

## MNC KNOWLEDGE TRANSFER, GLOBAL INTEGRATION, AND LOCAL RESPONSIVENESS IN BRAZILIAN SUBSIDIARIES

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### ABSTRACT

This paper is based on a sample of 104 subsidiaries of multinational corporations (MNCs) operating in Brazil. It investigates the mechanisms of knowledge transfer in marketing and their relationship to the strategic positioning of the subsidiaries (i.e. global integration and local responsiveness). A positive correlation between the level of global integration and the intensity of knowledge transfer was statistically confirmed and the main mechanisms of knowledge transfer were also revealed. Some widely accepted theories about knowledge transfer in MNCs were empirically confirmed. Finally, this study provided the opportunity to develop several specific insights about knowledge transfer in marketing in the Brazilian context.

**Keywords:** knowledge transfer. global integration. brazilian subsidiaries.

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## 1 INTRODUCTION

Different from previous research, which has focused mostly on technological knowledge transfer, this study looks at knowledge transfer in marketing. With few exceptions (INKPEN; BEAMISH, 1997), the knowledge of marketing still calls for more attention as a relevant source of competitive advantage that can be transferred within multinationals (TSENG, 2006).

In this context, this study has two objectives: (1) to examine the relationship between the global strategies of global integration and local responsiveness in relation to the transfer of knowledge of marketing in Brazilian subsidiaries; (2) to verify which mechanisms are considered more important and used more widely by Brazilian subsidiaries.

Research in the area indicates that the capacity of generating and transferring knowledge is one of the main sources of competitive advantage for multinationals. A multinational is considered to be a "differentiated network", where knowledge is generated in various parts and transferred to various inter-related units (MINBAEVA *et al*, 2003).

Various authors have discussed the process of knowledge transfer from headquarters to subsidiaries, or even among the subsidiaries of multinationals. The main contribution of this study is its analysis of knowledge transfer to Brazilian subsidiaries within a marketing context.

## LITERATURE REVIEW

### Global Strategy

One of the most important issues for an MNC's international business operations is its decision-making process regarding global strategy. Global strategy refers to the corporate competitive principles that are adopted when MNC's compete with global competitors and local firms in worldwide markets. It is comprised of the building and operating the global value chain activities, the allocation of resources and the establishment of subsidiaries worldwide (YIP, 1995).

Global strategy corresponds to decisions regarding go-to-market strategy. The managers of multinationals coordinate the implementation of this strategy in various business units, in different parts of the world, with varying economic and cultural conditions.

Two types of global strategies are described by Yip (1995): 1) strategy of global integration and 2) multi-domestic strategies, which foresee local adaptations. In the first strategy, the headquarters coordinate all of the activities, such as production, distribution and logistics, among the subsidiaries and the subsidiaries implement these decisions. The objective of the integrated global strategy is to increase global efficiency and to reduce the costs of the multinational as a whole. The multi-domestic strategy is focused on the local response, foreseeing local adaptations as a result of the realities found in the local markets.

Parallax *et al* (1981) define that globalization and local pressures are forces acting upon the multinational, further influencing its strategy. To verify the form by which multinationals carry out their business in relation to these two forces, the authors suggest the elaboration of a map that analyses the level of global integration versus the level of local responsiveness. They apply this analysis to different segments, such as the Chemical, Automotive Industry, Pharmaceutical, Telecommunications Services, Retail Banks, Retail Foods segments, among others. According to the authors, it is possible to perceive that some industries act with a high level of global integration and little local responsiveness, since the demands are similar on a global basis. On the other hand, others need a high degree of local responsiveness, and, these, in general, have little global integration.

### **Knowledge transfer within MNC's**

Knowledge is a plurality concept with various meanings (NONAKA, 1994). This study will adopt the definition of knowledge as one of the main strategic assets of the organization and that “companies are efficient means through which knowledge is created and transferred” (KOGUT; ZANDER, 1993, p.627).

Knowledge can be classified as tacit and explicit. Tacit knowledge is more personal, hard to communicate, and highly specialized. Explicit knowledge is codified and transmitted more easily (NONAKA; TAKEUCHI, 1996). The flow of knowledge inside multinationals involves both tacit and explicit knowledge.

Knowledge of marketing is the know-how required to execute marketing activities. It includes marketing research, channel operations, promotions, product development, communication strategy and marketing information systems. Marketing knowledge is one of the main sources of competitive advantage that a multinational can have when entering

foreign countries. Many multinationals that become market leaders have developed excellent marketing capacities.

