin's CCSR was designed to measure students' oral communication capabilities instead of communication apprehension. Rubin's statements of the self report, similar to the PRCA-24, were linked to classroom situations. The instrument was composed of statements concerning communication with other people. Rubin also used Cronbach alpha to evaluate the reliability of the instrument and, driven also by the large number of items, it had an acceptable value.

Penley et al. (1991) studied the relationship between managerial performance and communication competency (oral and written). They used part of Rubin's CCSR to measure managers' oral communication abilities. They eliminated four items closely linked to classroom situations, and with the remaining items, they used exploratory

[1] This means that the responses to the items were summed to provide a single measure

factor analysis to define appropriate sub-scales. They obtained two sub-constructs consisting of four items each. The first factor dealt with the ability to communicate accurately (accurate communication). Its Cronbach alpha was 0.77, above the benchmark value of 0.7. The second factor was composed of items standing for the ability to articulate (articulate communication), but its Cronbach alpha (0.57) was below the benchmark value.

Using nowadays methods of measurement assessment and model evaluation new insights in the measurement of the oral communication capability can be expected. The structure of the 19-item measure proposed by Rubin (1985) should be evaluated in more detail. There are doubts about the unidimensionality of Rubin's oral communication capability construct, as Penley et al. (1991) have shown. We assume that several dimensions of oral communication capability can be identified.

Our study shares with Penley et al. (1991) the use of Rubin's communication competence self report (CCSR) to measure oral communication capabilities. However, our study differs from this work in the following aspects: firstly, the objective of Penley et al. (1991) was to measure the oral communication capability and their relationship with managerial performance, while our intention is to find an instrument to measure the oral communication capability. Secondly, Penley et al. (1991) conducted their survey among bank managers, while we focus on purchasing managers. And, finally, they used an exploratory factor analysis while we use exploratory and confirmatory factor analysis.

3 Methodology

3.1 Modification of Rubin's CCSR

The study of Penley et al. (1991) showed both the general suitability of Rubin's (1985) communication competence self report (CCSR) and the necessity to slightly modify it to adapt the scale to managerial settings. Taking this into account, we adopted the general structure of the 19-items instrument but with some modifications.

The first modification was related to the statements of the report. Rubin's statements were linked to classroom situations. We adapted them to the purchasers' working settings. The second modification was related to the scale. Rubin's CCSR is a formative scale (the responses to the items are summed to provide a single measure of self-reported communication competence) while structural equation modelling (the statistical technique to be used) requires a reflective scale.[2] We modified some statements in order to meet the requirements of a reflective scale.

After these modifications, an oral communication capability instrument for purchasers was designed (see appendix). In contrast to Rubin's questionnaire, the question

[2] If we use reflective measurement models the observed variables serve as indicators of the underlying construct. The value of each observed item is regarded to be the result of the impact of an underlying latent variable and a measurement error.

order was randomized to avoid the influence of an arranged order (see Bline et al., 2003). Appendix 1 shows both the randomized item-number of the modified questionnaire and the original question-number of Rubin's CCSR.

3.2 Samples and Data Collection

In November 2003, the questionnaire was mailed by e-mail to buyers and supply managers in Germany and Spain. The two samples were selected to study whether a general instrument can be developed or if, instead, there is the need to have different models in different countries.

In Germany, a sample of 815 buyers and supply managers was drawn from a university mailing list. E-mailed contact with this sample resulted in 268 filled questionnaires. 12 cases were excluded because respondents came from outside Germany. The remaining questionnaires reflected a response rate of 32.9 percent. 187 respondents out of these were purchasers. 5 questionnaires with incomplete data were eliminated from this group. Finally, 182 German responses were available for statistical analysis.

In Spain, the survey was distributed to 2319 members of the Spanish purchasing association AERCE. The mailing resulted in 270 responses. A response rate of 11.6 percent was achieved. Of that, 224 respondents belonged to the target group of purchasers. Because of incomplete data, only 201 Spanish cases were used for statistical analysis.

In total, a sample of 383 purchasers from Spain and Germany was available. This final data set contained no missing values. Although the response rate was reasonably high, a non-response bias test, following Armstrong & Overton (1977), was conducted to examine differences between early and lately returns. We found no important differences between them. And, accordingly, non-response bias is unlikely to be an issue in interpreting the results of this study.

3.3 Research Methods

In order to find the main dimensions of the oral communication capability, exploratory and confirmatory factor analyses were conducted. The exploratory factor analysis was performed with the 19 modified items. We used the principal component extraction method along with varimax rotation. Then, the solution was subject to purification, taking into account the factor loadings size and the crossloads. The reliability and validity of each factor was analyzed through the Cronbach alpha and by testing whether the items in a scale all loaded on a common factor when within-scale factor analysis was run. Finally, a confirmatory factor analysis using AMOS was conducted. The goodness-of-fit of the model was measured using some statistics indicators such as the goodness-of-fit index (GFI), the adjusted goodness-of-fit index (AGFI), the incremental fit index (IFI), the normed fit index (NFI) and the comparative-

fit-index (CFI). And, the reliability of the factors was analyzed using the definitions proposed by Fornell and Larcker (1981).

