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ACADEMY OF MARKETING STUDIES JOURNAL

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LETTER FROM THE EDITORS

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THE FORECASTING ACCURACY OF FIVE TIME SERIES MODELS: EVIDENCE FROM THE PORTUGUESE CAR MARKET

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ABSTRACT

This paper compares the out-of-sample forecasting accuracy of five classes of time series models for market shares of the six most important Portuguese car market competitors over different horizons. As representative time series models I employ a random walk with drift (Naive), a univariate ARIMA, a near-VAR (n-VAR) and a general BVAR. The out-of-sample forecasts are also compared against forecasts generated from structural econometric market share models (SEM). Using four accuracy measures I find the forecasts from the n-VAR and the BVAR models more accurate. With regard to these models, the BVAR model is the best for longer forecasts (12-steps ahead), while the n-VAR is superior over a shorter horizon of one to six steps.

INTRODUCTION

Multiple time series models have been proposed for some time as alternatives to structural econometric models (SEM) in economic forecasting applications. In the marketing field, applications of multiple time series techniques (Transfer Functions, Intervention and VARMA) in the area of market response models is now well known. Hanssens, Parsons and Schultz (1990) give a good overview in this domain. One class of multiple time series models which has received much attention recently is the class of Vector Autoregressive (VAR) models. These models constitute a special case of the more general class of VARMA models. Although VAR models have been used primary for macroeconomic forecasting, they offer an interesting alternative to either SEM of market shares or Box-Jenkins ARIMA models for problems in which simultaneous forecasts are required for a collection of related microeconomic variables, such as industry sales and firm's market shares forecasting. The use of VAR models for economic forecasting was proposed by Sims (1980), motivated in part by questions related to the validity of the way in which economic theory is used to provide *a priori* justification for the inclusion of a restricted subset of variables in the "structural" specification of each dependent variable. Sims (1980) questions the use of the so called "exclusionary and identification restrictions". Such time series models have the appealing property that, in order to forecast the endogenous variables in the system, the model is not required to provide forecasts of exogenous explanatory variables; the explanatory variables in a SEM are typically no less difficult to forecast than the dependent variables. In addition, the time series models are less costly to construct and to estimate. This does not imply,

however, that VAR models necessarily offer a parsimonious representation for a multivariate process (see, e.g., Fuller, 1976). Despite this lack of parsimony, and the additional uncertainty imposed by the use of a finite-order VAR model as an approximation to the infinite-order VAR representation, VAR models are of interest for practical forecasting applications because of the relative simplicity of their model identification and parameter estimation procedures, superior performance, compared with those associated with structural and VARMA models (very few VARMA analyses of higher-dimensional time series, e.g., models with more than four series, are reported in the literature). For example, Brodie and De Kluyver (1987) have reported empirical results in which simple "naïve" market share models (linear extrapolations of past market share values) have produced forecasts as accurate as those derived from SEM of market shares. Furthermore, the same paper shows that using lagged market share often gives better results than a SEM which incorporates marketing mix variables. Indeed, Danaher and Brodie (1992) gave a criterion which determines whether it is advantageous to use marketing mix information for forecasting market share.

The number of parameters to be estimated may be very large in VAR models, particularly in relation to the amount of data that is typically available for marketing applications. This lack of parsimony may present serious problems when the model is to be used in a forecasting application. [Apart from the multicollinearity between the differenced lagged variables leading to imprecise coefficient estimates, the large number of parameters leads to a good within-sample fit but poor forecasting accuracy because, according to Litterman (1986, p.2), "parameters fit not only the systematic relationships ... but also the random variation."] Thus, the use of VAR models often involves the choice of some method for imposing restrictions on the model parameters: the restrictions help to reduce the number of parameters and (or) to improve their estimability. One such method, proposed by Litterman (1980), utilises the imposition of stochastic constraints, representing prior information, on the coefficients of the vector autoregression. The resulting models are known as Bayesian Vector Autoregressive (BVAR) models.

The aim of this paper is to develop five classes of time series models for the six major competitors of the Portuguese automobile market for the period January 1988 to December 1992. Then out-of-sample one-through twelve-months-ahead forecasts are computed for the six market shares for the period January 1993 to June 1994 and their accuracies are evaluated using four accuracy measures. The paper is organized as follows. The next section briefly describes the modelling methodologies. The third section describes the data base used and the rational behind the choice of the variables. The fourth presents the models in competition, the forecasting strategy and the main empirical results. Conclusions appear in the final section.

THE METHODOLOGY

Ramos (1995) describes VAR and BVAR modelling in its general context and presents this methodology comprehensively. This point was the subject of a special issue of the *Journal of Forecasting* (May 1995). In this section, I review the key features of the VAR and BVAR

methodology. As a starting point, I assume that the structure under investigation can be described by the following equations:

$$A_{11}(B)Y_{1t} + A_{12}(B)Y_{2t} + A_1 + e_{1t}$$

$$A_{21}(B)Y_{1t} + A_{22}(B)Y_{2t} + A_2 + e_{2t} \quad \textbf{(1)}$$

where Y_{1t} and Y_{2t} are k_1 and k_2 ($k_1+k_2=k$) vectors; e_{1t} and e_{2t} are error terms, with:

$$E(e_{it}e'_{jt}) = \Sigma_{ij};\ A_{ij}(B) = A_{ij,0} - A_{ij,1}B - A_{ij,2}B^2 - \ldots - A_{ij,m}B^m$$

as a set of matrix polynomials of order m.

Note that in this specification, contemporaneous relationships within and between Y_{1t} and Y_{2t} can be capture by the $A_{ij,0}$ matrices. As usual, the e_{1t} are part of the structure and correspond to economically meaningful concepts. A_1 and A_2 are vectors of constants. In a more general form, I can write:

$$A(B)Y_t = A + e_t \quad (t = 1,\ldots,T) \quad \textbf{(2)}$$

where $A(B) = A_0 - A_1B - \ldots - A_mB^m$ *and* $E(e_te'_t) = \Sigma$. **Structural models such as equation (2) are estimated under various maintained assumptions such as exogeneity of a block of variables (e.g., Y_{2t}) or exclusion restrictions implied by theory. There are two problems with structural models. First, for proper identification of individual equations in the system, the correct number of variables have to be excluded from an equation in the model. As argued by Cooley and LeRoy (1985), such exclusion is often carried out with little theoretical justification. Second, structural models are poorly suited for forecasting. Projected future values of the exogenous variables are required for this purpose.**

It is now well accepted that the basic structural phenomena can be recovered through the estimation of a vector autoregressive model (VAR), where each variable of the system is linked to its own past values as well as the lagged values of all the other variables in the system. More formally, VAR models correspond to the reduced form equation (2):

$$D(B)Y_t = D + u_t \quad (t = 1,\ldots,T) \quad \textbf{(3)}$$

where $D(B) = A^{-1}_0A(B),\ D = A^{-1}_0D$ *and* $u_t = A^{-1}_0e_t$**; u_t is constructed as a linear combination of structural errors e_t and cannot be interpreted from an economic viewpoint. However, with minimal identifying assumptions, estimates of e_t can be obtained from u_t. As usual, u_t is centred on zero with a variance-covariance matrix given by** $\Omega = A^{-1}_0\Sigma A^{-1}_0$**. I can write a representative equation using the first variable of the system as an example, as:**

$$y_{1t} = d_{11,1}y_{1,t-1} + \ldots + d_{11,m}y_{1,t-m} + d_{12,1}y_{2,t-1} + \ldots + d_{12,m}y_{2,t-m} + d_{1k,1}y_{k,t-1} + \ldots + d_{1k,m}y_{k,t-m} + d_{10} + u_{1t} \quad \textbf{(4)}$$

where d_{10} is the usual constant.

In this formulation, VAR models impose few constraints and require the estimation of a large number of parameters, thus rapidly exhausting the available degrees of freedom. For models as large as the one considered in this paper, some restrictions are required, for example, to exclude potentially important variables or restrict the number of lags. As well, large unrestricted regressions often suffer from overparameterization and lead to poor forecasts: they tend to pick up sample-specific and temporary relationships which are a source of poor performance outside the sample period. This overparameterization results in multicollinearity and loss of degrees of freedom that can lead to inefficient estimates and large out-of-sample errors. While estimation of such a highly parameterized system will provide a high degree of fit to the data, the out-of-sample forecasts can be very poor in terms of mean square error.

To overcome problems associated with VAR models, Litterman (1980), Doan, Litterman and Sims (1984), and Sims (1989) suggested the incorporation, in a Bayesian fashion, of relevant *a priori* information in the estimation. *A posteriori* estimates obtained after combining priors and sample information are the cornerstone of Bayesian models.

Following Litterman, these priors are not based on economic theory but rest on some empirical regularities. For example, according to Litterman (1980) and Nelson and Plosser (1982), most macroeconomic variables can be approximated by the simple discrete random-walk with drift. For a representative equation *i* of system (3), this takes the form:

$$Y_t = d_0 + Y_{t-1} + u_t \qquad (5)$$

More specifically, the prior mean a_0 for the *i*th equation will be centred on the elements $d_{j,l}$ *(l = 1, ... , m; j = 1, ... , k)* equal to 1 for j = i, and l = 1, and 0 otherwise. In practice, d_0 is set to zero, but since its initial prior is kept loose, I will eventually get the limiting form described by equation (5).

At first glance, this information appears to be rather restrictive and may not be appropriate for all the series investigated. The degree of constraint will depend on the dispersion associated with each coefficient. Ideally, this *a priori* uncertainty should reflect some basic requirements. In addition, the procedure chosen should be practical, since it would be impossible to determine (separately) the values of the coefficients. To meet these requirements, Sims (1989) suggests the following general formulation for the prior variance-covariance matrix associated with a_0:

$$s_{ijl} = g\, w\, l^{-d}\, (\sigma_i/\sigma_j) \qquad (6)$$

where s_{ijl} is the standard deviation of the prior distribution for the coefficient on lag *l* of variable *j* in equation *i* ; *g* is the overall tightness parameter. It is the standard deviation of the coefficient of variable *i* in equation *i* lagged once, e.g., Y_{t-1} in equation (5). The parameter *w* allows the imposition of a tighter standard error on the *j*th variable in equation *i*; it operates only when $i \neq j$. The term l^{-d} is a distributed lag function (harmonic specification) with

parameter *d* that tightens the standard errors as the lag length increases. The ratio σ_i/σ_j adjusts the prior information to the relative scale of the variables, where σ_i is the estimated standard error of a univariate AR model for variable *i* and σ_j is the same statistic computed for variable *j*. In fact, Sims (1989) uses this form of prior for all the variables in his BVAR system and reports interesting improvements in forecast performance; I will follow the same strategy.

The BVAR model is estimated using Theil's (1971) mixed-estimation technique that involves supplementing data with prior information on the distributions of the coeffcients. For each restriction on the parameter estimates, the number of observations and degrees of freedom are increased by one in an artificial way. The loss of degrees of freedom due to overparameterization associated with a VAR model is therefore not a problem with the BVAR model.

To apply Litterman's procedure one must search over the parameters *g*, *d*, and *w* until some predetermined objective function is optimized. The objective function can be the out-of-sample mean-squared forecast error, or some other measure of forecast accuracy. Doan, Litterman and Sims (1984) suggest minimizing the log-determinant of the sample covariance matrix of the one-step-ahead forecast errors for all the equations of the BVAR. In a forecasting comparison such as mine, a portion of the sample must be withheld to determine the parameters *g*, *d*, and *w*; while the remainder of the sample is used with the selected model to generate out-of-sample forecasting statistics for comparison purposes.

DATA DESCRIPTION

The data base used for this study is a monthly time series sample of market shares, and marketing decision variables, for the period January 1988 through June 1994 (78 observations on each variable), for the six most important competitors presents in the Portuguese car market. The marketing decision variables include such variables as relative price, major media advertising expenditures (TV, radio, and newspaper), and relative Age. The Portuguese car market consists of twenty five imported brands, but the top six, presented in all segments, account on average for 82.3% of the total market, with a standard deviation of 4.75%.

The time series variables used in this study are defined as follows:

MS_{it} = market share of the *i*th competitor,

A_{it} = relative age of the *i*th competitor,

P_{it} = relative price of the *i*th competitor,

TVS_{it} = TV advertising share of the *i*th competitor,

RS_{it} = Radio advertising share of the *i*th competitor, and

PS_{it} = Press advertising share of the *i*th competitor

where *i* = 1,...,6 represents respectively *Renault*, *Peugeot-Citroen*, *Ford*, *Opel, Alfa-Fiat-Lancia*, *Audi-Seat-VW*.

The data on MS_{it} are calculated from the monthly new automobile registrations published by the *Portuguese General Directorate of Transports*.

The relative age A_{it} represents the different models (versions) offered by each competitor in all market segments. It measures the time in market (in months) of the most representative models of each segment. This variable represents the models life cycle of each competitor, and can be seen as a strategic marketing variable. It was obtained as follows:

- **for each firm, I measure the time in market after the launch of the most representative model of each segment. I apply a pseudosegmentation method based on the horsepower, and followed by the Portuguese Trade Automobile Association. This pseudosegmentation creates four segments: S1 (lower), S2 (lower-middle), S3 (upper-middle), and S4 (upper). , i.e., the model with the highest share of the segment;**
- **for the competitors, I calculate the simple average age of the most representative model of each segment;**
- **to obtain the firm's average age and (or) of their competitors, I calculate the weighted average age for the models chosen on each segment. The weights are given by the relative importance of each segment on total demand (S1+S2+S3+S4);**
- **the relative age, named A_{it}, is then calculated as the ratio between the weighted average age of firm *i* and the weighted average age of their competitors ($j=1, \ldots 6 \wedge j \neq i$).**

The pricing decision by each firm is measured by the relative price defined as a price index which is calculated by dividing each firm's average price by an average price of their competitors. The variable P_{it} is obtained following the steps just described for A_{it}. The weights are the same, and the price of each model is the consumer's price (all taxes included) of the most representative model of each segment. The price of each model is published on a monthly basis and comes from the "*Guia do Automóvel*" (The oldest and most read Portuguese car magazine).

The data on TVS_{it}, RS_{it}, $\wedge PS_{it}$ are expressed as shares of total advertising expenditures by media (*us/industry*) and were obtained from "*Sabatina*". This Portuguese firm records monthly the advertising expenditures by media and by brand. Advertising expenditures represent only "official or contractual prices", and I know in the industry that prices are frequently lower. All the data (36 time series) were transformed into logarithms to handle nonstationary in variance, i.e., heteroscedasticity.

MODELS IN COMPETITION

Five classes of models are included in my empirical comparisons. In all computations I have used the RATS program (RATS386, version 4.20). Each class being represented by one or more specific models. The classes are NAIVE (a first order autoregressive model for each MS_{it}), ARIMA (a univariate Box-Jenkins model for each MS_{it}), SEM (a structural econometric market share model for each firm), n-VAR (a near-VAR system), and BVAR. BVAR and n-VAR forecast all market share variables in a system of 36 time series, while the other techniques forecast only one at a time.