Knowledge of marketing is different from the knowledge of technology, since the last is focused on research, product development, equipment design and manufacturing. Starting with its characteristic of continuity, technological knowledge can be documented, codified and more easily transmitted; for instance, the development of new technologies is generally based on a technology that has been previously defined. However, the knowledge of marketing is different, for it involves long periods of experience and adjustments, and depends on the reactions of the target market and on the behavior of the consumer and competitors (TSENG, 2006).

### **Mechanisms of knowledge transfer**

Foss and Pedersen (2004) indicate that the lack of systematic research on the process of knowledge transfer in multinationals results in a collection of heterogeneous articles. The authors have analyzed five articles related to the process of knowledge transfer in multinational corporations.

According to them, the process of knowledge transfer may occur among the subsidiaries by means of international alliances, or from the headquarters to the subsidiaries. The mechanisms that the organizations have been using in this process are broad and include: strategic decisions (foundations the objective of the subsidiaries), use of expatriates, coordination, power, cultural changes and systems. The samples generally include subsidiaries, in addition to companies with strategic alliances and joint ventures. There is a preference for quantitative methods, using different analyses, from multiple regressions to the model of simultaneous and structural equations.

Regarding the content of the five articles analyzed, the authors have identified the importance of the use of mechanisms of incentive, such as the criteria of evaluation of the subsidiaries and socialization mechanisms. The relationship among subsidiaries directly influences knowledge transfer. The capacity of the headquarters to stimulate knowledge transfer (?) is also an important motivation factor of the process.

Some mechanisms for knowledge transfer are often cited in the literature. They are: (1) corporate portals and Intranet; (2) best practices; (3) training, and (4) expatriates, which will be analyzed in the empiric section of this article.

## METHODOLOGY

Based on the literature review, we developed two hypotheses:

**Hypothesis 1.** Knowledge transfer in the marketing area of Brazilian subsidiaries of MNC's varies according to the level of global integration and the level of local responsiveness.

**Hypothesis 2.** Knowledge transfer in the marketing area of Brazilian subsidiaries of MNC's varies according to the mechanisms used, including: corporate portals and Intranet; best practices; training; executive travel; expatriates.

### Data and method

A careful process was used to develop the questionnaire for this study. The items/scales used in this study drew on established research (Minbaeva *et al*, 2003; Lasserre, 2003; Huselid, 1995; Wright *et al*, 1998; Kogut; Zander, 1993). In addition, five experts in Marketing, Knowledge, Methodology and Management were asked to review the questionnaire and provide feedback. The questionnaire was then administered to 5 managers (not part of the sampling frame) in order to get their feedback before the final version was developed.

Multinationals from 11 countries of origin were chosen: Germany, Spain, United States, France, Holland, Italy, Japan, Portugal, Sweden, Switzerland, and England. These countries were selected for they are active investors in Brazil, as reported in *Exame Maiores e Melhores* magazine (2007, p. 197).

In all, a list of 2.100 companies was obtained with the Chambers of Commerce of Brazil and these countries, such as the AMCHAM, SWISSCAM, DUTCHAM, Chamber of Japan, among others. The questionnaire was available on-line, during the period of June, July, and August 2007, so that it could be filled in by the managers and officers of these multinationals. Four e-mails were sent to the contacts indicated by the Chambers of Commerce, as well as follow-up phone calls, to stimulate the auto-completion of the questionnaire. Thus an auto-selected sample was obtained, meaning that the data was obtained through the voluntary response of the selected company employees.

Due to missing data, only 104 questionnaires were used in our data analysis. The identification of the name, e-mail, and date of contact of the respondents was optional and

was made by 85.6% of the respondents. Table 1 presents a summary of the profile of the respondents and companies that composed the sample.

**Table 1- Profile of the companies and respondents**

Item	Results
<b>Respondents</b>	68.3% Managers and Directors; 24.0% Coordinators; 7.7% other. <b>Areas:</b> 55.8% Marketing; 18.3% Sales; Adm. 8.7%; Operations 6.7%; Other 10,5%.
<b>Control variables</b>	60% mentioned in the <i>Exame Maiores e Melhores</i> magazine (2007), with invoicing greater than US\$ 109.3 Million. <b>Subsidiary size:</b> 12.5% small (less than 100 employees); 23.1% medium (between 101 and 500 employees); 64.4% large (more than 500 employees) <b>Industry:</b> Chemical / Petrochemical and Pharmaceutical – 26%; Consumption Goods / Electro-electronics – 23% Services, Financing, and Insurances – 17% Digital and Telecommunications Industry – 14% Automobile Industry – 10%; Other Industry – 10% <b>Country of origin:</b> Europe 50%; United States 36%; Japan 11%; Other 3%. In Europe: Switzerland 16%; Holland 8%, Germany 7%, England 7%. <b>Subsidiary age:</b> average of 40 years, standard deviation of 31 years. Median: 33.5 years, min: 1 and max: 131 years <b>Strategy mission:</b> average of 4.01 with standard deviation of 0.97

Source: Elaborated by the authors.