Once the instrument was developed, the dimensions of the oral communication capability were used to find a typology of purchasers. A hierarchical cluster analysis was performed using the Ward method and the squared Euclidean distance to find the different types of communicators.

4 Results

4.1 Oral Communication Dimensions

In order to explore the dimensions of the oral communication capability, an exploratory factor analysis based on the 19 modified items was conducted. Using the principal component extraction method along with varimax rotation we obtained a four principal factors solution (see Table 1), which explained 52.6% of the variance.

		Component			
Item-No.	Item	1	2	3	4
OCAPA13	Recognize misunderstanding	0.705		0.213	
OCAPA10	Describe another's viewpoint	0.668	0.186		0.129
OCAPA03	Summarize facts	0.667		0.149	
OCAPA02	Answer questions	0.659		0.103	0.309
OCAPA08	Obtain information	0.640	-0.185		0.237
OCAPA11	Pronounce words correctly	0.627	0.330		-0.289
OCAPA12	Speak credible / facial expression	0.602	0.247		-0.348
OCAPA18	Explain organized	0.535	0.313	0.191	
OCAPA06	Articulate clearly	0.139	0.824	0.150	0.107
OCAPA07	Speak persuasively	0.121	0.767	0.156	0.146
OCAPA09	Defend a point of view		0.604	0.287	0.119
OCAPA05	Describe differences of opinion	0.296	0.533	0.337	-0.139
OCAPA17	Distinguish fact from opinion			0.776	
OCAPA16	Understand suggestions	0.104		0.699	0.135
OCAPA19	Direct accurate	0.121	0.260	0.575	
OCAPA04	Understand assignments		0.336	0.564	0.115
OCAPA15	Present ideas clearly	0.178	0.425	0.550	0.260
OCAPA14	Introduce self		0.339	0.153	0.673
OCAPA01	Express feelings	0.401			0.430

Table 1: First 4-factor solution.
Rotated component matrix. Total data from Germany and Spain. Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization, absolute values less than 0.1 suppressed.

The four factor solution was subject to purification taking into account the factor loadings size and the crossloads. After a close examination of Table 1, we decided to exclude the items with small factor loads (lower than 0.6) and large crossloads. After eliminating OCAPA1, OCAPA4, OCAPA5, OCAPA15, OCAPA18 and OCAPA19, a measurement model containing 13 items remained (see Table 2). This solution was again subject to purification following the same criteria (factor loads lower than 0.6

and important crossloads). This purification led to eliminate items OCAPA12 and OCAPA14. The 11 items solution obtained is shown in Table 3.

Item-No.	Item	Component 1	Component 2	Component 3
OCAPA13	Recognize misunderstanding	0.722		0.161
OCAPA02	Answer questions	0.688	0.112	0.116
OCAPA10	Describe another's viewpoint	0.672	0.171	
OCAPA08	Obtain information	0.670	-0.148	0.138
OCAPA03	Summarize facts	0.664		0.141
OCAPA11	Pronounce words correctly	0.642	0.277	
OCAPA12	Speak credible / facial expression	0.598	0.199	
OCAPA06	Articulate clearly	0.171	0.851	
OCAPA07	Speak persuasively	0.149	0.812	
OCAPA09	Defend a point of view		0.667	0.262
OCAPA14	Introduce self	0.112	0.455	0.265
OCAPA17	Distinguish fact from opinion		0.143	0.787
OCAPA16	Understand suggestions	0.103	0.231	0.777

Table 2: 3-factor solution with 13 Items
Rotated component matrix. Total data from Germany and Spain. Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization, absolute values less than 0.1 suppressed.

Item-No.	Item	Component 1	Component 2	Component 3
OCAPA02	Answer questions	0.727	0.125	
OCAPA13	Recognize misunderstanding	0.713		0.166
OCAPA08	Obtain information	0.698	-0.144	
OCAPA10	Describe another's viewpoint	0.687	0.193	
OCAPA03	Summarize facts	0.683		0.105
OCAPA11	Pronounce words correctly	0.606	0.293	
OCAPA06	Articulate clearly	0.165	0.860	
OCAPA07	Speak persuasively	0.145	0.827	0.102
OCAPA09	Defend a point of view		0.663	0.311
OCAPA17	Distinguish fact from opinion		0.117	0.831
OCAPA16	Understand suggestions	0.119	0.188	0.785

Table 3: 3-factor solution with 11 Items
Rotated component matrix. Total data from Germany and Spain. Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization, absolute values less than 0.1 suppressed.

The extraction of the 11-items solution explains 58.6% of the variance. The Kaiser-Meyer-Olkin measure of sampling adequacy shows a value of 0.81 which exceeds the 0.80 level advocated in the literature. The Bartlett's test of sphericity (χ^2=1033.06; p=0.000) also suggests sufficient quality of the factor analysis. The results suggest a three factor structure.