The NAIVE model, defined as $MS_{it} = \alpha_i + \beta_i MS_{it-1} \quad (1=1,\ldots,6)$ is a simple model that uses no marketing mix data, only lagged market share. Brodie and De Kluyver (1987), Alsem, Leeflang and Reuyl (1989), and Danaher and Brodie (1992) have reported empirical results

in which the predictive accuracy of econometric market share models is not consistently better than that of a "naive" model ($\alpha_i = 1 \wedge \beta_i = 1$, in BdK's paper). This conclusion was reached after reviewing several empirical studies and also analysing data for 15 brands in three markets.

The ARIMA models have been built following the Box-Jenkins' approach. The usual criteria, e.g., stationarity, autocorrelation, and partial autocorrelation functions, significance of coefficients, and FPE are used to select the best models. (The best-fit ARIMA models are: MS_{1t} **-(1, 0, 1);** MS_{2t} **-(2, 0, 0);** MS_{3t} **-(0, 0, 1);** MS_{4t} **-(1, 0, 2);** MS_{5t} **-(1, 0, 1);** MS_{6t} **-(1, 0, 1)). As Montgomery and Weatherby (1980, p.306) note: "The Box-Jenkins approach uses inefficient estimates of impulse response weights which are matched against a set of anticipated patterns, implying certain choices of the parameters ... the analyst's skill and experience often play a major role in the success of the model building effort".**

The purpose of the SEM class is to specify models for predicting the future values of market shares, taking in account not only the firm's marketing instruments, but also the actions developed by competitors. According to Alsem, Leeflang and Reuyl (1989), all estimated market share models are specific forms of the following multiplicative specification:

$$MS_{it} = \alpha\ A^{\beta i}_{it}\ P^{\beta 2i}_{it}\ TVS^{\beta 3i}_{it}\ RS^{\beta 4i}_{it}\ PS^{\beta 5i}_{it}\ MS^{\beta 6i}_{it-1}\ e^{uit} \qquad (7)$$

where u_{it} **is a random disturbance term, and** $i=1, \ldots 6$**. In equation (7) all variables are expressed competitively (see my definition of variables).**

In practice, it is not possible to avoid imposing some restrictions on a VAR system. There is always some limit on the number of variables which can be included in a VAR model as well as on the maximum number of lags. In my case, with a system of 36 variables and six lags on each variable, the total number of regressors in each equation would be 216. This would make the entire modelling process impossible (the in-sample period has only 60 observations). It may happen, then, that some variables have to be excluded prior to modelling. Especially important here is to eliminate those coefficients for which the hypothesis that they are jointly equal to zero cannot be rejected, e.g., using the likelihood ratio (LR) test statistic suggested by Sims (1980) or the more sophisticated procedure of Hsiao (1979).

My strategy was to divide the 36-VAR system in two subsystems as represented below. In the first, defined by the six market-share equations, I allow for different lag lengths for each variable in each equation, using the LR test statistic of Sims. In the second, I construct five 6-equation VARs (one for each marketing instrument) with each equation containing six lags on all variables. Longer lags (up to nine) were also tried but the main results were unchanged.

The n-VAR system can be represented algebraically as follows:

$$MS_{1t} = f(MS_{2t-1}, A_{2t-2}, A_{5t-1}, A_{6t-1}, P_{1t-3}, TVS_{1t-4}, TVS_{2t-3}, PS_{1t-1}, PS_{2t-1}, PS_{3t-5}, PS_{5t-1}, PS_{6t-3})$$
$$MS_{2t} = f(MS_{3t-1}, A_{4t-3}, A_{5t-3}, P_{1t-1}, P_{5t-1}, P_{6t-3}, TVS_{1t-5}, PS_{1t-2}, PS_{5t-3})$$
$$MS_{3t} = f(MS_{1t-4}, MS_{3t-1}, MS_{5t-2}, MS_{6t-3}, P_{1t-5}, P_{2t-5}, P_{3t-3}, P_{6t-6}, TVS_{6t-5}, RS_{1t-2}, RS_{2t-1}, PS_{1t-2}, PS_{3t-3}, PS_{4t-2}, PS_{5t-1})$$

$$MS_{4t} = f(MS_{1t-2}, MS_{4t-4}, MS_{6t-3}, A_{4t-2}, A_{5t-2}, TVS_{3t-1}, TVS_{4t-5}, RS_{4t-6}, PS_{3t-5}, PS_{6t-4},)$$

$$MS_{5t} = f(MS_{1t-4}, MS_{2t-4}, MS_{3t-2}, MS_{6t-3}, A_{4t-3}, A_{5t-2}, A_{6t-3}, P_{3t-5}, P_{5t-2}, P_{6t-1}, TVS_{1t-2}, TVS_{5t-1}, RS_{3t-2}, PS_{3t-3}, PS_{4t-1})$$

$$MS_{6t} = f(MS_{5t-1}, MS_{6t-3}, A_{4t-6}, A_{5t-6}, A_{6t-3}, P_{1t-4}, P_{6t-5}, TVS_{4t-5}, TVS_{6t-6}, RS_{4t-2}, RS_{6t-1}, PS_{4t-3})$$

$$A_{it} = f(\sum_{i=1,\,6}\sum_{j=1,\,6} A_{it-j});\;\; P_{it} = f(\sum_{i=1,\,6}\sum_{j=1,\,6} P_{it-6});\;\; TVS_{it} = f(\sum_{i=1,\,6}\sum_{j=1,\,6} TVS_{it-j});$$

$$RS_{it} = f(\sum_{i=1,\,6}\sum_{j=1,\,6} RS_{it-j});\;\; PS_{it} = f(\sum_{i=1,\,6}\sum_{j=1,\,6} PS_{it-j})$$

The system is then estimated efficiently using seemingly unrelated regressions (SUR).

In the class of BVAR models, the variables are specified in levels because as pointed out by Sims et al. (1990, p. 360) " ... the Bayesian approach is entirely based on the likelihood function, which has the same Gaussian shape regardless of the presence of nonstationarity, [hence] Bayesian inference need take no special account of nonstationarity." (See also Sims (1988) for a discussion on Bayesian skepticism on unit root econometrics.) The model is estimated with six lags on each variable. Longer lags (up to nine) were also tried but the substantive results were unchanged.

To find the hyperparameter values (g, w, and d) that minimize, for the period 1992:1 to 1992:12, the average of the RMSEs statistics for one-to six-months-ahead forecasts, I proceeded by grid-search evaluations, a method especially well-suited to the problem at hand. This way, the two holdout samples (one for estimating the BVAR parameters and the other for checking forecasting accuracy) are obviously different. Since I have 36 explanatory variables with six lags for each variable, and a constant, each equation has a total of 217 right-hand side variables. I set the admissible values for the coefficients to be estimated as:

$g \in$ [0.1 1.4], $w \in$ [0.1 0.5], $d \in$ [0.8 1.2], and $\Delta = 0.05$ (the step). For example, $w = 0.5$ means that in the ith equation, all right-hand-side variables, except the own lagged variable, enter with a weight of 50%. For the parameter g, I have assumed a loose value of 0.4 and a tight value of 0.1. The harmonic lag decay parameter was set around one as recommended by Doan, Litterman and Sims (1984). The best values according to the criterion function were obtained for $g = 0.25$, $w = 0.20$, and $d = 0.95$. Note that it is possible to specify a general form of equation (6). This, however, involves specifying a 36x36 matrix with diagonal elements equal to 1 and the off-diagonal elements representing the weights of other variables. The parameter w in equation (6) is replaced by the weighting matrix $f(i,j)$ given by:

$$f(i,j) = \begin{cases} 1 & \text{if } i=j \\ f_{ij} & \text{if } i \neq j \ (0 \leq f_{ij} < 1) \end{cases}$$

Fine-tuning the prior to this extent is not generally recommended since the problem of overparameterization (i.e. estimating too many coefficients) is then replaced with one of estimating too many hyperparameters.

FORECASTING STRATEGY

Following Dua and Smyth (1995) and other researchers, I adopted the strategy of sequential estimation for generating out-of-sample forecasts for one to twelve horizons. The parameters of the models are based on the most recent information available at the time the forecast is made. More precisely, the models were initially estimated using data from 1988:1 to 1992:12, i.e., the first 77% was used for parameter estimation and the last 23% was used for the out-of-sample forecasting analysis below. The choice as to where to begin forecasting was predicted on the desire to produce short-term forecasts and have sufficient number of observations for each forecast step. This has enable me to produce twelve-steps-ahead (months) forecasts. Forecasts are then generated, using the Kalman filter algorithm in RATS at horizons of one to twelve months. Next, data for 1993:1 are added to the sample and the parameters of each model are re-estimated. New forecasts are then generated for one-to twelve-months-ahead. This process continues through to the last forecast period, 1994:5

The accuracy of the out-of-sample forecasts for 1993:1 to 1994:6 is measured by the RMSE and the Theil U statistics for one-to twelve-months-ahead forecasts. If A_t denotes the actual value of a variable, and F_t the forecast made in period t , then the RMSE and the Theil statistic are defined as follows:

$$RMSE = \{\sum_{j=1,\,K} (A_{t+j+k} - f_{t+j+k})^2 / N\}^{0.5}$$

$$U = \text{RMSE(model)} / \text{RMSE(random walk)}$$

where $k=1, 2, \ldots 12$ denotes the forecast step and N is the total number of forecasts in the prediction period.

The U statistic is the ratio of the RMSE for the estimated model to the RMSE of the simple random walk model which predicts that the forecast simply equals the most recent information. Hence if U < 1, the model performs better than the random walk model without drift; if U > 1, the random walk outperforms the model. The U statistic is therefore a relative measure of accuracy and is unit-free (Bliemel, 1973). The forecasted values used in the computation of the RMSE and U statistics are the level (in logarithms) of the market shares, so these statistics can be compared across the different models.

The RMSEs and the Theil's U statistics for MS_i $(I=1,\ldots 6)$ for the five classes of models discussed above are reported in Table 1. "Theil sum" is the sum of the Theil statistics for each of the twelve forecasting horizons and "Theil <1.0" indicates the number of cases where the tested model outperforms the random walk model. The table also reports tests of significant differences among the RMSEs measures following the procedure given in Brandt and Bessler (1983). The conclusions from Table 1 are as follow:

(1) **RMSEs versus Theil U statistics: The RMSEs and the Theil U statistics do not follow a consistent pattern with an increase in the forecasting horizon.**

(2) **Univariate (simple) versus multivariate (complex) models: Multivariate models are always superior for all forecasting periods and competitors with one exception, MS_3. Its RMSEs are not significantly different when compared across models and time periods. If I rely on the "Theil sum" criterion, the univariate ARIMA model beats all other models in forecasting MS_3.**

(3) **Random-walk versus all the models: Multivariate models (n-VAR and BVAR) out-forecast the random-walk model, winning in anywhere from 9 to 12 attempts. The only exception is the forecast of MS_2, where the random-walk outperforms the n-VAR seven times. The random-walk is clearly superior to the other univariate models, except in forecasting MS_6 and MS_3.**

(4) **BVAR versus n-VAR: Without regard to significance, the BVAR outforecasts the random-walk model in four of six competitors, while the n-VAR does so in only to cases (MS_1 and MS_4). If the criterion is the "Theil sum" neither of the two models outperforms the other. When the two models are compared using the test of significance differences in RMSEs I could say that the BVAR model is the best for longer forecasts (12-steps ahead), while the n-VAR is superior over the shorter horizon of one to six steps. This suggests that the gap between the two models becomes wider over longer forecasting horizons. In summary, the results in general show that there are gains from using a multivariate (VAR / BVAR) approach to forecasting.**

Table 1: Accuracy of out-of-sample forecasts (1993:1-1994:6)

Steps ahead		1		3		6		12			No.
Observation		18		16		13		7		Theil	Theils
Statistic		RMSE	U	RMSE	U	RMSE	U	RMSE	U	Sum*	<1.0**
MS1		.18	.96	.22	1.10	.25	.98	.25	1.39	15.02	2
MS2		.11	.89	.11 c	1.13	.12	.92	.15	1.90	13.73	5
MS3	NAIVE	.19 c	.85	.21 c	.71	.16 cd	.52	.14 cd	.49	7.09	12
MS4	(j=1)	.20	1.15	.20 bc	1.36	.32	1.92	.36 c	1.52	18.45	0
MS5		.18	1.25	.30	1.52	.37	1.66	.37 c	1.65	19.69	0
MS6		.13	.90	.16	.98	.14	1.18	.16	1.45	12.25	7
MS1		.18	.97	.17 ac	.84	.19 ac	.86	.21 a	1.13	12.51	6
MS2		.11	.89	.11 c	1.13	.12	.92	.15	1.90	13.73	5
MS3	ARIMA	.19 c	.87	.21 c	.68	.16 cd	.51	.14 cd	.49	7.03	12
MS4		.18 c	1.05	.29	1.38	.31	1.86	.35 c	1.47	17.84	0
MS5		.17	1.11	.26 a	1.33	.34	1.53	.37 c	1.65	18.31	0
MS6		.13	.89	.16	.96	.14	1.15	.17	1.48	12.27	7
MS1		.17	.90	.21	1.01	.24	.92	.24	1.30	14.04	2
MS2		.12	.98	.14	1.38	.13	.96	.16	1.95	14.86	3
MS3	SEM	.24	1.05	.31	1.04	.35	1.11	.43	1.51	14.87	1
MS4		.21	1.19	.30	1.39	.34	1.46	.41	1.69	19.53	1
MS5		.18	1.22	.29	1.47	.36	1.65	.41	1.81	19.82	1
MS6		.13	.89	.15	.92	.13	1.01	.16	1.35	11.87	8
MS1		.12abce	.63	.13abce	.63	.13abce	.52	.11abce	.60	8.08	12
MS2		.10	.79	.10 c	1.04	.11 c	.91	.14	1.47	13.46	5
MS3	n-VAR	.16abce	.71	.21 c	.70	.19 c	.62	.19 c	.69	7.28	11
MS4		.09abce	.53	.09abce	.42	.11abce	.68	.15 abc	.68	6.90	12
MS5		.13 abc	.87	.16 abc	.79	.21 abc	.96	.17 abc	.76	11.43	9
MS6		.12	.81	.15	.94	.13	1.07	.13 abc	1.03	10.36	10
MS1		.15 abc	.81	.15 abc	.73	.16 abc	.61	.14 abc	.89	9.72	11
MS2		.11	.95	.09 abc	.94	.10 abc	.81	.11abcd	.94	10.26	10
MS3	BVAR	.20 c	.92	.21 c	.91	.17 cd	.65	.16 cd	.59	8.63	12
MS4	(j=5)	.14 abc	.82	.20 bc	.93	.19 abc	.86	.12abcd	.56	8.87	9
MS5		.13 abc	.87	.16 abc	.78	.16abcd	.70	.14abcd	.59	8.48	12
MS6		.13	.90	.16	.98	.10abcd	.84	.10abcd	.81	8.93	11

Notes: The RMSEs and the Theil's U statistics are reported for the log MS_i , where i = 1,...6 represents respectively *Renault*, *Peugeot-Citroen*, *Ford*, *Opel*, *Alfa-Fiat-Lancia*, and *Audi-Seat-VW*. * Sum of Theil for forecasts for all 12 periods. ** Number of Theil values less than 1.0. A test of significant differences in RMSEs is carried out following the procedure given in Brandt and Bessler (1983). The '*a*' signifies that the RMSE of model *j (j=2,...5)* for each MS is significantly lower (at the 5% significance level) than that of model 1; '*b*' signifies the RMSE of model *j (j=1,3,4,5)* is significantly lower than that of model 2; *c*, *d*, and *e* are defined in an analogous fashion.