As recommended by existing theory (Minbaeva *et al*, 2003), some variables were used as control variables for the analysis of the Brazilian subsidiaries. These were: a) *subsidiary size*; b) *industry*; c) *country of origin*; d) *subsidiary age*; e) *strategy mission*. The main results are presented in Table 1.

The answers, after the procedures of verification and consistency, were processed with the use of the SPSS statistic package, version 15.0, using uni, bi, and multi-varied routines.

It is important to stress that the conclusions generated by the statistical analysis carried out for this study were approached very carefully, since the sample obtained and used was a convenience sampling technique, auto-selected; that is, the data was obtained through the voluntary answer of the companies. The limitation of the using this type of sample is that the study does not provide support for the use of purely statistical criteria aimed at making inferences about a broader universe of companies.

## Measures

All data used in the analysis were from the administered questionnaire and all variables were standardized prior to the development of indices.

- **Variable Transfer of knowledge**

As proposed by Minbaeva *et al* (2003, p. 592), we define the level of **knowledge transfer** based on the level of knowledge utilization by the recipients assuming both acquisition and use of new knowledge. Accordingly, the subsidiaries were asked:

- To what extent they utilize the knowledge of marketing received from the parent company? The variable presented an average of 3.6 and standard deviation of 1.0.
- To what extent they utilize the knowledge of marketing received from other MNC units? The variable presented an average of 3.1 and standard deviation of 1.1.

These questions used a five-point Likert-type scale, where 1 indicates no use of knowledge and 5 indicate substantial use of knowledge.

These questions were grouped through factorial analysis to identify common dimensions that could be represented by a single factor, what we called the “Knowledge Transfer Factor”.

**Table 2 – Creation of the Knowledge Transfer Factor**

Description	Knowledge Transfer Factor	Communality
V19 – Extent to which the knowledge received from the Headquarters is used	.884	.781
V20- Extent to which the knowledge received from other subsidiaries is used	.884	.781
KMO	0.50	
Explained Variance	78.0%	

Source: Factorial analysis results.

According to Table 2, the single factor created of knowledge transfer explains 78% of the variables.

- **Variable Global integration and local responsiveness**

Two variables were created to evaluate the global strategy of the MNC: *global integration* and *local responsiveness*. These variables were measured using the questionnaire proposed by Prahalad *et al* (1981) and adapted by Lasserre (2003, p.27). The Brazilian

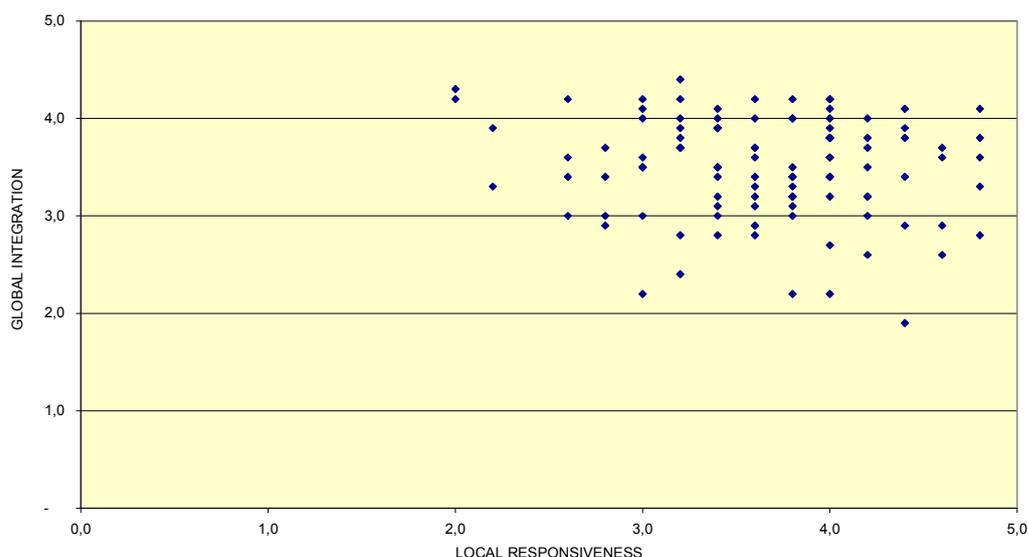
subsidiaries were approached with 15 questions, using the Likert-type scale ranging from 1 to 5.