Factor 1 is mainly comprised of items addressing the ability to pass on information: OCAPA 2 (Answer questions), OCAPA13 (Recognize misunderstanding), OCAPA8 (Obtain information), OCAPA10 (Describe another's viewpoint), OCAPA3 (Summarize facts) and OCAPA11 (Pronounce words correctly). The reliability analysis of this factor resulted in a Cronbach alpha of 0.79. However, an isolated exploratory factor analysis showed low factor loadings and a very little variance explained (48.5%). Excluding the items with the lowest factor loadings in this within

scale factor analysis (OCAPA8 and OCAPA11), we obtained a 4-items factor with a Cronbach alpha of 0.74 and a variance explained of 55,8%. Table 4 shows the within scale factor analysis of factor 1 after eliminating items OCAPA8 and OCAPA11.

Item-No.	Item	Component 1
OCAPA02	Answer questions	0.764
OCAPA13	Recognize misunderstanding	0.763
OCAPA03	Summarize facts	0.736
OCAPA10	Describe another's viewpoint	0.724

Table 4: Loadings of factor 1 “ability to pass on information”
Total data from Germany and Spain. Extraction Method: Principal Component Analysis.

Factor 2 is loading on the items “articulate clearly”(OCAPA 6), “speak persuasively” (OCAPA7) and “defend a point of view” (OCAPA9). Therefore, we can assume that factor 2 represents the ability to persuade. The Cronbach alpha for this scale is 0.75. The within scale factor analysis showed a one factor structure explaining 66.8% of the variance. The loadings are reasonable high (see Table 5).

Item-No.	Item	Component 2
OCAPA06	Articulate clearly	0.867
OCAPA07	Speak persuasively	0.857
OCAPA09	Defend a point of view	0.720

Table 5: Loadings of factor 2 “ability to persuade”
Total data from Germany and Spain. Extraction Method: Principal Component Analysis.

Factor 3 is comprised of two items addressing the ability to listen and understand: understand suggestions (OCAPA16) and distinguish fact from opinion (OCAPA17). The within scale exploratory factor analysis for this factor showed a one factor structure explaining 70,6% of the variance. Table 6 shows the loadings of factor 3 on the two items. Cronbach alpha for factor 3 is low (0.58), but this is due to the fact that the scale contains only two items.

Item-No.	Item	Component 3
OCAPA16	Understand suggestions	0.840
OCAPA17	Distinguish fact from opinion	0.840

Table 6: Loadings of factor 3 “ability to listen and understand”
Total data from Germany and Spain. Extraction Method: Principal Component Analysis.

Based on these traditional examinations, a measurement model consisting of 3 factors and 9 items remains for further analysis. Table 7 shows the rotated component matrix of this 3-factor model. The extraction explains 63.4% of the variance.

Once conducted the exploratory factor analysis and the traditional reliability analysis, we used confirmatory factor analysis (CFA) using AMOS to verify the structure of the measurement model. Figure 1 shows the structure of the second order CFA model of the oral communication capability.

Item-No.	Item	Component 1	Component 2	Component 3
OCAPA02	Answer questions	0.751	0.116	
OCAPA13	Recognize misunderstanding	0.745		0.162
OCAPA03	Summarize facts	0.741		
OCAPA10	Describe another's viewpoint	0.706	0.184	
OCAPA06	Articulate clearly	0.181	0.860	
OCAPA07	Speak persuasively	0.180	0.841	
OCAPA09	Defend a point of view		0.669	0.326
OCAPA17	Distinguish fact from opinion	0.101	0.102	0.831
OCAPA16	Understand suggestions	0.111	0.187	0.788

Table 7: Loadings of the final 3-factor measurement model
Total data from Germany and Spain. Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization, absolute values less than 0.1 suppressed.