CONCLUSIONS

In this paper I have investigated the out-of-sample forecasting performance of a wide class of univariate, structural, n-VAR and BVAR models for market shares of six the major competitors in the Portuguese car market. There are a number of empirical findings worth mentioning. I confirm that the n-VAR and the BVAR models are superior forecasting tools compared to the univariate models. The overall ranking of these models varies over different forecasting horizons. The n-VAR shows substantial improvement in short-medium-term forecasting accuracy of market shares, whereas the BVAR model is more accurate in the long term (normally up to twelve months). An implication of these results is that optimizing short- and long-term forecasting in a system like mine will often require separate efforts. This suggests that market-share forecasters in this market should conduct comparisons or horse races' prior to selecting their preferred model and then periodically check its effectiveness.

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LEGITIMACY OF MANAGERIAL INFLUENCE OF MARKETING EDUCATORS: PERCEPTIONS OF ADMINISTRATORS AND MARKETING FACULTY

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ABSTRACT

This paper presents the results of a study relating to the legitimacy of managerial influence by administrators (deans and chairpersons) of marketing faculty. Five hundred questionnaires were mailed to a random sample of educators, of which 210 usable responses were received and analyzed by way of the t-test for equality of means. Of the sixty statements included in the instrument, twenty-two indicated significant differences in the responses of administrators versus those of marketing faculty. For the most part, there existed general agreement in the areas of discipline-related research and community service. On the other hand, perceptions of legitimacy of managerial influence in the area of classroom teaching were not widely agreed upon by the two subgroups.

INTRODUCTION

Management scholars have for many years been concerned with the topic of managerial power, influence, and authority. Power is the ability to influence someone to do something he or she would have not otherwise have done. Influence is the process of modifying the thoughts and behavior of other people. Authority is the *right* to influence of others (Middlemist & Hitt, 1988). Managers employ various strategies in attempts to influence their subordinates. Certainly, one of the least effective influence strategies is to pressure employees by use of demands, threats, or persistent reminders (Yuki *et al*, 1993; Yuki & Tracey, 1992). There exists a zone of indifference regarding the methods of exercising influence, and when the manager steps outside that zone, legitimacy to influence behavior ceases (Hellriegel *et al*, 1995).

A more viable managerial approach is to utilize a legitimacy that stems from position and mutual agreement. This is closely related to authority, but in legitimacy both the manager and the employee agree that the manager has the right to influence the employee (Nelson & Quick, 1994). It makes no difference whether or not the manager believes that he or she has the right to influence. If legitimate power is to have any effectiveness, the subordinate must also believe that the manager has the legitimacy to render influence.

Up to this point, most studies of the legitimacy of managerial influence have been limited to the context of manager-employee relationships within the non-academic organization. There exists a paucity of research pertaining to managerial influence within the

university setting, especially relating to business school settings. Thus, this study explores the current perceptions of business school administrators and marketing educators as to the legitimacy of the marketing department chairperson to attempt to influence the behavior of members of the marketing department. The results of statistical analyses are reported to accentuate those areas of agreement and disagreement between the two groups.

CONCEPTUAL BACKGROUND

In their seminal work, Schein & Ott (1962) developed a questionnaire comprised of fifty-five statements designed to elicit attitudes of business managers, college students, and union officers regarding the legitimacy of managerial influence. Each respondent placed the letter Y for "yes" next to those statements that he or she agreed that the manager had a legitimate right to influence subordinates, and placed the letter N for "no" next to those statements where the respondent believed the manager did not have the right to influence. If unsure, the respondent was instructed to leave the statement blank.

These researchers formulated an influence index to simplify data analysis by subtracting the number of "no's" and 0.2 times the number of blanks from the number of "yes" responses, dividing by the total number of respondents in the category, and multiplying the outcome by 100. The resulting index score ranged from +100 to -100. The higher the index score, the greater the degree of agreement with the statement on the questionnaire. Conversely, the lower the index score, the greater the degree of agreement that the issue was outside the boundaries of legitimate managerial influence. Schein & Ott concluded that there existed a high degree of agreement between the various sample groups on relative ranking of the statements, suggesting that there were well-defined areas of legitimate and non-legitimate managerial influence in our society.

Four years after this initial study, Schein & Lippitt (1966) administered the questionnaire to 504 respondents from various occupations ranging from police officers and Air Force personnel directors to supermarket managers and sales managers of manufacturing firms. Results indicated that the influence index of managers were different from non-managers, and there were even some differences between various groups of managers. Davis (1968) administered the Schein-Ott instrument to sixty U.S. Air Force personnel and compared the results with the original Schein-Ott study, finding there was agreement between the respondents of the two studies. Ashforth & Lee (1989) paralleled the Schein-Ott study by attempting to recreate a similar sample of 499 participants. The findings indicated, among other results, that: (1) perceived legitimacy had decreased since the Schein-Ott study, (2) perceived legitimacy is associated with managerial role proximity, and (3) only matters of direct relevance to the job are perceived to be legitimate areas for attempts at managerial influence.

RESEARCH METHODOLOGY

The Schein-Ott structured dichotomous instrument allowed only three possible choices for participants to indicate their attitudes regarding the legitimacy of managerial influence, i.e., "yes," "no," and the option to skip the question, indicating "no answer." Perceptions and attitudes, however, are more complex than what is provided by simple "yes-no" categories of responses. It is believed by the authors that more valid results would be achieved if the "intensity" of perceptions could be analyzed by providing a range of responses from which participants can choose. The current study, therefore, departs from the methodology utilized by Schein & Ott in that a seven-point likert-type scale was provided for recording perceptions regarding legitimacy of managerial influence, with "seven" being strongly agree, "one" being strongly disagree, and "four" indicating no opinion or undecided.

In addition, the questionnaire for this study differed markedly from the Schein-Ott instrument in that it consisted of sixty statements intended to measure the degree to which respondents perceived the legitimacy of attempts by marketing department chairpersons to influence marketing faculty (see Table I). In other words, the present instrument was specifically designed for the academic setting. Approximately twenty-four of the statements, however, were utilized in the Schein-Ott study. Responses were analyzed by applying the t-test for equality of means.

The *Wiley Guide to Marketing Faculty* (1995) was utilized to obtain names of 500 faculty from American four-year colleges and universities. Self-administered questionnaires were mailed to a random sample of 80 business school deans, 120 marketing department chairpersons, and 300 marketing faculty members. A total of 212 questionnaires were received, of which 210 were usable for this study for an overall return rate of 42.0%.

Seventeen deans (21.3% return rate), 60 chairpersons (50% return rate), and 133 faculty members (44.3% return rate) responded to the survey. Due to the relatively small number of business school deans who returned the instrument, the responses of deans and chairpersons were collapsed into one category for analysis purposes.

RESULTS

Of the sixty statements on the instrument, on twenty-two statements the responses of administrators (deans and chairpersons) differed significantly from those of marketing faculty. In each of these twenty-two statements, the mean values of administrators were higher than those of faculty. There were a number of statements to which administrators and faculty were in agreement, as evidenced by a perusal of the mean values recorded by the two subgroups of respondents. For example, both administrators and faculty tended to strongly agree that it is legitimate for department chairpersons to influence members of the department regarding the quality of classroom teaching, attitudes toward students, the instructor's promptness to class, whether the instructor uses profane language in the classroom, and whether the instructor distributes student evaluation forms at the end of the term.

In addition, the two subgroups agreed with one another that chairpersons can legitimately influence faculty regarding the level of scholarly research, publications record, participation in academic conferences, attendance at department meetings, the number of school and departmental committees the instructor serves on, the instructor's number of scheduled office hours, and how available the instructor is to students during these scheduled office hours.

Both groups agreed that there were areas that were generally not legitimate for marketing department chairpersons to exert their influence. These included the tidiness of the instructor's office, the instructor's attitude toward smoking, where the instructor sends his or her children to college, the degree of participation in local civic activities, attitudes toward teachers' unions, professional journals subscribed to, whether the male instructor wears a beard or moustache, the willingness to play politics to get ahead, friends in the academic community, and the amount of leisure time spent with peers and superiors. None of the above areas of agreement are surprising. Both groups, however, also agreed that the instructor's attitudes toward the social responsibility of business firms was not a legitimate area of chairperson influence. This, in spite of the fact that social responsibility currently is a "buzzword" in academic circles.

As stated previously, administrators and teaching faculty disagreed significantly in twenty-two of the sixty statements on the questionnaire. It was also stated that in every one of these cases, the mean value recorded by administrators was higher than that reported by faculty, indicating that administrators owned a higher degree of perception that these were areas of legitimate managerial influence.

Discussion here is broken down on the basis of broad areas of relevance within which the statements can be categorized: discipline-related research, classroom teaching, intra-departmental relations and activities, community service, and personal. It should be remembered that some of these statements could feasibly overlap more than one area.

Generally, there were no significant differences between administrators and teaching faculty on those statements explicitly related to discipline-related research. Administrators and faculty did disagree on the legitimacy of chairpersons to influence faculty regarding the amount of time spent doing discipline-related reading. However, this area can overlap scholarly activity and teaching, since discipline-related reading improves both research and teaching.

There were six statements directly related to classroom teaching where administrators and faculty disagreed significantly: choice of textbook, class format, subject matter covered, the amount of work assigned to students, level of difficulty of exams, and method in assigning final grades. In addition, administrators and faculty did not agree on whether the instructor should bring ethical dimensions or multi-cultural aspects of marketing into the classroom, or how much leisure time the instructor spends with students. It appears that in the area of instruction, marketing faculty members are quite independent and resent efforts by department chairpersons to influence both their teaching methodology and the subject matter that is presented. Also, faculty believe that any leisure time spent with students is beyond the

boundaries of the chairperson's domain. Table I depicts the resulting means and t-values for each statement.

Faculty were not as inclined as administrators to agree that the department chairperson has legitimacy of influence over such areas as the degree of political correctness or the kind of temperament faculty exhibit in the department, how the instructor divides up the working day among various activities, or how the instructor supervises graduate assistants. Again, this points to the fact that faculty often perceive the work environment within academia differently than do administrators.

Table 1
Means (On a 1-7 Scale) and t-values of Responses to Managerial Influence Survey

Item		Admin. Mean (n=77)	Faculty Mean (n=133)	t-value
It is legitimate for a chairperson to attempt to influence department members in terms of:				
24.	The quality of the instructor's classroom teaching	6.43	6.26	1.05
41.	How available the instructor is to students during office hours	6.35	6.14	1.21
2.	The instructor's attitude toward students	6.29	6.02	1.53
22.	Whether the instructor hands out student evaluation forms	6.23	5.92	1.61
60.	The instructor's attendance at departmental meetings	6.10	6.10	< 1
15.	The instructor's promptness to classes	5.99	5.80	< 1
57.	The instructor's number of scheduled office hours	5.99	5.71	1.48
54.	How the instructor treats department secretaries	5.74	5.47	1.43
28.	Whether the instructor uses profane language in the classroom	5.73	5.49	< 1
16.	The instructor's publications record	5.60	5.62	< 1
46.	The amount of scholarly research activity performed	5.53	5.60	< 1
5.	The number of school and departmental committees	5.45	5.21	1.28
48.	The subject matter the instructor covers in class	5.23	4.26	4.67***
13.	Whether the instructor brings ethical dimensions into class	5.17	4.68	2.04**
18.	Whether the instructor participates in academic meetings	4.99	5.11	< 1
21.	The amount of additional education the instructor obtains	4.88	4.90	< 1
36.	Whether the instructor brings multi-cultural aspects into class	4.86	4.25	2.56**
1.	How much importance the instructor attaches to getting along with other instructors	4.82	4.82	< 1
38.	How the instructor supervises his or her own graduate assistants	4.79	4.26	2.40**
3.	How critical the instructor is of the university in public	4.58	4.56	< 1
45.	The level of difficulty of the exams the instructor gives to students	4.52	3.89	2.84***
27.	How active the instructor is in recruiting other faculty	4.43	4.24	< 1
17.	The instructor's class format	4.40	3.29	5.03***
30.	The amount of outside consulting the instructor engages in	4.36	3.94	1.69*
37.	The kind of temperament the instructor exhibits in the department	4.25	3.36	3.90***
8.	The instructor's relationships with local business people	4.18	3.90	1.11

7.	The amount of work the instructor assigns to students	4.18	3.66	2.23**
47.	The textbooks the instructor chooses for his or her classes	4.09	2.98	4.79***
29.	The instructor's method in assigning final grades to students	4.08	3.53	2.17**
40.	Whether the instructor co-authors with others in the department	3.79	3.77	< 1
55.	The instructor's attendance at school social functions	3.61	3.33	1.06
6.	The degree of formality in the instructor's clothing	3.53	3.53	< 1
14.	How the instructor divides his or her working day	3.48	2.59	3.38***
51.	The professional organization to which the instructor belongs	3.47	3.33	< 1
52.	The amount of time the instructor spends in professional reading	3.47	2.83	2.54**
59.	How much the instructor competes with peers for promotion/raises	3.30	3.32	< 1
31.	The degree of "political correctness" the instructor displays	3.25	2.53	3.02***
20.	The instructor's support of the university's top administrators	3.22	3.16	< 1
23.	How much leisure time the instructor spends with students	3.12	2.58	2.06**
12.	The form of address the instructor uses in talking to colleagues	3.08	2.82	< 1
35.	The amount of office time the instructor spends talking to friends	3.04	3.05	< 1
10.	The instructor's attitude toward social responsibility of businesses	2.99	2.66	1.34
49.	The instructor's attitude toward sexual morality	2.91	2.34	2.04**
33.	The instructor's attitude toward the capitalistic system	2.75	2.27	1.85*
56.	The instructor's degree of participation in local civic activities	2.58	2.60	< 1
32.	Whether the instructor is involved in university fund-raising	2.58	2.13	2.06**
19.	The instructor's willingness to play politics to get ahead	2.51	2.55	< 1
25.	The professional journals to which the instructor subscribes	2.46	2.47	< 1
58.	The instructor's attitudes toward corporate profits	2.44	2.03	1.69*
9.	The tidiness of the instructor's office	2.36	2.06	1.38
4.	The amount of money the instructor gives to charity	1.81	1.32	2.71***
39.	The instructor's attitudes toward teachers' unions	1.79	1.53	1.35
42.	How much leisure time the instructor spends with superiors	1.75	1.57	1.03
50.	How much leisure time the instructor spends with peers	1.75	1.47	1.63
44.	The instructor's attitudes toward smoking	1.70	1.68	< 1
11.	The instructor's attendance at university athletic events	1.58	1.29	1.76*
53.	Who the instructor's friends are in the academic community	1.56	1.36	1.29
26.	Whether the instructor has close friends with a rival university	1.53	1.20	2.04**
43.	Where the instructor sends his or her children to college	1.42	1.18	1.51
34.	Whether a male instructor wears a beard or mustache	1.40	1.32	< 1

* p < 0.10 ** p < 0.05 *** p < 0.01

There exist two aspects of community service for the academician: service within and to the university, and service to the general public at large. In only two statements relating to community service were there significant differences in the responses of administrators and marketing faculty. Service to the educational institution includes fund-raising activities such as annual fund drives (i.e., phonethons). In addition, service can include contributions to

charity by the faculty member, which is often solicited through administrative channels. In both of these statements there were significant differences between the perceptions of administrators and faculty regarding the legitimacy of managerial influence. However, in spite of these differences, both subgroups did not perceive that the activities were within the boundaries of legitimate managerial influence.