a) The need for *global integration* corresponded to items 1 to 10, where 1 means that the company operates with little need for global integration, and 5 with a great need. The average of these 10 items originated a grade ranging between 1 and 5, that was put on the vertical axis of the positioning grid (Figure 1). The minimum value obtained was 1.9 and the maximum, 4.4, with an average of 3.48 and standard deviation of 0.53.

b) The need for *local responsiveness* corresponded to items 11 to 15 of the questionnaire, being assessed with grades ranging between 1 and 5, where 1 meant low local responsiveness and 5, high local responsiveness. The average of these 5 items originated a grade ranging between 1 and 5 that was put on the horizontal axis of the positioning grid. The minimum value obtained was 2.0 and the maximum, 4.8., with an average of 3.65 and standard deviation of 0.64.

In Figure 1, the answers of the 104 researched companies are represented by the dots, with the vertical axis representing the level of global integration with which the company works, and the horizontal axis representing the level of local responsiveness. The closer the level of global integration is to 5, the more the company operates integrated worldwide. The closer the level of local responsiveness is to 5, the greater of the degree of local responsiveness of the company.

**Figure 1– Global Integration x Local Responsiveness Grid**



Source: Variables obtained from the questions proposed by Lasserre (2003, p.27)

Comparing this result with the theory, it is possible to note that the Brazilian companies work with a high level of local responsiveness, which means that the subsidiaries produce products and services adapted to the national reality.

- **Mechanisms of knowledge transfer**

A few mechanisms of knowledge transfer were evaluated, including the variables: a) *corporate portals and Intranet*; b) *best practices*; c) *training*; d) *executive traveling*; and e) *expatriates*. The questions were prepared based on Minbaeva *et al* (2003), Björkman *et al* (2004), in addition to Foss and Pedersen (2004).

a) The use of *corporate portals* and the *Intranet* was defined for the knowledge transfer based on the level of use with two questions, V21 and V22 of the questionnaire, using the Likert-type scale ranging from 1 to 5, where 1 indicated non-use and 5 indicated substantial use.

V21) To what extent does the company use Corporate Portals and Intranet for the knowledge transfer between the headquarters and the Brazilian subsidiary?

V22) To what extent does the company use Corporate Portals and Intranet for the knowledge transfer among subsidiaries?

The results obtained to V21 presented an average of 3.92 with standard deviation of 1.25, and to V22 presented an average of 3.73 with standard deviation of 1.35.

b) The level of use of the *best practices* received was defined, including the knowledge acquired and used. The subsidiaries were approached with question 23, using the Likert-type scale ranging from 1 to 5, where 1 indicated non-use and 5 indicated substantial use.

V23) To what extent your company discloses and uses best global practices. The result obtained presented an average of 3.85 with standard deviation of 1.07.

c) The extent to which subsidiaries apply *training* is measured through two items, considering headquarters and other subsidiaries, questions V24 and V25, Likert-type from 1 to 5, where 1 indicated non-use and 5 indicated substantial use.

V24) To what extent your company uses training for the knowledge transfer from the headquarters to the Brazilian subsidiary.

V25) To what extent your company uses training for the knowledge transfer among the subsidiaries.

The results obtained for V24 presented an average of 3.64, with standard deviation of 1.22, and for V25 presented an average of 3.2 with standard deviation of 1.25.

d) The level of use of *executive traveling* (Marketing and Sales Officers and Managers) has been defined as an instrument for the exchange of global knowledge. The subsidiaries have been approached with question 26, using the Likert-type scale ranging from 1 to 5, where 1 indicated non-use and 5 indicated substantial use.

V26) How frequently (?) does your company use traveling of Marketing and Sales Officers and Managers in order to promote the exchange of global knowledge?

The results obtained in V26 were the following: an average of 3.77 with deviation of 0.99.

e) The *expatriates* are employed in the MNCs as vehicles for the knowledge transfer from one unit to the other (Minbaeva, 2003). The greater the number of expatriates in a subsidiary, the more the knowledge that can be transferred (Downes and Thomas, 2000; Bonache and Brewster, 2001). The subsidiaries have been approached with question 27, using the Likert-type scale ranging from 1 to 5, where 1 indicated non-use and 5 indicated substantial use.