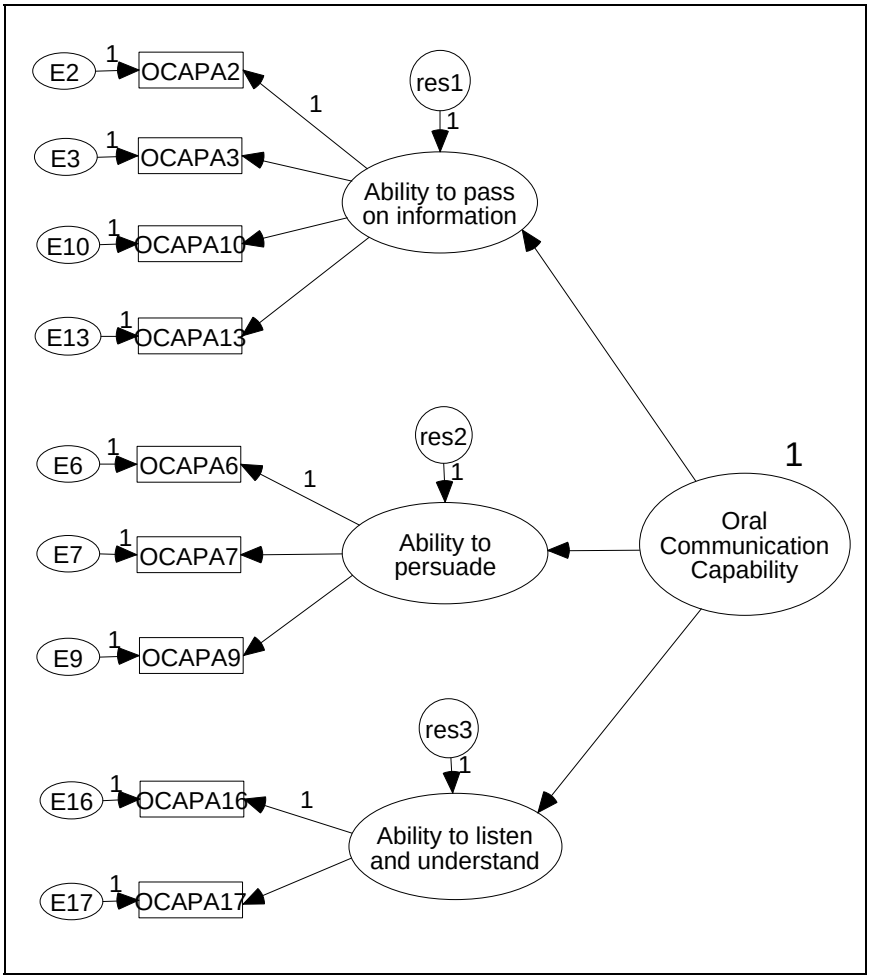

Figure 1: Second order CFA model of the oral communication capability

A precondition of CFA is the multivariate normality of indicators' data. In our case, the values of skewness and kurtosis of the items (Byrne, 2001) were low. And, the Mardia coefficient of multivariate kurtosis (Mardia, 1970) was also reasonable low. These results indicate that the effect of non-normality of indicators' data seems to be negligible.

We estimated the model with the maximum likelihood procedure. The goodness-of-fit statistics of the estimated model are shown in Table 8. All of them indicate a good model fit. The goodness-of-fit index (GFI), the adjusted goodness-of-fit index (AGFI),

the incremental fit index (IFI), the normed fit index (NFI) and the comparative-fit-index (CFI) exceed the 0.90 level advocated in the literature. The χ^2/df (discrepancy degrees of freedom ratio) is much lower than 2.5, as it should be. The root mean square error of approximation (RMSEA) comes to 0.028, lower than the benchmark value of 0.05 (Byrne, 2001). And, finally, the test of close fit (RMSEA < 0.05) shows a high probability.

Fit Measure	Default model
Discrepancy	31.25
Degrees of freedom	24
P	0.147
Number of parameters	21
Discrepancy / df	1.302
RMR	0.022
GFI	0.983
Adjusted GFI	0.967
Normed fit index	0.961
Relative fit index	0.941
Incremental fit index	0.991
Tucker-Lewis index	0.986
Comparative fit index	0.990
RMSEA	0.028
RMSEA lower bound	0.000
RMSEA upper bound	0.053
P for test of close fit	0.921

Table 8: Fit measures of the second order CFA model of oral communication capability Data from Spain and Germany (n = 383).

The reliability of each item, and the reliability and average variance extracted for each factor were analysed. For that, we conducted a first order confirmatory factor analysis including the ability to pass on information, the ability to persuade, and the ability to listen and understand (see Figure 2). The reliability of each item can be analysed through its squared multiple correlation, which is provided by AMOS. The values are shown in Table 9 and on the top right corner of each rectangle in Figure 2. The reliabilities of the factors and the average variance extracted are not available in AMOS. These values were calculated according to the definitions proposed by Fornell and Larcker (1981). Although the value of the reliability of OCAPA9 “Defend a point of view” is comparatively low, Table 9 shows sufficient degrees of reliability and convergence validity.