The original Schein-Ott survey instrument included statements of a personal nature relating to such topics as the amount of life insurance carried, the kind of person the spouse is, political party membership, number of children, and church membership, among others. For obvious reasons, these type of questions were left out of the current questionnaire. However, the current instrument does include several statements that may be construed by some as personal, while by others as legitimate areas for managerial influence. The results of this survey indicate that there exist significant differences between administrators and faculty regarding the instructor's attitudes toward corporate profits, the capitalistic system, and sexual morality.

In addition, administrators disagreed significantly with faculty members as to the legitimacy of chairperson attempts to influence the amount of outside consulting the instructor engages in, whether the instructor has close friends with a rival university, and the instructor's attendance at university athletic events. In each of these issues, there could be pro and con arguments as to why or why not chairpersons should exert influence. It is feasible to conclude that some of these issues may influence the quality of teaching. For example, an instructor who engages in too much consulting may not be able to adequately tend to his or her university affairs, including teaching. Other areas of disagreement, such as relating to attendance at athletic events, are difficult to comprehend.

CONCLUSIONS

The analysis indicates that perceptions of legitimacy of managerial influence in the university environment, particularly relating to the department of marketing, are not always clear cut. While there is a high degree of consensus between administrators and members of the marketing department on many issues, there still remain areas where chairpersons are perceived by faculty to be stepping outside the zone of indifference when attempts at influence are made.

The most sensitive area appears to be related to classroom teaching. Marketing faculty, although substantially agreeing with administrators regarding the importance of quality teaching, among others, still find issues that are "sacred ground" that chairpersons should not encroach. These issues notably include textbook choice, class format, subject matter covered, student work load, difficulty of exams, and grading.

In addition, there is disagreement between the two subgroups regarding managerial influence in bringing ethical dimensions and multi-culturalism into the classroom, both topics that are encouraged by AACSB.

Conversely, there exists little disagreement between administrators and faculty when it comes to discipline-related research. In fact, both subgroups strongly agreed that

chairpersons legitimately can influence faculty members in their level of scholarly research, their publications record, and their participation in academic conferences. In addition, with a few exceptions, there is agreement between the two subgroups as to the degree of managerial influence in faculty members' participation in community service.

Thus, of the three important areas of teaching, discipline-related research, and community service, it appears that teaching is the area that marketing faculty and administrators are most likely to disagree regarding the legitimacy for chairperson influence. Certainly, discipline-related research and community service are "visible" in that performance can be documented. Classroom teaching, on the other hand, remains in the ethereal realm of individual faculty preferences and styles (i.e., academic freedom), and there exists no consensus as to which is the best way.

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INDIVIDUALS' CHOICE BEHAVIOUR IN WAITING SITUATIONS

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ABSTRACT

This paper shows that the propensity to interrupt and/or to not engage again into particular waiting situations is not solely depending on the actual time spent waiting. The examination indicates that individuals perceive value resulting from both the time spent waiting and the purpose of engaging into the focal waiting situation. Further, customer satisfaction/dissatisfaction with the focal waiting situation can arise as a consequence of perceived value for waiting and/or perceived value of the purpose of engaging into waiting. The propensity to interrupt and/or to not engage again into the focal waiting situation is modelled as choice behaviour accounting for perceived waiting time value and customer satisfaction/ dissatisfaction with waiting time.

INTRODUCTION

Individuals are concerned about time and their use of available time. In services situations individuals are confronted with various types of waiting time. Waiting time in service situations includes the time spent waiting for a particular service to happen (*pre-process waiting time*) and the time spent waiting during the consumption of the service (*in-process waiting time*). This paper will focus on *pre-process waiting time* of special waiting situations. Especially, the choice behaviour of individuals to continue or to interrupt pre-process waiting time.

The propensity to interrupt and/or to not engage again into waiting situations is impacting on customer switching behaviour which in turn is affecting market share and profitability of service firms. Yet, there has been little academic analysis in the marketing field of various time related aspects. The analysis of actual time with regard to service related issues has been analysed in varying degree. Some research studies analysed the impact of perceived time in consumer research (Graham, 1981; Hornik, 1984; Guy, Rittenburg, and Hawes, 1994; McDonald, 1994), the effects of perceived time in the services area and its effects on various service characteristics (Kellaris & Kent, 1992; Green, Lehmann, & Schmitt, 1996) or in particular the effects of perceived waiting time in services relationships (Maister, 1985; Larson, 1987; Katz, Larson B., & Larson R., 1991; Clemmer & Schneider, 1993; Taylor, 1994; Hui & Tse, 1996). Yet, there seem to be some opportunities for clarification. Specifically, a model will be presented assessing waiting time related issues incorporating perceived value of waiting time and customer satisfaction with waiting time.

CONCEPTUAL FRAMEWORK

Within the model the construct of perceived waiting time value is applied and it is proposed that customers form *should expectations* on waiting time and perceive waiting time. *Should expectations* on waiting time are based on information available on waiting time and its associated benefits. The information arises from prior experience and knowledge concerning the particular waiting time circumstances and other comparable and different waiting time situations. Perceived waiting time is the cognisance of time and associated benefits with regard to the rationalisation of waiting. Hence, waiting time results into immediate benefits/losses and subsequent benefits. It must be distinguished between benefits perceived with regard to predicted needs and latent needs. The subsequent benefits can result from the service that caused the waiting time. Waiting time benefits account for functional, emotional and social benefits. Perceived waiting time value is experienced by comparing perceived waiting time benefits with expected immediate waiting time benefits and accounting for subsequent waiting time benefits. While expectations and positive confirmation yield perceived waiting time value, disconfirmation and perceived losses discount perceived waiting time value.

Hypothesis 1: **As *should expectations* about predicted immediate and/or subsequent benefits of the waiting time increase, the perceived waiting time value increases.**

Hypothesis 2: **As *should expectations* of predicted immediate waiting time benefits are higher than perceived waiting time benefits, the perceived waiting time value decreases.**

Customer satisfaction/dissatifaction with waiting time arises when the focal individual perceives that his/her ratio of perceived gained value resulting from waiting to value, which the individual has input for waiting, is proportionate to that of the other party. Thus, when input values for waiting are disproportionately higher for one party, satisfaction of waiting time increases as that party's perceived gained value increases relative to those of the other party, and decreases as the perceived gained value with regard to waiting decreases relative to those of the other. In the case of waiting situations, satisfaction can be modelled as the consequence of perceived value of waiting, with customers experiencing higher levels of satisfaction with the waiting time as the ratio of perceived values of waiting to input values for waiting increases. Hence, a higher ratio of perceived values of waiting to input values for waiting is resulting into a higher degree of customer satisfaction and into a lower degree of customer dissatisfaction with regard to the time spent waiting. Customer satisfaction with the

time spent waiting is related to perceived equity and customer dissatisfaction is resulting from perceived inequity.

> ***Hypothesis 3:*** **As the ratio of perceived value of waiting time to input values for time spent waiting increases, customer satisfaction with waiting time increases.**
>
> ***Hypothesis 4:*** **As the ratio of perceived value of waiting time to input values for time spent waiting of the customer exceeds the ratio of perceived value to input values of the service provider, customer dissatisfaction for time spent waiting decreases.**

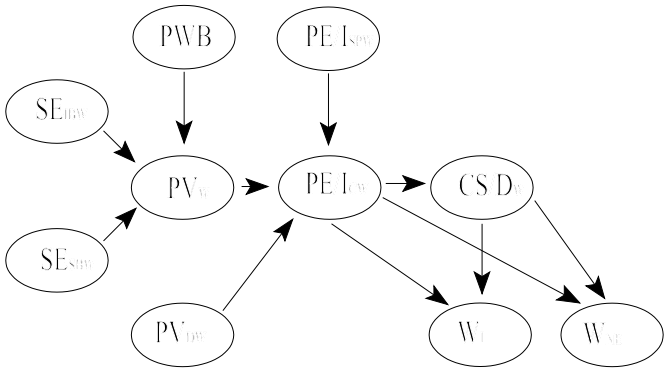
Waiting situations can be viewed as exchange incidents including various parties. In this sense, waiting takes place as long the party, spending time for waiting, perceives that it will be better off (or at least not worse off) than before having spent time for waiting. Consequently, individual's engagement into waiting behaviour is caused by the perceived value and level of CS/D resulting from the time spent waiting, with lower perceived values of time spent waiting and lower levels of CS/D with regard to waiting leading to a higher propensity of interrupting the waiting situation and/or not engaging again into waiting for the particular matter.

> ***Hypothesis 5:*** **As the perceived value of time spent waiting and/or level of customer satisfaction with waiting decreases, the propensity of customer interrupting the waiting situation increases.**
>
> ***Hypothesis 6:*** **As the perceived value of time spent waiting and/or level of customer satisfaction with waiting decreases, the propensity of customer not engaging again into waiting for the particular matter increases.**

The model determining the impact of perceived value of time spent waiting and CS/D with waiting time on the propensity of customer interrupting waiting situations and/or not engaging again into waiting for the focal matter is illustrated in Figure 1.

FIGURE 1

A model for the propensity to interrupt and/or to not engage again into waiting



E_{IBW} = Should expectations about immediate waiting benefits
SE_{SBW} = Should expectations about subsequent waiting benefits
PW_B = Perceived waiting benefits
PV_W = Perceived waiting time value
PV_{DW} = Perceived devoted value
PE/I_{CW} = Perceived level of equity/inequity for the customer
PE/I_{SPW} = Perceived level of equity/inequity for the service provider
CS/D_W = Customer satisfaction/dissatisfaction with waiting time
W_I = Propensity of interrupting the waiting siuation
W_{NE} = Propensity of not engaging again into waiting for the particular matter

OUTLOOK

The earlier developed model incorporates a sufficient analysis on waiting time related issues and identifies the key constructs to be evaluated. An appropriate empirical study is currently designed and will be conducted in the near future. The next step lies in integrating the waiting time related issues into services situations and in developing service specific recommendations.

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DETERMINANTS OF SALES PERSON ADAPTABILITY

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ABSTRACT

Determinants of sales person adaptability were; changing presentations based on body language; different presentations for members of buying center; changing presentation to answer technical questions; deviate from presentation when necessary; customer profitability and employment length in the study presented.

INTRODUCTION

Being flexible, adaptable and able to think on one's feet is frequently identified as a positive trait for field sales people. Weitz (1978) offered a descriptive model of adaptability in selling behavior. This model outlines selling behavior prior to and while the sales person is in the presence of the prospective buyer. The model may be summarized as: 1. formulating a selling strategy, 2. executing that strategy and 3.based on buyer reaction, revising and executing another strategy. These stages describe the concept of adaptability. Empirical studies based on the Weitz model have consistently concluded that adaptability of a sales person is associated with greater success by that sales person (Gatigon, et.al. 1987, Graham 1986, Williams and Spiro, 1985).

The Weitz model and subsequent research conclude that sales person adaptability is a highly desired trait. The intent of the investigation reported in this paper was to isolate elements which contribute to adaptability in sales people. The study's central hypothesis is that adaptable behavior is learned behavior. Further, it is proposed that learning how to be flexible and adaptable with business customers can accrue through overt training, work experience and/or be dictated by conditions in the selling environment.

Most sales training programs claim a positive impact on graduates' selling behavior. How to effectively deal with varying customer reactions to sales presentations is an almost universal component of syndicated sales training packages as well as customized in-house programs. Discussion of case scenarios and role playing are usual pedagogical devices for imparting adaptability skills. It's our expectation that the following relationship holds true.

H_1: The more exposures the sales person has to formal sales training programs, the more adaptable that sales person will be.

Sales people may receive training that is not specific to adaptability and other selling skills. Technical training, product training, and other types of formal classroom instruction may be common. While perhaps not as powerful as training in selling skills, we expect these kinds of training to also relate in a positive way to sales person adaptability. Therefore, the second proposition examined in the current study was:

H_2: The more exposures the sales person has to technical training, the more adaptable that sales person will be.

A contributing factor to success in selling is longevity or tenure as a career salesperson. Without success, the person changes careers. Since success and adaptability skills are related, it's plausible to assume that time in the job increases one's adaptability. Closely related to degree of selling experience as a predictor of adaptability skill is the amount of time spent with the same organization. The more time one has spent with the same organization, even if not in a sales position, the more likely the person has gained knowledge of what it takes to succeed as a sales person with that organization. We predict the following outcomes.

H_3: The longer the time spent in a sales career the more adaptable the sales person.

H_4: The longer the time spent working in the same organization, the more adaptable the sales person.

Sales person adaptability is a function of selling conditions. More effective sales people adjust to conditions in their individual environments; better sales people are continually adapting to conditions around them successfully. The current study analyzes the impact of four environmental conditions on sales person behavior. The first environmental condition is the type of organizational buying situation encountered by the sales person. We expect that the more predictable the buying situation, the less need for adaptability. Conversely, the more unpredictable the buying situation, the more sales person adaptability. We used the familiar straight rebuy, modified rebuy and, new task buying model (Hutt and Speh,1989) as descriptors of alternative buying environments.

H_5: Sales people will become more adaptable as buying situations change from circumstances of straight rebuy, through modified rebuy to new task buying.

Further, adaptability is also a function of the specific selling environment. and the use of cues the sales person receives from the prospect to modify the sales presentation. A list of twenty-four cues that might occur in a selling environment, as developed by Withey and Panitz

(l995) was used as a basis for this study (Table 2 and 3). Among these cues, the most important will be changes in body language, modifications made as understanding of customer increases, the sales persons knowledge of the prospect company and the specific individual(s) recipient of the presentation.

H_6: Sales person adaptability will increase as a result of prior knowledge of the prospect (both company and individual).

H_7: Sales person adaptability will increase in response to cues received during the sales presentation.

General market conditions are the next environmental factor affecting selling adaptability. Our hypothesis is that sales people facing a constricting market will need to exercise increasingly creative adaptability skills to maintain success with customers. On the other hand, in an expanding market characterized by increasing demand, the need to be especially adaptive and flexible when dealing with individual buyers might be less. Further, in an expanding market the opportunity for higher margins exists, however, because of the expansion the sales person will not feel any need to be more adaptable to obtain these margins. Our study tests the following:

H_8: There is an inverse relationship between amount of demand for a company's product or service and the degree of adaptability needed by field sales people.

The last component of the selling environment linked with sales force adaptability is size of the sales forces itself. As sales organizations become larger, it's probable that individual sales people have more opportunity to specialize. That specialization may be around products, territories or customer types. And, whatever kind of specialization occurs, there is a corresponding decrease in the need for adaptability. The specialized sales person simply has less occasion to deviate beyond his or her specialization. Therefore we predict the following.

H_9: There is an inverse relationship between sales force size and sales person adaptability.