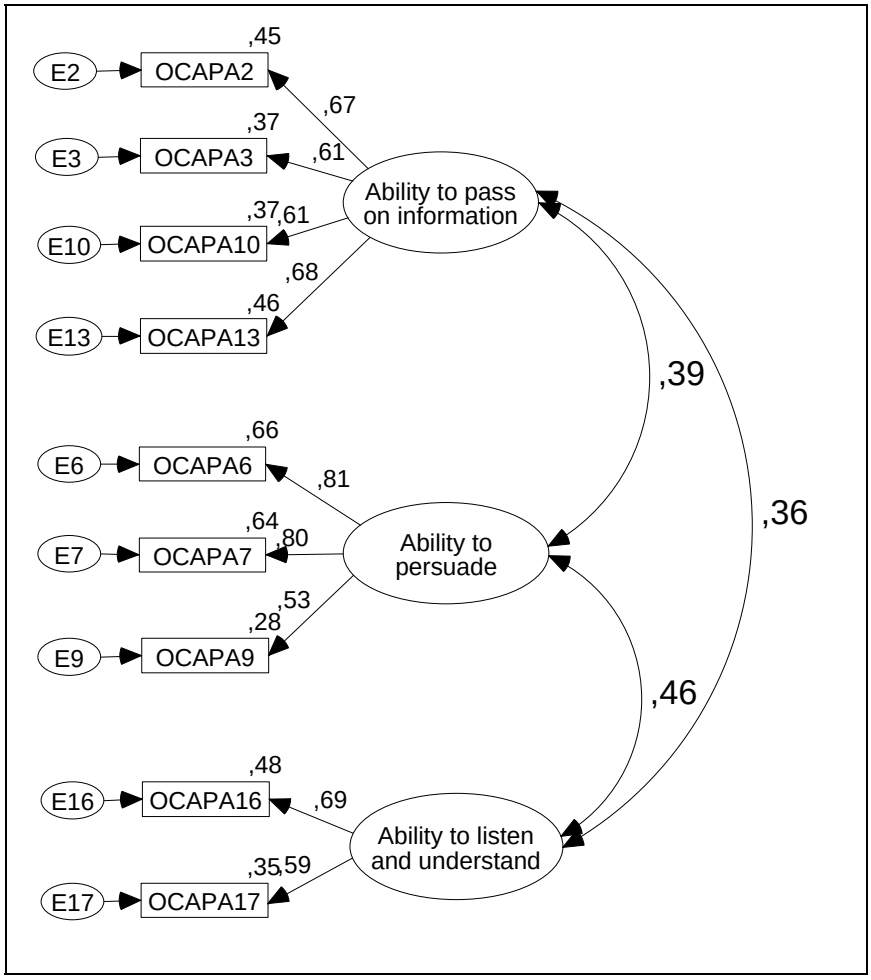

Figure 2: First order CFA model of oral communication capability

Item-No.	Item	indicator reliability (squared multiple correlation)	reliability of the factor	average variance extracted
OCAPA02	Answer questions	0.45	0.73	0.410
OCAPA03	Summarize facts	0.37		
OCAPA10	Describe another's viewpoint	0.37		
OCAPA13	Recognize misunderstanding	0.46		
OCAPA06	Articulate clearly	0.66	0.76	0.525
OCAPA07	Speak persuasively	0.64		
OCAPA09	Defend a point of view	0.28		
OCAPA16	Understand suggestions	0.48	0.58	0.409
OCAPA17	Distinguish fact from opinion	0.35		

Table 9: Evaluation of the measurement model based on first order CFA

To examine the discriminate validity of the oral communication capability, the Fornell-Larcker (1981) criterion was calculated. This procedure recognizes discriminate validity by showing that the average variance extracted exceeds the squared correlation between all pairs of factors (Cannon & Homburg, 2001). The values of the three correlations are given in Figure 2 beside the double arrows and their squares are provided in Table 10. The values compiled in Table 10 give evidence for sufficient discriminate validity.

		ability to pass on information	ability to persuade	ability to listen and understand
	average variance extracted	*0,410*	*0,525*	*0,409*
ability to pass on information	*0,410*	---	---	---
ability to persuade	*0,525*	0,151*	---	---
ability to listen and understand	*0,409*	0,127*	0,213*	---

Table 10: Calculation of the Fornell-Larcker criterion
* Squared correlations

To sum up, the confirmatory factor analysis shows satisfactory reliability and convergence and discriminate validity of the 3-factor model.

The regression weights resulted from maximum likelihood estimation (ML-estimation) of the second order CFA model of oral communication capability are shown in Table 11. All of them are significant. The standardized weights are reasonable high. Especially, the impact of the oral communication capability (O_CAPA) on the three dimensions is strong. The values of the squared multiple correlations (Jöreskog & Sörbom, 1982) are shown on the top right corner of each endogenous variable (see Figure 3). The squared multiple correlation determines the share of variance explained by the predictors of the endogenous variable. For example, 50% of the variance of the "ability to persuade" is explained by the oral communication capability. The values of the three dimensions exceed the 30% level. These results give evidence for three dimensions of the oral communication capability construct.

			Estimate	Standard error	Critical ratio	Significance	Standardized estimate
FACT1	←	O_CAPA	0.306	0.051	6.041	0.000	0.548
FACT2	←	O_CAPA	0.477	0.067	7.095	0.000	0.710
FACT3	←	O_CAPA	0.299	0.049	6.082	0.000	0.651
OCAPA2	←	FACT1	1				0.669
OCAPA3	←	FACT1	0.905	0.101	8.985	0.000	0.610
OCAPA10	←	FACT1	0.983	0.109	8.981	0.000	0.609
OCAPA13	←	FACT1	0.995	0.104	9.526	0.000	0.676
OCAPA6	←	FACT2	1				0.815
OCAPA7	←	FACT2	1.002	0.086	11.708	0.000	0.797
OCAPA9	←	FACT2	0.668	0.072	9.287	0.000	0.531
OCAPA16	←	FACT3	1				0.694
OCAPA17	←	FACT3	0.983	0.188	5.232	0.000	0.594

Table 11: regression weights the second order CFA model

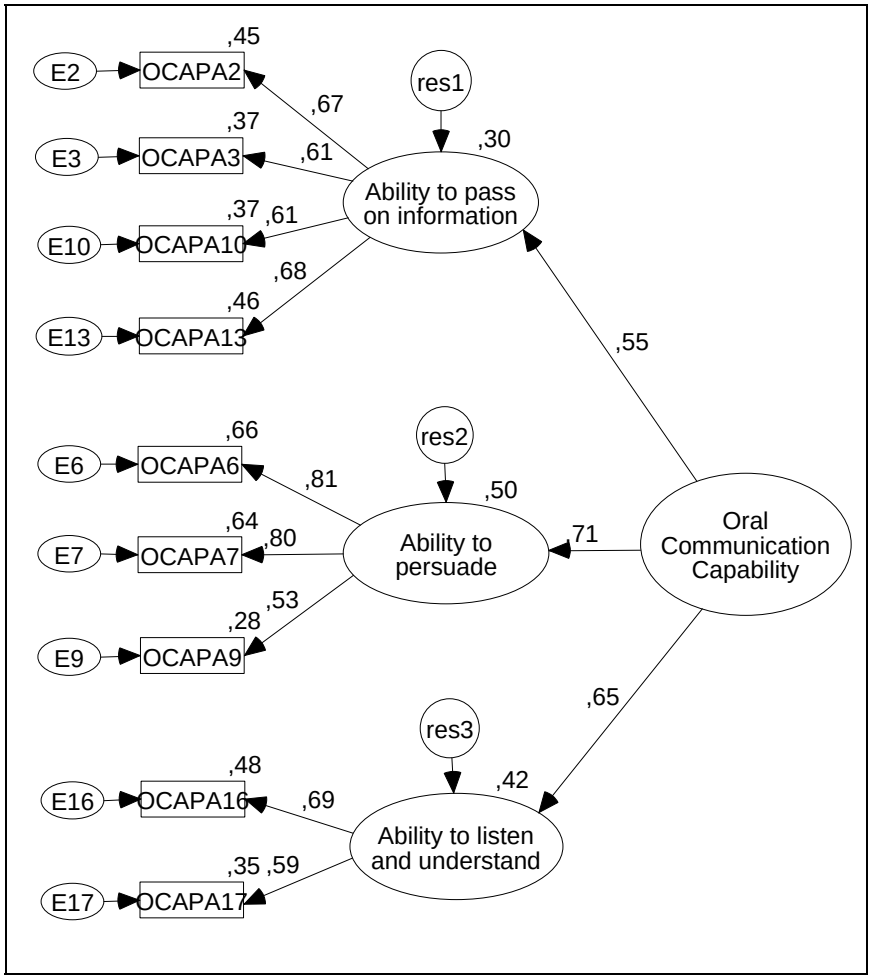

Figure 3: Second order oral communication capability model: Standardized regression weights and squared multiple correlations

The total sample consists of 201 Spanish and 182 German responses. Both sub-samples have sufficient sample-size for individual confirmatory factor analysis. The analysis generated factor solutions which were comparable across the two countries. Figure 4 gives a comparison of the second order CFA models of Germany and Spain.

The goodness-of-fit measures based on the German data exceed the 0.90 level advocated in the literature. The χ^2/df is 1.676 and the RMSEA comes to 0.061, indicating reasonable fit. All the regression weights are significant and the standardized values larger than 0.6. The squared multiple correlations exceed the 40% level. Altogether, the results show that the measurement model is also appropriate for the German sub-sample.

The CFA of the Spanish data delivers fit measures surpassing the German results. The RMSEA amounts only to 0.012 and the χ^2/df is 1.027. All regression weights are significant. However, the impact of the oral communication capability on the “ability to pass on information” is weaker than in the German case, and, consequently, the squared multiple correlation of factor 1 (“ability to pass on information”) is low. These results suggest that in the case of Spain, the oral communication capability seems not to be the main impact factor on the ability to pass on information.