METHODOLOGY

Sales person adaptability was measured using the 16 item ADAPTS scale developed Spiro and Weitz (1990). The ADAPTS scale has been used in other settings (Panitz and Withey 1993;Withey and Panitz, 1995) and has been demonstrated as a reliable device for identifying differing sales person behavior in alternative market conditions. The seven point

summated scale used to capture responses on each of the 16 statements allow for adaptability scores to range from a high of 112 (very adaptable) to a low of 16.

After completing the ADAPTS scale, the study's participants were asked to recall the number of formal training incidents they were exposed to over the four most recent years. Continuous measures of amount of training were gathered for the amount of training in selling skills and amount of training on technical topics.

The two experience variables were also collected in a continuous format. Each respondent simply reported the number of years employed with the present organization and the total number of years as a sales person.

Type of organizational buying situation encountered by the sales person, the first of the environmental conditions thought to affect sales person adaptability, was presented as a discrete measure taking the values 1, 2, or 3. Respondents were presented with one of three scenarios from the straight rebuy, modified rebuy, new task buying model and instructed to react to the ADAPT scale as if making sales presentations in that specific buying situation.

Environmental cues were derived from experience interviews with several managers of medium and large size construction firms located in the Midwest. Twenty four environmental cues were identified. Respondents were asked to respond to each of these items on a seven point Likert scale with anchors of strongly disagree to strongly agree.

Respondents were further asked to comment on the change in volume of available work their firm had experienced during the recent four year period. Five choices were provided ranging from 'large increase' to 'large decrease.' That categorical answer, 1 through 5, measured this environmental condition to be compared with sales person adaptability. Finally, size of sales force was simply the continuous range of number of people in the organization engaged in face to face selling with prospective buyers.

The heavy and highway construction industry provided data for the present study. Heavy and highway construction businesses specialize in road and bridge building, and in surface work and paving for commercial properties. Engineering skill is requisite for successful sales people. Most sales departments are relatively small and, the industry is characterized by firms with sales volumes ranging from under one million dollars to over 100 million dollars. Especially appealing for the present analysis is that most businesses in the highway construction industry deal with three discrete types of potential buyers, each characterized by its own set of purchasing circumstances. At one extreme is the government purchaser, highly formalized in its buying process requiring specific bidding procedures, controlled bidding dates and open competition. Much public sector purchasing is done by State and County Highway Departments following a 'straight rebuy' situation. At the other extreme are relatively small, one time buyers who are largely unfamiliar with the paving and construction process.Almost all purchasing in this group is new task buying. In the middle is the large, private developer, representing repeat purchases, who makes vendor selection on criteria different than the government buyer or the small private sector business. Modified rebuying is typical of the large, private developer.

A national mailing list of heavy and highway contractors (SIC codes 1611 and 1613) served as the sampling frame. Three groups of 500 each were randomly drawn from the list.

Respondents in each group were asked about their selling behavior as it related to one of the three principal purchasing situations. The survey instrument measured selling adaptability of each respondent and included the items describe above.

RESULTS

One hundred forty-six usable questionnaires were returned (9.7% response rate). While small, prior experience indicates a response rate of about 10% is typical for this population. And, an internal consistency check between the first and second halves of returned survey instruments produced no significant differences on any survey item. This suggests that additional responses would not significantly alter overall outcomes (Oppenheim 1966).

Table 1 contains a profile of the study's 146 participants. Each variable used in the model appears adequately represented. Large standard deviations in the experience variables and in sales force size suggest considerable range in these attributes. Not shown in Table 1, but possessing an equally large range were the ADAPTS scores, which ranged from 40 to 112 with no single score having more than 4% of the total population. Sales people in this industry receive more technical training than sales training, but as indicated in the table, very little training of any type seems to occur. Over 60% of all respondents reported no training of any kind during the most recent four years.

Table 1: Characteristics of Construction Salespersons Sample

Change in work volume over last four years:	Increase	No Change	Decrease
	50%	30.8%	19.2%
Training program participation in last two years:	Number	Technical	Sales Training
	none	63.7%	77.3%
	1-3	30.8%	20.4%
	4 or more	4.4%	2.1%
	no response	1.1	.2
Number involved in selling for the firm:	1-3	3 or more	no response
	55.5%	26.0%	18.5%
Average Length of employment in sales position:	13.4 years, SD 12 years; range 1 to 32 years		
Average Length of employment with current firm:	17.4 years, SD 19 years; range 1 to 42 years		

Responses came in almost equal proportions from the three kinds of purchase situations, with only slightly more (36% versus 32% and 31%, respectively) in the modified rebuy circumstance. One half of all participants reported working in conditions of increasing demand, with the remaining portion split between conditions of decreasing demand and no change in demand. Answers, skewing toward increased demand may be explained by renewed Federal highway funding occurring during the period of the survey.

Standard regression analysis (Hair, et. al. 1992) was used to evaluate the study's hypotheses. The resulting equation is:

ADAPTS Score = 54.53
+ 2.01 (change presentations based on body language/facial expressions)
+ 2.33 (different presentations needed for different members of buyer organization)
+.26 (years with same company)
+ 1.78 (change presentation to answer technical questions)
+ 1.42 (Customer will allow high margins to contractor)
-2.06 (deviate from planned presentation when necessary.)

Limited support was obtained for length of time in a sales position and adaptability and for an inverse relationship between demand and adaptability as suggested by the direction of the corresponding coefficients. Neither form of training was supported by the analysis with the direction of the coefficients indicating an inverse relationship as were the selling situations and sales force size. Environmental cues both in the form of knowledge of the customer, observations made during the presentation, changes required during the presentation and length of time in the organization were significant relationship to Adaptability. Further, the large constant figure, 54.53, and the modest coefficient of determination (R square=.36) indicate that other variables, not part of this study also contribute to differences in sales person adaptability. Variables not in the equation and regression results are presented in Table 3.

However, experience with the same company and, changes in perceptions of prospective buyers do appear to play significant roles in adaptability among sales people. As suggested in H_4, the more time one has spent with the same organization, even if some of that time was not in a sales position, the more likely the person has gained knowledge of what it takes to succeed as a sales person with that organization.

Also, H_6 which predicts that demand conditions affect sales person adaptability, was accurate for this group of field sales people. As market conditions become more favorable to the seller, the need for sales person adaptability diminishes; when conditions favor the buyer, adaptability becomes more important.

Table 2: Variables retained in final equation [p<.10]; r^2=.369

Variable	coefficient	significance level
Change presentation based on body language/facial expression	2.016	.0026
Different Presentations for different members of buying organization	2.332	.0025
Years with Company	.261	.0007
Change presentation to answer technical questions	1.778	.0088
Customer will allow high margins to contractor	1.425	.0133
Deviate from planned presentation when necessary	-2.06	.0186
CONSTANT	54.528	

Results reported in this paper are a preliminary effort at a vital topic. As with most initial investigations, this one is not without limitations. Data are from a single industry. A more thorough research effort will cross multiple industries and product lines. The study also relies on self reported survey data. Richer, more rigorous data collection methods would add to the study's validity and reliability. A follow up, second wave of questionnaire mailing was not done, perhaps biasing the analysis of responses and definitely limiting the response rate.

The relatively overall small response rate was further aggravated when respondents were separated into different purchasing situations. Future research on this topic must attract larger pools of respondents.

Table 3: Results of multiple regression analysis for variables not in final equation

Variable	coefficient	significance
Buying situation	-.029	.675
Customer knows job specifications	-.00002	.999
Buyer desires to know how job price was computed	-.034	.633
Source of vendor reference is important	-.030	.698
Selected components of construction work more important than others	.080	.397
Outstanding job will lead to more work	.045	.562
Lengthy planning for presentation is needed	.099	.179
Customer has meeting facilities	.020	.796
Vendor must commit to strict completion dates	.092	.177
(MBE/DBE) Minority or disadvantaged business participation required	.044	.523
Multiple sales call are required	-.056	.479
Convince one key person in buying organization	.097	.311
Need to observe customers body language	.089	.420
Buyer will research vendor prior to purchase	-.052	.449
Sales presentation will be made in buyers office	.014	.834
Customer will invite bids	.071	.300
Price is important to this type of customer	.012	.863
Several individuals in customers organization will be at sales presentation.	-.072	.356
Job appearance is important to customer	-.029	.688
Sales presentation characterized by questions directed toward sales person	.086	.321
Change in work volume during last four years	-.099	.1633
Participated in technical training programs	-.080	.242
Participated in sales training programs	-.051	.458
Total number involved in selling for company	.022	.759
Number of years in sales Career	.065	.366

Finally, and perhaps most importantly, a more accurate model of factors related to sales person adaptability needs to be fashioned. The size of the constant figure in the general equation that defines the theoretical model utilized in the present work suggests that other

variables which contribute to adaptability are yet to be discovered. And, even for the positive coefficients uncovered in the current study, better explanations are needed for why they exist.

On balance, however, the study's outcomes are a solid step in unraveling important links to sales person adaptability. Hopefully, this work will be a stimulus to future investigations.

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MARKET SIGNALING BEHAVIOR IN THE SERVICE INDUSTRY

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ABSTRACT

Market Signaling, although being a little known and lesser researched area, is an important source of communications between firms. This paper discusses market signaling, its importance as a marketing communication device, the advantages and disadvantages of market signaling, and presents examples of marketing signaling behavior in the service industry.

INTRODUCTION

Marketing signals are communication vehicles which provide information beyond the mere form of the message, a message within a message. These signals can be sent to competitors, customers, suppliers, or other interested stakeholders (e.g., government, stockholders, community). Signals constitute data from which a firm can draw inferences about its sender's behavior. The phenomenon of signaling can be seen everywhere. Diplomacy prides itself on the sending of signals, though sometimes it appears the more obscure the signal, the better. Demographics provide a signal to health and auto insurers. Grades and test scores act as signals for college admission boards for what is not known until after the critical decision has been made. Doctors make diagnosis based upon symptoms as signals of possible illnesses. Employers hire workers based upon such signals as education, job experience, and references because the individual applicant's productive capabilities are difficult to determine before hiring. Demographics and credit information act as signals for banks in determining whether or not to make loans or provide credit cards to applicants. In the absence of the amount-of-education signal (or the creditworthiness signal), the employer (bank) would be deterred from distinguishing among individuals on the basis of their likely productivity levels which would then lead to market inefficiencies (Black & Bulkley, 1988). It is in the interest of all parties to follow signaling strategies that eliminate the potential for inefficiency and misunderstandings.

Signals are present in many business disciplines. In finance, applicants with high-quality projects signal by accepting larger loans (Milde & Riley, 1988). Signaling costs are implicit in accounting agency theory (Morris, 1987). The use of signaling is especially prevalent in the marketing discipline. This paper examines the use of marketing signals by firms within the service industry.

MARKETING SIGNALS

A *marketing signal* is a *marketing activity* that provides information beyond the activity itself and which reveals insights into the unobservable. A signaling activity could be a price reduction, a new marketing campaign, or the building of a new plant (Gerstner, 1985). The signal could indicate the intent of the firm to pursue an aggressive strategy of market penetration or to enter into another market segment. A marketing signal alerts competitors to those features of a marketing activity which communicates the firm's intentions, motives or commitments. Marketing signals appear in advertising (higher advertising expenditures signal high quality products since products with high quality sell in higher quantities and high quantities allow advertising expenditures to be spread across more units (Kihlstrom & Riordan, 1984) and pricing theory (higher prices signal high quality goods since if consumers are willing to buy the product at that price, the product must be worth the price asked (Gerstner, 1985; Curry & Riesz, 1988).

Marketing signals are bits of information sent (or provided by) one firm to other firms in an industry. Marketing signals convey information concerning product quality, reputation or intentions of competitors. Porter (1980) suggests a market signal is any action by a competitor that provides direct or indirect indication of its intentions, motives, goals or internal situation. Competitive market signals are announcements or previews of potential actions intended to convey information or to gain information from competitors (Heil & Robertson, 1993).

A cue must meet certain criteria before it can be considered a true signal. First, a signal must be transmitted by someone who has the ability to alter the nature and intensity of the signal. Second, a signal is defined as an easy-to-acquire, extrinsic informational cue. It is not part of a product itself, but a piece of information about the product that a user can search out, obtain, and process with minimal effort and energy. Third, a signal can be used to form inferences concerning quality and value. Since it is not an intrinsic part of the product and it does not contain detailed information about the product, a signal can only provide the basis for making inferences about the product's true features. It cannot tell buyers the absolute truth about those intrinsic features. Thus, a signal could lead some users to infer a product is high in quality and value, while leading other customers to infer the opposite (Spence, 1974).

The advantages of signaling are many. A sender can selectively "leak" information to its competitors via the act of signaling. The competitor can then improve its reaction by better understanding the sender's intentions and the reasoning behind its marketing action (Engers, 1987). Each firm in an industry can interpret the other's actions, motives or commitments and improve its own choice of actions. If the sender is credible, the competitors' reactions will be timely and consistent with the signal sent. The competitor can then assess and evaluate these signals easily, accurately, and respond quicker. Signaling, therefore, allows efficiency and ease of communications between firms, whether they be competitors, suppliers, or customers.

Some major benefits from signaling to competitors are preemption and the development of competitive norms of conduct. by signaling competition, competitors will be discouraged from following. Dependent upon high entry barriers and high perceived

commitment to the intended action must be credible. Signaling also important in search for industry norms on pricing, advertising sales, etc. related to sender's level of market dominance and ability to enforce sanctions. The use of signaling enables firms which signal and the industries which the firms comprise, to gain additional profits than if signaling were prohibited or limited (Herbig & Milewicz, 1993). A study of antitrust and collusion arising from the electrical equipment markets during the 1950's indicated it was not conspiratorial meetings but price signaling which appeared to have raised turbine generator profit/sales ratios (Lean, Ogur, & Rogers, 1985). A review of the U.S. antitrust suit against IBM indicated that signaling was a major factor in IBM's success at obtaining high level of profits. Ford Motor Company, on Wednesday, July 15, 1992 announced price increases of 4 to 6% on most of its 1993 models. This increase, analysts believed, was Ford's way of using its new-found status as the industry's pricing leader to signal to rivals that now is not the time to start a costly war for market share (Wall Street Journal, Thursday, July 16, 1992, B1).

The benefits to the signal sender of increased information must exceed the potential costs. Costs are involved in all signaling behavior. Potential costs to the signaling firm could include competitive cuing (revealing intentions to competitors which can shorten lead times or initiate spoiler actions in marketplace), product-line cannibalization (customers delay purchases of the existing product line while waiting for the signaled action such as a new product), reputation (IBM has the reputation of using price reductions as signals for new product introductions), loss of face if the firm has subsequent difficulties in delivering the preannounced product as promised, or potential antitrust implications (collusion) (Heil, 1988).

Preannouncements may be more versatile but actual announcements of accomplished facts or results add to credibility in that what has actually been announced happened. Speeches made at industry conferences can be carefully crafted to convey messages to participants and are given less weight. Announcements in the public press are frequently more credible to employees than many internal communications programs. Some announcements are primarily to communicate with the financial community. Where and how a message is delivered is of key importance in its interpretation. Messages delivered before industry audiences or financial analyst have higher credibility because both groups have developed personal relationships based on trust and are quick to punish if ever deceived. Interviews in industry and business publications are often taken as an attempt by the competitor to deliver a carefully crafted message to a specific audience. Consent is usually only given when there is some purpose to be serviced. i.e. press releases. Letters to customers have greater weight.