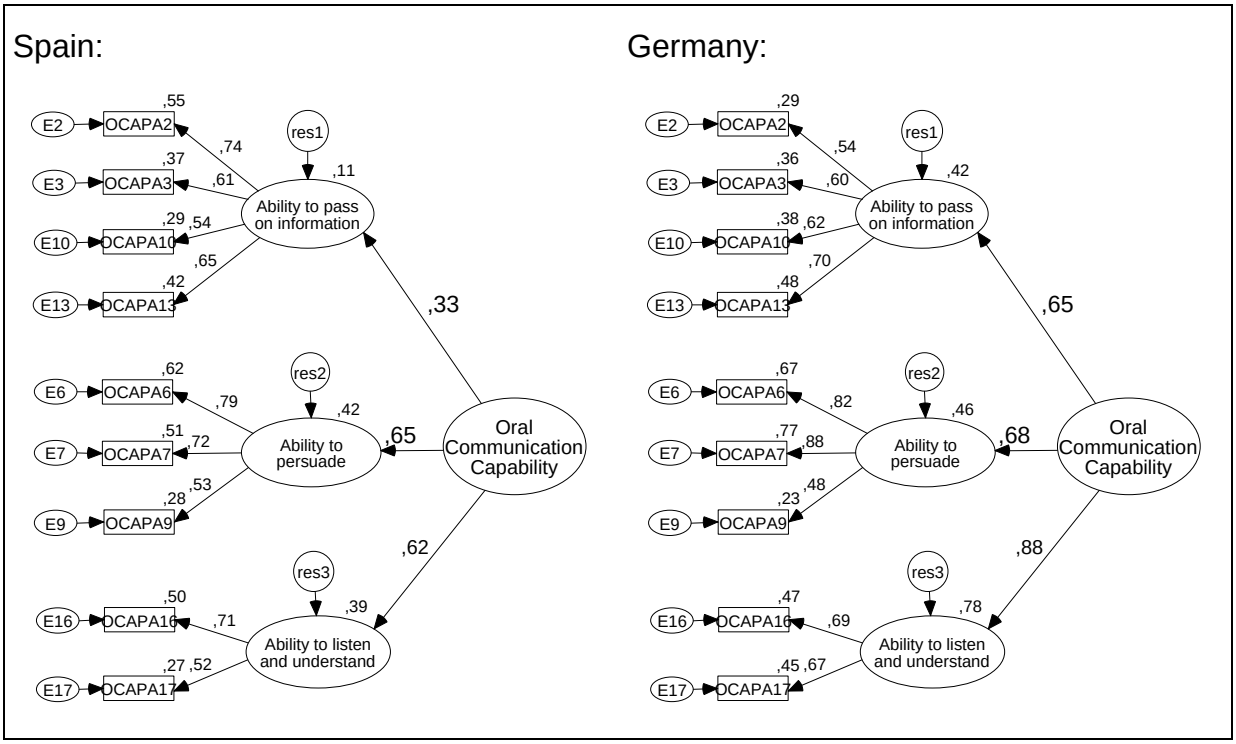

Figure 4. Comparison of the Spanish and German model: Standardized regression weights and squared multiple correlations

4.2 Communicator Types

Different people communicate in different ways, but probably in similar patterns. This means that it might be possible to identify a typology of communicators. To do that, we conducted a cluster analysis taking into account the factors identified in the previous section: the ability to pass on information, the ability to persuade and the ability to listen and understand. The factor scores of each case were calculated using the regression method of SPSS in the exploratory factor analysis. In order to meet the three-factor structure of the CFA model without crossloads, the factor scores were calculated for each factor separately. The factor scores were calculated as standardized values with a mean of 0 and a variance of 1.

Hierarchical cluster analysis was performed using the Ward method and the squared euclidean distance. This cluster technique requires selecting an appropriate number of clusters. The elbow-criterion of the Ward method suggested a 4-factor solution. Additionally, the variances within the groups also pointed to use four clusters.

The use of the groups' means helps in the interpretation of each cluster. Positive means indicate that a variable in the group in comparison with the total sample is over-represented, because the mean of the total sample is 0. The variance within a group should be lower than 1 to ensure within group homogeneity. Table 12 shows the means and variances of the four groups. All the variances are smaller than 1. And, accordingly, it is proportionate to say that there is within group homogeneity.

Ward Method		Ability to pass on information	Ability to persuade	Ability to listen and understand
Cluster 1	Mean	-0.587	-0.604	-1.052
	N	118	118	118
	Variance	0.819	0.724	0.517
Cluster 2	Mean	-0.510	0.328	0.575
	N	112	112	112
	Variance	0.586	0.489	0.339
Cluster 3	Mean	1.043	0.856	0.401
	N	102	102	102
	Variance	0.203	0.327	0.849
Cluster 4	Mean	0.393	-1.034	0.370
	N	51	51	51
	Variance	0.242	0.514	0.140
Total	Mean	0.000	0.000	0.000
	N	383	383	383
	Variance	1.000	1.000	1.000

Table 12: Means and variances of the four identified clusters

Cluster 3 consists of respondents with excellent communication capabilities. The cluster mean of each factor exceeds the mean of the total sample. All members of cluster 3 show better abilities to pass information than the mean of the respondents. As well, the ability to persuade is high (only 3 respondents of cluster 3 possess negative factor values). Although the mean of the ability to listen and understand is higher than in the rest of the clusters, 23.5% of the members of this cluster show below average abilities to listen and understand.

Nearly all respondents that fall into cluster 1, as evidenced by the consistently negative means for all factors, show below average abilities for all oral communication capability dimensions. For classification purposes we can, therefore, identify respondents in cluster 1 as poor communicators.

Most of the respondents of cluster 2 seem to have problems with their ability to pass on information. However, they are good in listening and understanding. While the ability to persuade plays a role in this cluster, the dominant positive factor is the ability to listen and understand. 35.7% of the purchasers in this cluster have below average abilities to persuade. But, only 4 of the 112 members of this group show below average abilities to listen and understand. Therefore, the members of cluster 2 can be termed empathetic listeners.