Potential reactions to an emitted signal depend upon the magnitude of the reaction (retaliatory or passive), the domain of the reaction (same product/market or in a different domain), and the elapsed time between signal reception and reaction). Other factors which influence a firm's response include a firm's size (smaller firms tend to imitate larger firm's responses), market factors (the more differentiated the sender from the receiver, the less likely is a response) and the structure of the industry (the higher the number of competitors a firm has the less the cooperation; high fixed costs and economies of scale will cause more aggressive signal responses).

The receiving firm's interpretation process depends on the characteristics of the signal sent, that is whether it is a clear and unambiguous signal (sometimes firms may desire their signal to be unclear in order to gain information from competitors by encouraging competitors to reveal possible future reactions), is it able to be read quickly and with minimum error by receiving firms, is it consistent (does it confirm previous signals sent) and the receiver's perception of the signal's perceived aggressiveness (Heil & Robertson, 1991).

Signaling is a learning process. A receiver reads the signal, interprets it in the light of experience, and reacts accordingly. The receiver adjusts his interpretation based upon the history of the sender and the previous transaction. This feedback loop fine tunes the process and the next time a signal is encountered the receptor can with more confidence judge the latest (next) signal.

REPUTATION

Reputation (Herbig & Milewicz, 1993; Herbig, Milewicz, & Golden, 1993; Milewicz & Herbig, 1993) is one of the primary contributors to perceived quality: quality of products manufactured by a company today is similar to the quality of products it manufactured in earlier periods or the quality of goods in a newly developed product line is similar to the quality of a company's more established products (Shapiro, 1983; Wernerfelt, 1988). In the early years of a new product--especially a capital good, whose reliability and durability may take years to demonstrate--users and competitors often have little other information on which to base their actions. Having a good reputation also insures high quality firms will be larger and have more customers since fewer customers will depart from high quality firms in the long run and more will arrive because of word-of-mouth activity from other customers (Rogerson, 1983). The greater a company's reputation, the higher its chances are of getting a favorable first hearing for a new product and of getting early adoption of that product.

MARKETING SIGNALS IN THE SERVICE INDUSTRY

Services in general possess four predominant characteristics: *intangibility, perishability*, simultaneous production and consumption (*inseparability*), and lack of standardization (*heterogeneity*). The intangibility of service, the very nature of the product, makes it difficult to evaluate quality prior to purchase and even subsequent to purchase. Consumers may infer quality via brand name and reputation of the service provider. Producers with strong reputation are associated with high quality and could charge higher prices for their services.

A Big Eight accounting firm brand name is associated with premium audit fees. The Big Eight name being perceived as a high quality producer of audits and that companies are wiling to pay higher fees for their brand name services even though the nature and scope of the audit is identical to other accounting firms. This is very important in audit services since the conduct of the audit is unobservable to investors and the outcome of the process follows a standard format. The credibility of the audit appears based upon the auditor and its

reputation. Big Eight firms spend considerable sums to protect and enhance their reputation and brand name, and are consequently awarded with higher fee income (Firth, 1993).

Intangibility

Intangibility makes a service significantly different from a product. Although a service may have tangible trappings no amount of money can buy physical ownership of such intangibles as movies, consulting, or dry cleaning. They produce intangible output. If a service is intangible it cannot be observed, touched, felt or tried out before it is purchased. The benefit of a service can not be experienced or correctly anticipated until the service is provided and simultaneously consumed. This intangible feature represents a considerable amount of uncertainty and risk for many customers. Lack of observability of service benefits often makes service adoption difficult. It is quite reasonable, then, that professionals would traditionally emphasize investments in signals like prestigious addresses, expensive office furnishings, big cars, and fancy club memberships to support their marketing efforts.

One of the challenges of a service business is to tangiblize the intangible by stating the benefits in a perceivable manner; the promotional focus may emphasize office decor and dress rather than the service benefit. Tangible cues can also emphasize the benefits of the service over just describing the features; a dentist can talk to the patient about the better smile she will have once her teeth are straightened, rather than the technical steps in straightening her teeth. Interiors should be designed to be pleasing to target markets and to project an image consistent with the positioning strategy. A storefront law firm which wants to target lower and lower middle class clients would want to decorate its offices with inexpensive paneling, inexpensive furniture, potted plants. On the other hand, a dentist seeking upper class patients would have plush carpeting, leather chairs, contemporary art, exotic plants, and perhaps even stained glass windows, thus, an atmosphere conducive to its desired clientele (Kotler, 1984).

Perishability

Perishability means that services can not be inventoried or sampled in advance. This results in difficulties in matching demand with capacity. Fluctuating or seasonal demand poses capacity excess or shortage problems. During off season or recession, the available capacity may be underutilized requiring either expansion of demand or reduction in capacity (a ski resort in summer); while during the peak season (say April 15th for tax accountants) or certain promotional periods, the capacity may be inadequate and may necessitate expansion. If capacity is not expanded to match growth in demand, revenues may be lost or quality of services may deteriorate resulting in customer dissatisfaction. In contrast if capacity is not reduced or adjusted when there is a decline in demand , profits are adversely affected. The tendency, therefore, is to maintain the capacity and to expand the demand. The solution here is to better train service providers to better understand and empathize with the customer's peak needs and to provide for a careful assessment of customer needs through research.

A doctor's appointment missed will never make up to the doctor the opportunity cost of that time which could have been spent profitability with a client. This is not a problem when demand is steady but becomes a severe problem with fluctuating demand. Professional

service firms can influence the demand level in many different ways: differential pricing to shift demand from peak to off peak periods; off-peak demand can be cultivated; complimentary services can be developed during peak time so that customers do not have to spend as much time waiting. Reservation systems can also be installed to help manage the demand level. The supply level can also be influenced in several ways: part time employees can be hired to serve peak demand; peak time efficiency routines can be introduced whereupon employees perform only essential tasks during peak periods; increase consumer participation in the tasks can be encouraged; shared services between multiple providers can be developed; or facilities making potential expansion possible can be developed. All these strategies present signals to the consumers of the provider's willingness to work with and understand customer needs.

Inseparability

Simultaneous production and consumption, also called inseparability, means that a professional who provides the services also markets it. This makes economies of scale difficult to achieve. The service requires the presence of the service provider. One possible solution is for the provider to work with larger groups, take less time with each client or they can train more providers, for example lawyers can have paralegals interface on the lesser legal problems faced. This particular feature becomes critical. The nature of the encounter between provider and client determines to a large extent the continuing business relationship.

A provider can signal his commitment to the client in many different ways. A provider can signal his (or her) "humanness" by cracking jokes or by chatting with the client about family or hobbies prior to the consultation. He can achieve the same result by posting family pictures, hunting trophies, sports autographs in his office. A provider can signal "business" by portraying diplomas and professional awards on his office walls. The nature of the contact and the direction the provider wishes to take the consultation can act as a signal to the client. Obviously, decorum and mannerisms must be apt for the situation: cracking jokes while telling a client she has 30 days to live might not be appropriate.

Instead of fine-tuning a machine to maintain quality, people-intensive service organizations must emphasize finding good people and exhorting them to work conscientiously. Many professional service organizations have to contend with the additional problem that the quality of their service often depends on the behavior of their clients (inseparability). A consultant or doctor's services will usually be more helpful to those persons who follow the professional advice they receive. Yet, uncooperative clients can produce poor results and a poor track record upon which a professional can build a client base.

Heterogeneity

The lack of standardization or heterogeneity means the quality of service varies with the individual provider. The quality of service may vary slightly or significantly from one provider to another or from one time period to another even within the same selling organization. Service buyers are aware of this high variability and frequently talk to others before selecting a service provider. This heterogeneity along with the intangibility feature

often force the customer to dwell on dissatisfaction rather than satisfaction from the consumption of the service. A customer's preoccupation with dissatisfaction could prevent him from trying out a service provider initially or it could force him to look for another provider in the event there emerges dissatisfaction from the service.

Customer satisfaction and loyalty are often quite difficult to achieve and maintain with professional services. This variability in quality is particularly evident in multi-site locations and multi-providers of the same service within the same office. This results in difficulty in setting prices because it is almost impossible to draw price service comparisons accurately. Therefore, any reductions in price to lure customers away from the competition is questionable in practice and outcome. Solutions here include for the provider to standardize service procedures whenever possible and do a careful cost analysis to set prices. Quality control can be exhibited in careful personnel selection and training as well as by constant monitoring of customer satisfaction through suggestion and complain systems, surveys.

Symbols—sayings, objects, behavior, stories—can signal management's commitment to quality. Although symbols alone will not change a company's culture, they can reinforce shifts in organizational structure, operating policies, and performance measurement and reward systems, collectively signaling to employees that what is occurring is real. Symbols in organizations communicate volumes of information to employees, including those symbols that are unintended by management and damaging. It is better to manage symbolization than not, better to think about and plan the organization's symbolic message system than leave it to chance and hope for the best. The symbolization of quality can come in many forms, from polishing the lobby floor in "The Friendly Bank" daily to picking up the trash at Disney World instantly, from putting the store manager's office near the checkout area so that managers are close to the action to featuring the most outstanding service employees in the company's annual report (Zeithaml, 1990).

Using symbols to foster and reinforce a service ethic can encourage strong discretionary effort by adding meaning to people's work. From bank tellers to automobile mechanics, the prospect of being defeated by the rigors and grind of the service role with an accompanying loss of discretionary effort is ever present. Effective service symbols present an honest reflection of management's service commitment, appear in multiple internal media, and are ongoing, imaginative and fun. These service symbols can help recharge employees' batteries, challenge them to greater efforts, and serve as a constant reminder of the service priority.

These service attributes result in a major problem in differentiating one's service from another provider. The differentiation of offerings is difficult for most marketers to achieve, but it is an especially difficult task for marketers of professional services. The innate differentiation of many professional services is quite limited. It is hard to differentiate an accounting audit, a title search, and an eye examination. Unlike the case of a consumer product like breakfast cereal, one cannot accomplish differentiation through simply sprinkling on a new coating or stamping out a new shape. The amount of variation in the way a professional service can be provided may be quite limited, particularly if certain professional standards restrict methods of provision. Additionally, even if a service is provided that really is different than competing services, it may be difficult to get clients, who may be experiencing

great uncertainty, to perceive and recognize the real differences. Consumers feel that professionals representing (in ads) themselves are often inappropriate. Testimonials were much better received. Consumers feel that advertising by professionals was somewhat helpful in providing choices (Moncrief & Bush, 1988). Keeping high-quality control levels is a challenging task for service marketers in general, and for professional service marketers in particular. Services do not come off production lines where statistical sampling can be done to check on levels of quality.

THE AIRLINE INDUSTRY

The airline industry offers an interesting example in electronic signaling through its extensive use of reservations systems, one example of which is American Airlines' SABRE system. For example, if one carrier introduces a new low fare, others might signal their displeasure by matching the new fare for only one or two days--a sign that they would like to see the fare brought to a quick end. If that doesn't work, they might take more drastic measures, for instance cutting selected fares on some of the instigator's more profitable routes. Since many of these cuts happen so fast, and for such short duration, consumers and even travel agents sometimes don't have time to find out about them before they're discontinued when the signal's objectives are accomplished and the discounter brought to terms.

One worry about these electronic behind-the-scenes battles is that large carriers could use the system to inflict great damage on smaller airlines thus undercutting their ability to expand into new markets and blocking them from offering fares that are out of step with the majors. Another concern is that instead of fighting each other carriers could use their electronic signaling to set anti-competitive prices (Nomani, 1989). The crucial signals between carriers, say those in the industry who should know, translate as follows: "Let me determine the prices at my hub airport and I'll let you do the same at yours."

Signaling in this manner amounts to a subtle version of the type of price-fixing which once took place in smoke-filled rooms. The use of the computer network is a way of facilitating collusion. It has become easier to reach agreements and easier to detect breaches of an agreement. The most common—and perhaps most questionable—electronic signaling discussion between airlines is played out like this: Carrier A—often a smaller operator—attempts to boost its business by lowering ticket prices. It enters lower fares in the industry's computer system. In response, Carrier B—the dominant carrier at the affected airport—not only matches the new fares, but lowers them in other markets that are served by predominantly by Carrier A. Carrier B may also attach special codes to its new fares to get its message across. Pricing executives say some carriers have been known to prefix new fares with the letters "FU" to indicate an indelicate imperative (Nomani, 1990). The end result is that Carrier B often cancels its reduction, depriving consumers of a lower fare. Another tactic is more subtle. When any fare is changed even slightly, the electronic tariff program highlights it in the computer system. In response, another carrier sometimes makes a weird or nonsensical change, the meaning of which is, "Get rid of this fare".

Antitrust laws make it illegal for companies to conspire to fix prices or even attempt to do so. Proving that this has happened is easier when prosecutors can show evidence of a face-to-face meeting or telephone call—Such as the case in 1982, when the Justice Department investigated the likelihood of price-fixing by American Airlines vis-a-vis Braniff. Although the intent of the law is clear when indirect signaling could be involved, it is the evidence that is shaky. It is important to determine whether "a seller's conduct…is contrary to its independent self-interest" in a price-fixing case. Cutting fares more deeply than necessary to undercut the competition, for example, would seem intended as a warning to the competitive and economic reduction, especially if fares quickly return to a higher level. Many of the back-and-forth fare tactics in the airlines industry appear to have little economic relevance to the market involved. To critics, this supports the notion that airlines are often using signaling as an anti-competitive measure rather than permitting supply and demand alone to dictate fares (Nomani, 1990).

In 1992, the US Justice Department brought a price-fixing suit against several airlines on the theory that they used the electronic fare clearinghouse owned by the airlines as a means for collusive price-setting. By reporting fare changes to the clearinghouse before they took effect, airlines sent up trial balloons on fare changes that could be adopted or abandoned depending on how rivals reacted. The government claimed that by "exchanging complex fare proposals, negotiating the precise details of fare increases and delaying the actual implementation of fare increases until all airlines reached a consensus."

THE HOSPITALITY MARKET

Some symbols/signals that hospitality firms may emit deal with the segmentation strategy they have chosen. Offering 'kids eat here free' in conjunction with family programs will signal the intended segmentation target is families. Several baseball teams have recently signaled their renewed interest in families by offering special family rates, advertising their clean restrooms and family food fare, and especially by providing 'family-only' bleacher sections where alcoholic beverages, smoking, and unacceptable language is forbidden. Ski areas, beach resorts, and other vacation havens can signal their family concern by having special ski slopes for the kids, special lessons for the youngsters, offering child care, or providing special activities for youth. Hyatt has recently signaled its intent to penetrate the family vacation business by implementing Hyatt's Kids' Club, a full-scale day-long operation to keep the kids occupied. and allow mom and dad to engage in adult activities without worrying about the kids.

Denoting in advertising the wide scale availability within the hotel of faxes, PC workstations for check-out, international long distance service, transcription services, etc. will signal the segmentation strategy of the chain to be business persons. An hospitality facility's availability of wheelchair accessible rooms, railing in bathtubs, lowered facial mirrors, special menu items and even to the extent of having wheelchairs or amigos available to guests, will signal sensitivity to the handicapped and less mobile senior citizens, and hence special interest in that segment of the hospitality industry.

Marriott through the availability of its full-service Marriott hotels, its Courtyard-by-Marriott suite hotels, and its economy Fairfield Inn division has signaled to its competitors its intent and commitment to servicing the entire range of hospitality facilities. Note that its suite hotels division has the Marriott name to signal connotation with the Marriott image of upscale service but the economy division does not, so as to not demean the Marriott image.

THE HEALTH CARE INDUSTRY

Advertising as a signaling vehicle can be a useful way of hospitals informing potential patients about services and specialties and making the public more aware of qualifications of hospitals. Hospitals can also send signals concerning their desired clientele. Signals hospitals can send to serve and attract senior patients include senior membership programs for graying crowd, discount programs, seminars, resource personnel, medical screenings, and other activities. Hospitals can also tie in senior community members to health care by adult day care centers and social activities for seniors.

When sending signals through advertising, hospitals create for themselves a problem of creating expectations which must be matched by the reality the patient finds in the hospital setting. In essence, once a set of signals has been sent to the patient public, a corresponding set of signals must be established within the hospital which match the promises made by advertising. A hospital that sends a signal through advertising of "quality care in a caring environment" must indeed create a "caring environment" within the hospital. This implies that each employee of the hospital must be made aware that their work demeanor must be in consequence with the signal of "caring." A sampling of other signals which can be sent while the patient is in the hospital include room service including in house VCR, newspapers, interpreters, recreational activities, special dining facilities, visitor services, etc. The rationale for emitting these signals is to provide more personal attention and to stand out from one's competition within the community as well as to target the market towards the desired segment. But, more importantly, the signals generated within the hospital setting must match the expectations created by signals generated by advertising efforts.

Many hospitals are using centers of excellence as a signal to attract patients. These centers could be emergency and service network (ambulance, paramedics, helicopters), geriatrics, pediatrics, surgery, oncology, or orthopedics. The center of excellence acts as an halo effect on rest of organization so as to generate a high volume of patients. The good word-of-mouth generated by centers of excellence influences perception about the rest of organization. For example, heart transplant activities of the 1960's at Baylor Medical Center in Dallas went far beyond establishing the center's reputation and patient volume for cardiology, it also enhanced the prestige of the entire institution. Similarly, Humana's artificial heart transplants in the 1980's did likewise for the entire Humana chain. A Center of Excellence is a signal by staff. Excellence can be created by recruiting an internationally known expert who by his/her presence brings in or surrounds himself/herself with disciple experts in the same field. This critical mass of quality specialization signals regional and national prominence in the chosen area.

Hospitals can focus on the Centers of Excellence concept to the exclusivity of everything else. This results in a very narrow specialization which can signal not only excellence but superior expertise and service in that specialization. Examples of such specialization include the Cleveland Clinic which focuses on coronary bypass surgery and performs over 4000 such operations per year, Shouldice with hernias, or Memorial Sloan Kettering Cancer Center which specializes in cancer treatment.

Physicians, too, can signal. One possible signal is the specialization of the providers. An office full of ENT specialists readily signals pediatrics is not welcome here. There is high risk, as these services are infrequently purchased services with which the consumer is not familiar and which are perceived to be differentiated on non-price attributes which lend themselves less to promotion particularly if promotional efforts might jeopardize a carefully cultivated image of quality. One of the challenges of a service business such as is a physician's is to tangiblize the intangible by stating the benefits in a perceivable manner; the promotional focus may emphasize office decor and dress rather than the service benefit. A physician's facility provides signals to patients or potential patients. A pediatrics waiting room has children's toys; a waiting room with a stock exchange ticker and the latest copy of the Wall Street Journal or Barron's signals a different type and class of clientele. All the tangibles within a physician's facilities: staff, location, size of facilities, office procedures, etc. . . provide signals to patients about the kind and type of service expected there. Physicians must, though, remember that promotion does not cease once a patient is at hand but continues through the life of the patient. Patients loyalties do wane. It is necessary to note that retaining existing patients is a far less costly strategy than to continuously generate new patients. Even a forum as mundane as the yellow page listings provide signals to a potential target segment.

In private practice, as in any health care setting, maintaining service quality is critical. But also of major importance when executing a marketing program through signaling is the consistency of signals. A physician who creates a setting so as to send a particular set of signals must also have a staff that will generate compatible signals. A signal of "humanness" established in the examination room by the physician can be more than overcome by a cold approach of a lab technician who draws a blood sample or the insensitive nurse giving a shot. Conflicting signals in the same general setting will breed inconsistency. Thus, it is critical that once a signal pattern has been decided by the physician, every member of the office must be appraised of the signal pattern to be pursued so as to generate only compatible signals.

SIGNALS IN THE PROFESSIONAL SERVICES MARKET

Professional services provided by accountants, lawyers, architects, consultants, and health professionals are examples of credence products, one that consumers do not have the knowledge or ability to evaluate effectively. Generally, since attention to signals is most important when marketing credence products, then signals are naturally of interests to providers of professional services (Bloom, 1990).

Professional Services include accountants, lawyers, consultants, doctors (medical practitioners of all sorts including dentists, psychiatrists, psychologists, optometrists, etc.),

engineers, architects, and others. While some may wish to extend the concept to trade services such as bricklayers, machinists, we will retain the classic definition. To be considered and identified a professional service, the following criteria should be met: the service should be provided by qualified personnel, be advisory and focus on problem solving; the professional should have an identity, that is be known in the market for his specialties and under a specific name; the service should be an assignment from buyer to seller; and the professional should be independent of suppliers of other services or goods (Gummesson, 1978). For a provider of a professional service, the performance fits the unique needs of the individual client and thus the range of services available is practically infinite. However, members of the same professional service do basically offer the same service: lawyers interpret the law, doctors diagnose, architects design, etc. The marketing challenge is to convince customers that one can perform those services better than others in the profession. How does one market a distinction from one's competitors? How does one credibly and ethically project quality and expertise?

Accounting firms, perhaps because of the broad range of services offered and the stronger competition faced, have been more inclined and aggressive in their marketing than other professional services. The national firms have learned that marketing techniques function best on a local level. Law firms tend not to be national in scope (yet) but locally based, having at most have two or three offices but they do attract clients nationally. Lawyers, however, have been more reluctant than other professional services to move into advertising and marketing. Medical and dental services are by far the most locally based of the professional services, usually limited to a single geographic area and clientele. Except for clinics, certain medical/dental disciplines are more prone to be promotable than others (e.g. plastic surgeons yes, brain surgery no). The significant difference for the medical profession is that their customers come to them (or their surrogate the hospital) instead as the other professional service providers going to the clients. Architects, consultants, and others within the professional services realm are somewhat freer in their marketing efforts and can be more imaginative and expansive in projecting their capabilities. Even with the legal sanctions removed in professional services, customers often consider marketing activities of professionals as distasteful and unprofessional in conduct which makes promotion of professional services difficult even under the best of circumstances. Therefore, the marketing strategies (and hence the possible signaling strategies and alternatives) the different professional service providers offer differ significantly between the providers and their disciplines.

That the market is large is evidenced by the over 300,000 accountants, 600,000 lawyers and nearly 500,000 physicians who reside and provide professional services to Americans. In fact, the market is too large! The legal, architectural, and dental professions already face oversupply conditions and within the next decade similar conditions are predicted for the medical profession in general. Moreover as the number of paraprofessionals multiply, this oversupply will be all the more felt. More professionals mean more competition and an intense need to market one's services. In this age it is not enough to post a sign, you must provide quality service to keep the customer coming back.

Members of the learned professions no longer enjoy the high esteem of yesteryear. Consumerism has struck in the professions in the form of malpractice suits and overt challenges to the professionals of all types. Clients are more likely than ever before to question the judgment of professionals or to offer strong complaints. Professional service providers not only provide the relevant services but must remember they are in business and must make a strong commitment to market their services. Personal information sources dominate the selection and evaluation process for service providers. Attitudes by professional services providers towards advertising were negative in the beginning. These negative attitudes were also prevalent by consumers but as the decade of the eighties rolled around, attitudes by the consumers differed considerably from those of the providers concerning advertising and were more inclined to be positive and information based (Moncrief & Bush, 1988).

SERVICE MARKET CHARACTERISTICS

The services market and in particular the professional services have unique features which carry over to the usage and meaning of any signals sent by such services. Four other characteristics help classify professional services from all other service entities. The provider of a professional service usually possesses specialized knowledge which has associated with it licensing requirements thus putting up barriers to entry from the common lay person. Another characteristic which is usually in existence is the technical aspect of the service. By its very nature a provider of professional services offers a (usually) technical capability which a non-provider is usually incapable of understanding or performing. The study of the law may not be technical in the same sense as electrical engineering but to the average layman, his ignorance of both is equal. This technical knowledge provides a traditional tendency of the lay person to place a professional on a "pedestal" based upon his stature and degrees/licenses received. All this adds to the difficulties the common man has in evaluating objectively professional services. This can be illustrated effectively by noting that complaints to professional providers will come only under cases of extreme dissatisfaction. When consumers are dissatisfied with the services performed by professional providers, they typically do not complain but transfer their business elsewhere-- and the predominant reason is intimidation, lack of knowledge of the services being provided to the consumer. And finally, most professional service providers are not corporations but *small entities*, predominantly sole proprietors or partnerships. This lack of size also effects signaling uses.

Each characteristic affects the phenomena of signaling. When seeking a professional service provider, the prospective client searches for subtle clues for signals to help make his decision on using or not using the provider's services. The degree of commitment to marketing, for example, could well serve as a signal to its current and potential customers.

Professional services providers have specialized technical knowledge; from this a possible signal is the specialization of the providers. An office full of ENT specialists readily signals pediatrics is not welcome here. There is high risk, as these services are infrequently purchased services with which the consumer is not familiar and which are perceived to be

differentiated on non-price attributes which lend themselves less to promotion particularly if promotional efforts might jeopardize a carefully cultivated image of quality.

Although buyers of professional services are frequently uncertain about the criteria to use in selecting a professional, one criterion is almost always prominently considered: prior experience with similar situations. People prefer to use accountants and management consultants who have worked in their industry before, lawyers who have litigated cases just like theirs, architects who have built buildings like the one they want to build, and surgeons who have successfully performed the needed surgical procedure hundreds of times.

The need to have this kind of experience to obtain clients produces problems form many professional service organizations. Firms with expertise in limited areas often find it difficult to diversify into new lines of work. And inexperienced professionals often find it difficult to find any work at all. "Newness" cannot be readily promoted as a favorable attribute in most professions, as might be done with a new soft drink or banking service. This situation makes it especially important for professionals to do extensive marketing planning to help them determine the future market potential associated with the different specialized services they are considering providing.

Professional service providers by definition have licensing requirements. The possession of such signals competency to clients. For CPA firms, since new business is overwhelming generated through referrals, competency is rarely mentioned as a selection criteria. Nevertheless, competency, that is maintaining high service quality, is essential to retaining current clients. To signal competency, all personnel should be well trained in performing assigned tasks and be aware of projecting a quality image. The impression management provides, the physical appearance of office and staff can often convey unintended messages to clients, especially new or potential clients. (Day, Denton & Hickner, 1988).

The stature given to provider by consumer is typically very high. The customer typically lacks the expertise to perform the services for himself. He therefore is typically unable to evaluate the competency of the provider on the basis of objective criteria. To access a professional service provider's competency, the client relies on more subjective or intangible cues. From this, recognizing that industry expertise and reputation in a specific legal area are the two most important law firm selection criteria, law firms should strive to communicate these aspects as they pertain to their respective practices. This can be achieved through word of mouth, advertising, publicity, newsletters, workshops, seminars and other communications methods. They must also be client centered by being timely, dependable and keeping clients informed on a regular basis (Gaedeke &Tootelian, 1988).

Having multiple levels of clients uncertainty create unique challenges for professional service marketers. Client education must play a much bigger role in the marketing of professional services than in the marketing of other offerings. Clients must be educated about what criteria to use in evaluating professionals and about how to employ professionals productively. Furthermore, in some cases people must even be educated about when they really need to seek out the services of a professional.

In most cases professional service providers are small entities. The size of the operation could provide a signal to consumers. On one hand, a large association signals success, staying

power, and a certain notation of prestige. On the other hand, smallness has as its virtue a certain personal touch with the feeling by customers that he is not just a number but has an identity. Having a rapport with an individual provider gives the client a personal stake. This could very well lead to friendship and excellent word of mouth referrals. The recent emphasis many professional service firms have given to investing in the signal of being a large, full-service firm (sometimes through mergers and acquisitions) often times make good sense.

Before "buying" professional services, people like to meet and become acquainted with the professional who will be serving them. It is a way for them to reduce their uncertainty. The use of only salespersons or full-time presenters to sell the services of unseen professionals is therefore ill advised. The professionals who will be the "doers" of certain kinds of work need to become involved with the selling of that work. But convincing many professionals that they should become actively involved with selling their own services can be exceedingly difficult. And teaching these people improved selling skills can be even more difficult. Many lawyers, accountants, architects, doctors, and other professionals simply do not want to have anything to do with selling, and may others do not have personal characteristics that would make them good at selling (Kotler, 1984).

Signals, notwithstanding, service marketers must give substantial consideration to how third parties other than their clients will react to their marketing programs. Professionals typically cannot go to quite as great lengths to produce satisfied "customers" as conventional commercial marketers can. A CPA cannot offer to overlook a client's financial irregularities; a doctor cannot continuously prescribe addictive narcotics to a patient; and an engineer cannot accede to cost-cutting pressures of clients and use unsafe building materials. Professionals should always recognize that in serving one type of client they are also serving other third-party "clients" such as investors, insurance companies, government agencies, and the members of their own profession. To go overboard in serving one type of client could lead to a loss of trust with important third parties—and a loss of the legal certification or licensing that allows one to be a professional in the first place.

The competition and their usage of signals must also be addressed. Once the most influential consumer signals have been identified, one must determine how effectively competing organizations are transmitting those signals. This involves additional consumer research on how competitors are perceived by consumers. Yet, it is also useful to assess the accuracy of competitors' signals. If the real quality or value of their products does not match what consumers believe they are getting (based on the signals they are receiving), then it might be possible to employ a counterattack strategy to "set the record straight."(Bloom, 1990).

MANAGEMENT IMPLICATIONS

A growing number of companies are using signals like high prices ("L'Oreal costs more, but I'm worth it"), well-known brand names ("You can be sure if it's Westinghouse"), market share leadership ("We're Number 1"), or large advertising budgets ("As seen on national TV") to convince customers of the value of their products. Signals are flying back and forth in industries as diverse as computers, dental care, air travel, and banking. For the

most part, the signals transmit a message of technical superiority. However, sometimes the signals are designed to transmit a message of technical parity ("We're just as good for half the price") or even technical inferiority but a good value ("K-mart value at a K-mart price").

Price wars are often inadvertently started, victims of misreading competitors or market changes or overreactions to them. A price reduction by one firm could be interpreted in variously ways by other firms in the industry. The price reduction itself could be in response to an excess inventory situation. The competitors, however, could misconstrue the reason and respond as if it were a steal market share signal, resulting in price wars. In lieu of overt signals, ambiguity and inefficiency could result. Excess inventory, product elimination may lead to discounting--temporary condition for a limited number of goods. If misread, competition could react with price cuts on a wide front which the first company must than match. Failure to seek premium price for new or improved product could also result such competitive wars (Garda, 1993). If, instead of the action alone, a press release were issued with the explicit rationale behind the price reduction, the ambiguity goes away and the receptor can better decide its reaction. In the study, action only (covert signaling) was given high values for its signaling effectiveness and value in establishing reputation. This indicates that a firm by showing high commitment by actually carrying out an action signals the most intensely.