About 80% of the members of group 4 shows above abilities to pass on information. In the same way, their ability to listen and understand is above-average. However, the dominant characteristic of this group is the below-average ability to persuade. Almost all respondents in this group have doubts about their ability to persuade (only 4 respondents in this group possess above average abilities to persuade). Therefore, the members of this group can be termed non persuasive communicators.

Table 13 summarizes the classification of respondents based on the clusters identified.

Group	Interpretation	Absolute frequency	Relative frequency
Cluster 1	poor communicator	118	30,8%
Cluster 2	empathetic listener	112	29,2%
Cluster 3	excellent communicator	102	26,6%
Cluster 4	non persuasive communicator	51	13,3%
Total		383	100,0%

Table 13: Interpretation and frequency of the four communicator types

5 Conclusions and Further Research

Our findings indicate that there is no unidimensionality of the oral communication capability construct. The results of the exploratory and confirmatory factor analyses lead to the conclusion that three dimensions are appropriate for this construct. These dimensions are: the ability to pass on information, the ability to persuade and the ability to listen and understand. For each of the three dimensions, we developed and evaluated a reflective multi-item scale. Based on the total sample (Germany and Spain), a second-order CFA model was obtained. This model gives evidence for the appropriateness of the 3 factor structure. Furthermore, we found support for the validity of the model by comparisons across the two sub-samples.

This study has implications for both the selftest of individual communication competencies and the measurement of the communication capability. On one hand, the results of the study may help to provide a 9-item measure of self-reported communication competence of purchasers. The deduced path coefficients can serve as weights to calculate an appropriate total score of communication competence of managers working in the purchasing and supply field. As well it is possible to calculate sub-scores for each dimension. On the other hand, the second order measurement model can be used in structural equation modelling as a valid and reliable measure of the oral communication capability. It will be useful in future research on the impact of oral communication capability on the external and internal communication behaviour of purchasers.

Based on cluster analysis we found a typology of purchasers. The results suggest four distinct types of communicators: excellent communicators, poor communicators, empathetic listeners and non persuasive communicators. This typology may help purchasers to classify themselves and identify their strengths and weaknesses. This typology can also be very useful in further research, in order to analyse the relationship between the oral communication capability of each group and their respective purchasing performance.

This study has also some limitations. Firstly, the fact that there has been a translation from English into German and Spanish could have introduced some bias in this process, however, this has been minimized by using two independent parties to validate the accuracy of the translation. Secondly, the structure of the Spanish and the German CFA model is not identical. The impact of the oral communication capability on the ability to pass on information is weaker in the Spanish model.

Further research in other countries should be conducted to test the general validity of the model. In spite of these limitations, this study contributes to a better understanding of the nature of the oral communication capability of managers.

Acknowledgements

Cristina Giménez gratefully acknowledges the support of AERCE in conducting the survey among the Spanish purchasers and the financial support from the research grant SEC2003-01991/ECO.

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Appendix

Statement		Item	Item-No.	Rubin's No.
When I speak with others, I mispronounce a lot of words.		Pronounce words correctly	OCAPA11	1
The words I use say one thing while my face and body language say something different.		Speak credible / facial expression	OCAPA12	2
When I give a speech, I speak clearly and distinctly.	R	Articulate clearly	OCAPA06	3
When I give a speech, I speak persuasively.	R	Speak persuasively	OCAPA07	4
When I speak with others, my ideas are clearly and concisely presented.	R	Present ideas clearly	OCAPA15	5
When giving a speech, I thoroughly express and fully defend my positions on issues.	R	Defend a point of view	OCAPA09	6
Often I am unable to tell whether or not someone has understood what I have said.		Recognize misunderstanding	OCAPA13	7
I know when I'm hearing a fact and when I'm hearing someone's personal opinion.	R	Distinguish fact from opinion	OCAPA17	8
When other persons make suggestions on how I can improve, I always understand the suggestions.	R	Understand suggestions	OCAPA16	9
I always understand the assignments that are given orally to me.	R	Understand assignments	OCAPA04	10
When I tell others about a fact, often my version leaves out some important items.		Summarize facts	OCAPA03	11
When I have to introduce myself in a meeting, it is easy for me to describe my personality.	R	Introduce self	OCAPA14	12
When speaking with others, often I have to ask a question several times, in several ways, to get the information I want.		Obtain information	OCAPA08	13
Often I have to answer a question several times before others seem satisfied with my answer.		Answer questions	OCAPA02	14
I find it difficult to express my satisfaction or dissatisfaction about the performance of other people.		Express feelings	OCAPA01	15
When I explain something to someone, it tends to be disorganized.		Explain organized	OCAPA18	16
When I give directions to another person, the directions are accurate.	R	Direct accurate	OCAPA19	17
When I try to describe someone else's point of view, I have trouble getting it right.		Describe another's viewpoint	OCAPA10	18
I am able to give a balanced explanation of differing opinions.	R	Describe differences of opinion	OCAPA05	19

Appendix 1: Items list of the modified instrument based on Rubin's self report (R = reverse coded).