Reputation is a measure of whether an expected action is actually performed; hence fulfilled signals increase reputation. What can a firm do to minimize this 'expectation gap' and guarantee that the signals which are emitted carry the intended message? Here are a few rules for avoiding such costly and potentially deadly misreading of one's signals:

1) **A firm must avoid misreadings and overreactions. Clear understanding of motives must be communicated to competitors, suppliers, or customers.**
2) **A firm must communicate price properly. What must be clearly communicated are all qualifiers and limitations and the motive if possible to avoid any signaling error. A firm does not want to send unambiguous signals. Signals should be able to be read quickly and with minimum error by reacting firm.**
3) **A firm should encourage constructive not destructive competition. Signals should focus on benefits not prices.**

In the United States, direct cooperation by competing firms within an industry is illegal. However, through marketing signals, firms can provide competitors the necessary information to make accurate judgments of firm's intent or capabilities. It matters significantly if the market leader's President's presentation at the industry's annual conference emphatically declares all out war on a new entry in the market or if he welcomes with open arms the new competitor to the industry arena. The company entering the industry or those contemplating doing so will get the appropriate message on the market leader's intent.

Executives are constantly looking for cues by which to evaluate competitors and other firms with which they do business. These cues are called marketing signals; they are essential

for effective business-to-business communications. Because of the importance of marketing signals, it becomes imperative that the signaling process be managed to send messages which benefit the firm. The issue is not really one of "should we signal" but more appropriately, "are we signaling what we intended to communicate?" The challenge to the effective executive is to manage those signals which are to the benefit of the firm.

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IS THE U.S. FORMAT OF MARKETING EDUCATION EXPORTABLE?

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ABSTRACT

A new Moroccan university, Al Akhawayn University (AUI), modeled in its organizational structure, methods, and language of instruction on the American system of higher education, was recently inaugurated. AUI emphasizes extensive faculty-student interaction, small classes, active involvement of students in formal research activities, careful academic advising, personal counseling, organized student activities, and a full complement of student support-services.

To start, AUI did sub-contract for its school of business - M.B.A. program - the accounting, management, and marketing education to some American professors. As the marketing educator, the author does relate some of the problems encountered in the export of a U.S. standard marketing education, and cautions on a future attempt to export U.S. formatted business education..

A DIFFERENT WORLD

Did you know that Morocco is so close! Morocco is a simple non-stop flight from New York. Flying time is only 6.5 hours, only 30 minutes longer than a flight from New York to Los Angeles.

Stunning, unforgettable images are part of everyday life in Morocco...Listen to the melodic call to prayer from the minaret of a beautiful mosque. Behold the storytellers and snake charmers that weave their hypnotic spells in the evening of Marrakech's Djemaa el Fna Square. Shake hands with the wizened spice merchant who invites you to sit and sample his wares, and share a cup of tea. Did you know that Morocco was so different!

Morocco is a country of medieval souks (bazaars), medinas (ancient Arab quarters) and casbahs (walled cities). As you wander the fascinating maze of small alleys and open squares, beholding marvelous Moroccan rugs, gold, silver jewelry, hand hammered copper artifacts, you start to wonder if this is the right place for a U.S. faculty to teach Marketing the American way. This is, however, what happened to a team of several Texas State Universities' professors at the dawn of Spring 1995, as part of faculty of a brand new university.

AL AKHAWAYN UNIVERSITY

Al Akhawayn University in Ifrane (AUI), is a new institution of higher education offering selected academic degrees at the Bachelor, and Master levels. The campus is located in the resort community of Ifrane, nestled in the Middle Atlas Mountains, not far from the King of Morocco's summer residence. Located just 40 miles from the historically rich imperial cities of Fez and Meknes and 50 miles from the Roman Empire's city of Volubilis, Ifrane provides an excellent backdrop for both intellectual and physical pursuits. AUI is conceived as a private Moroccan university, grounded in the historic strengths of African, Arab, and Islamic culture; AUI is modeled in its organizational structure, curriculum, methods and language of instruction on the American system.

This university did begin as the dream of His Majesty King Hassan II, with the financial contribution of His Brother, the king of Saudi Arabia, for whom the creation of such an institution in Morocco represents a victory for culture, and for the advancement of science and technology. Al Akhawayn University essentially grew out of an oil tanker wreck. In 1990, a Saudi Arabian tanker broke off the coast of Morocco. The Saudi government apologized and sent $50 million to pay for clean-up efforts on the Moroccan coast. But a quirk of the sea currents floated the oil away from the coast, leaving the Moroccans with a huge pile of Saudi money and no problem on which to spend it. Morocco's King Hassan II instead asked the Saudis for permission to build a new university with the money. Saudi Arabia's King Faud agreed. The university was named Al Akhawayn (two brothers in Arabic), referring to the cooperation of the two kings on this project.

Al Akhawayn is bringing the best of many cultures and educational styles together in an unique way. This combination of Arabic Islamic culture with the Anglo-Saxon educational method will foster the cultural and intellectual exchanges that benefit all civilizations. It will contribute to the recognition of the Arabic language as a language of modern culture and science, and it will advance the traditions of Islam as a religion of peace, tolerance and understanding. The combination of cultures and educational systems is not easy. Morocco is an Arabo-Berber Islamic Kingdom, a melting pot of Berber, Arabic and Western, mostly French, but also Spanish cultures. The educational system after the end of the protectorate (1956) was modelled according to the French educational system with primary, secondary and tertiary levels. The third level, the state university system, is the domain of an education following the French pattern. A pattern where professors and students do not mix. A pattern where the education is more stressful than its U.S. counterpart. Is the American format of business education exportable in this environment?

On January 16 1994, faculty were at work "educating." Forty percent of those faculty were foreigners, used to teach their body of knowledge to Texas or foreign students in Texas, but not to real Moroccan students, inside Morocco. The types of problems a transferred U.S. professor of marketing did encounter in the achievement of his educational task is the topic of this paper.

DOMESTIC PEDAGOGY

First let us summarize what a U.S. marketing professor does provide to his/her students at home, before considering the adequacy of such an approach to a different context. "From a societal point of view, marketing is the force that harnesses a nation's industrial capacity to meet the society's material wants. Marketing is the business function that identifies unfulfilled needs and wants, defines and measures their magnitude, determines which target markets the organization can best serve, decides on appropriate products, services and programs to serve these markets, and calls upon everyone in the organization to"think and serve the customer"(Kotler, 1991). This is the marketing concept. Marketing is an academic discipline (social science) about a dynamic, competitive, and creative activity that is part of our everyday lives. "Marketing textbooks" (Zikmund & D'Amico, 1996) present a lively picture of the field. Up-to-date marketing textbooks have a balanced coverage of marketing concepts and practical examples that make marketing easy to understand. They employ current examples about domestic and global markets from the "real world" to enhance readers' understanding of marketing concepts and strategies.

The marketing concept may be applied to the exchange which occurs between teacher and student. Every organization can be viewed in its activities as having "customers" and "products" (Kotler, 1972). When a marketer sets out to accomplish a marketing objective, he utilizes some combination of four basic tools: product, price, place and promotion. A problem one immediately encounters, however, is that these four "Ps" are applied to education with great difficulty. A recent proposed conceptualization is more suited to the task (Bruner, 1989). The variables in this updated version of the marketing mix were concepts, costs, communication, and channels: the four "Cs".

- For the professor of Marketing, the object of the exchange is the package of concepts and skills to be taught in the course. We should work out the specifics with a concern about what students would find most rewarding to learn.
- The professor increases the costs when numerous tests, casebook, supplies, are required.
- The communication tool of the marketer has to do with the way concepts are presented to students, with the emphasis on methods of motivating them to engage in the exchange. When concepts themselves do not motivate the students to learn, they require proper packaging to make them more appealing. The point here is that who the students are, what they already know, and how they feel, should have some bearing on how the educator performs his role.
- Finally, each professor carries out some customer service function. Essentially, this amounts to personal attention one can offer to students during office hours. It is not enough to have a great product, appropriate channels must be used to get the right product to the right place at the right time. In education it amounts to the time, places, mechanisms, and techniques by which the concepts get from their source to the students. Within the classroom itself the professor has a great deal of flexibility in the

"channels" available for communicating concepts to students. One can use lecture or team teaching, student presentations, videos, computers, books, role playing, and guest speakers which may be more effective than the lecture "channel" alone. There are also assignments or special projects which may be completed outside of the classroom.

When applying the marketing concept in their teaching, faculty are answering Dewey's call (1902) for a student-oriented approach to teaching rather than a subject-oriented one. Great teaching requires the masterful interaction of someone who understands content and understands the complexity of making knowledge accessible to learners (Shulman, 1989). It is necessary, but not sufficient, for educators to be current in the theory and practices of their discipline. They must also function as enthusiastic, credible facilitators of learning (Garrett, 1993). Instructors should clarify their lectures with examples, using up-to-date appropriate anecdotal stories, those which have relevance to both the topic being covered and to the students' personal lives.

In the lecture method, students are expected to receive, memorize, and recite. However, for many of today's students, the lecture method on concepts, if not illustrated with everyday events, is neither a meaningful nor productive method of learning. Research has shown that college students learn better when they are actively participating in the analysis of what is being said rather than passively listening the speaker's conclusions (Erikson, 1984). Educators are incited to move from the podium/lecture mode to becoming the "guide on the side" (Millis, 1990), and share in the teaching/learning process. Many professors recognize that experiential learning can be useful in conveying information, inspiring students to learn, and generating their interest in the marketing concept. Using this strategy, teachers no longer act like experts imparting knowledge to students; they are guides, not authority figures (Watkins, 1989). Through use of these learning strategies such as cooperative learning or experiential learning, knowledge construction becomes an active participatory process.

PEDAGOGY IN A FOREIGN COUNTRY

Whatever the pedagogical strategy, a professor is providing a marketing education, using implicit (captivating lectures) and/or explicit (experiential or cooperative learning) interactive approaches with his/her students. These possible interactive approaches result from a shared cultural environment, a shared cultural environment which does not a priori exist between an educator and his/her students using a foreign language, with "strange" stories from the outer world, in a foreign country, where the faculty has been freshly immersed.

Ogbu (1985) cites research from the past two decades which points to one source of students' classroom learning difficulties: conflicts which arise from differences between culture and language of the student and those of the school, within the U.S. system of education's context. One can imagine the students' classroom learning difficulties when a U.S. faculty tries, with American tools, to deliver some marketing education to a Moroccan student

in his/her own cultural environment. Here the core curriculum content is not at stake, only the means of delivery is taken into consideration. For example:

- A faculty is covering traditional and contemporary marketing and business topics, but the foreigner have a different comprehension of the traditional and contemporary.
- In a foreign country, the freshly immersed educator has very little knowledge of what is relevant to the students' personal lives. Has Southwest Airlines' strategy any relevance in a country where, first Southwest is unknown, and second there is only one state-owned and operated airline?
- A faculty is using many examples involving people making marketing decisions that students can easily relate to concepts, but do Michael Eisner or Fred Smith's names ring any bells to a foreigner?
- A faculty is alerting students to special marketing topics, such as ethics, social responsibilities and customer value. But can one define ethics, social responsibilities or customer value in a political-economical-cultural system with a different set of values? For example in a country where ladies cannot have a drink in a cafe, even with their spouses, or have to eat in the kitchen when their husbands are entertaining guests at their own dining room tables?
- A transplanted faculty is using a U.S. textbook and support related materials, such as CNN, ABC, or CBS's videos, cases, or transparencies made by Americans for Americans. A transparency representing the evolution of the percentage of African-Americans in the U.S. population from today to the year 2010 is of low interest to a Moroccan student which would prefer some information on the Moroccan population's explosion.

Reciprocally, many basic elements of day to day existence in Morocco that one takes for granted, are completely new and unusual to someone arriving from anywhere else in the world. In summary, an expatriate educator cannot "think sad serve his or her customers (the students), without a good knowledge of the needs of those customers.

OFF BASE APPROACH TO LEARNING AND TEACHING

When teaching in an unknown environment with the typical tools of a U.S. school of business, the instructor can only be a "sage on the stage," trying to make explicit the cold concepts or trying to use some U.S. unadapted images, examples and stories rendering his or her explanations still more obscure. Of course, the instructor cannot move from the role of the "sage on the stage" to the "guide on the side", and use a cooperative or experiential learning approach without a perfect knowledge of the "customer's needs" (Millis, 1990).

The majority of the students come from the Moroccan school system where one has little leeway for initiative or personal creativity. It is a more regimented approach to learning, depending on teachers for guidance within a framework characterized by conformity and uniformity. At Al Akhawayn, following the American model, each student is encouraged to

pursue those options which further his or her own interests and aptitudes. This can not be done without the advice of faculty. The student does not respond to this type of guidance, for which he/she is not culturally prepared. The goodwill educator, is ill-prepared to advise out of his/her frame of reference. Students are not looking for any after sale service,... and foreign educators cannot indeed safely deliver it.

CONCLUSIONS

Contrary to its objectives, Al Akhawayn University may have suffered from this import of foreign faculty, in spite of their goodwill. The U.S. marketing education in its form is not easily exportable. The U.S. marketing education format is efficient in its own environment,... but it is not a global product. The product requires customized anecdotes, examples, and stories when a palatable lecture form is adopted. The product delivery does require a local experience, i.e. a perfect knowledge of the environment when experiential or cooperative learning techniques are applied. The global product approach must be rejected. The "educational marketing mix" must be customized: the product may be global, but its packaging must be modified; students have some bearing on the channel of communication to be created. The delivery of the marketing education must be tailor made. These delivery methods include infusing foreign (here Moroccan) culturally related materials, examples, and stories in textbooks sensitive to proper local issues of race, gender, ethnicity, class and difference.

> **- If teaching marketing is activating students' prior knowledge (Shulman, 1989) and then developing a set of interactive representations—metaphors, analogies, examples, stories and demonstrations—that will make their knowledge visible, correct them when they are off base, and help them generate (and revise) their own personal representations; and**
> **- If teaching is telling stories to connect students' lives, experiences, voices, passions, and issues with course content, themes and issues (Frederick, 1991; Jalongo, 1991), then the teaching of marketing in a country by foreign professors is an erroneous if not hazardous operation for most courses in the marketing curriculum.**

Great teaching cannot be expected since the educator will be lacking the local examples, anecdotes, stories, business events which will allow the educator to enhance the listener's ability to understand the marketing concepts and strategies. Great teaching cannot be expected since the educator will not be able to move from the formal lecture to some more advisable teaching styles such as cooperative of experiential approaches.

Teaching of "domestic marketing" must be made by "domestic teachers", i.e. natives.. or foreigners with a sufficient experience in the life of the country: a person sharing and understanding the student's environment and system of values. The abrupt transfer of a U.S. faculty in the marketing education domain from the U.S. to another country, with his/her U.S.

marketing education paraphernalia, is not recommended, when the cultural environment is fundamentally different.

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