V27) To what extent your company uses expatriates for the exchange of global knowledge in the Marketing area.

The results obtained in V27 were the following: an average of 3.08 with deviation of 1.22.

The 9 variables of Table 3 could be reduced to 4 factors, with total explained variation of 75.7%. Due to the communalities, these four factors created explain more than 60% of each original variable. The center of Table 3 shows the factorial loads, i.e., the correlations between the variables and the factors.

**Table 3– Description of the Variables and Factors**

Description	Factors				Communalities
	1	2	3	4	
Global Integration	.004	.803	.188	-.015	.681
Local Responsiveness	-.054	-.081	-.061	.986	.986
V21 – Portals and Intranet Headquarters	.835	.094	.329	-.074	.820

V22 – Portals and Intranet Other Subsidiaries	.855	-.061	.326	-.018	.842
V23 – Best Practices	.795	.201	-.102	.031	.683
V24 – Training Headquarters	.601	.582	.051	-.149	.726
V25 – Training Other Subsidiaries	.577	.520	.052	-.153	.629
V26 – Traveling	.278	.454	.599	-.055	.645
V27 – Expatriates	.091	.092	.886	-.045	.803
Variance Explained as per Factor	31.6%	17.0%	15.7%	11.4%	
Auto-value	2.84	1.53	1.41	1.03	
KMO	0.717				
Variance Explained	75.7%				

Source: Factorial analysis results.

Each factor was subject to the identification of the variables strongly related to such factor. The name of each content of the factor is generated following its analysis. Thus, 4 *constructus* have been extracted, which are: Factor 1 – Transfer mechanisms; Factor 2 - Global Integration; Factor 3 – Traveling and Expatriates; Factor 4 - Local Responsiveness.

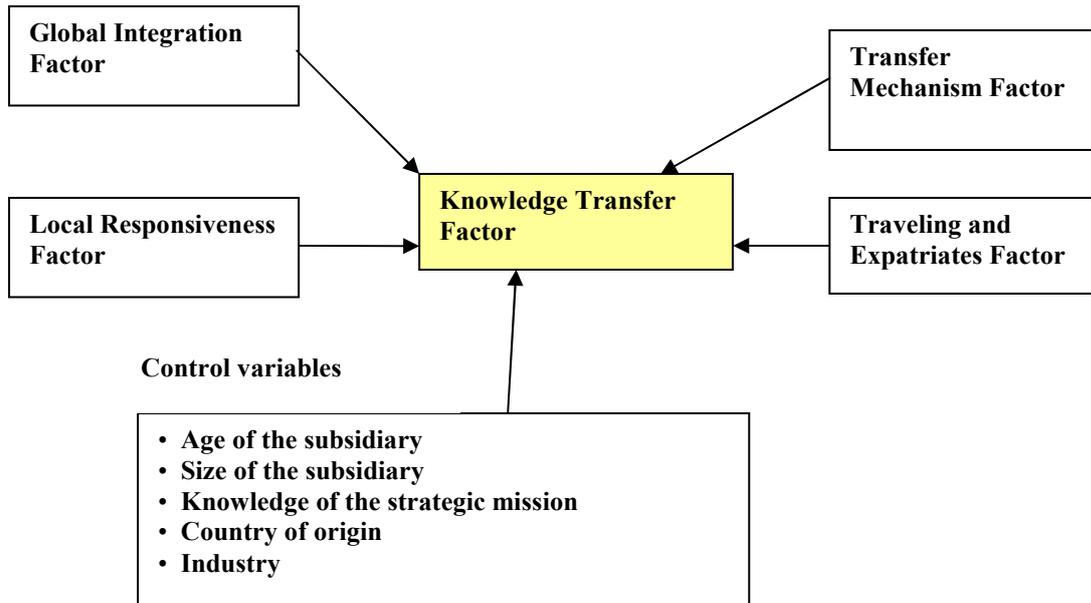
## FINDINGS

### Verification of Hypothesis 1

In order to verify Hypothesis 1, which relates the transfer of knowledge in the marketing area received by the Brazilian subsidiaries with the level of global integration and the level of local responsiveness carried out by the company, a multiple regression was carried out with factors obtained and variables of control, as illustrated in Figure 2.

In the center, we have the dependant variable of knowledge transfer and as independent the four factors created and the control variables. The idea was to verify which independent variables and control variables explain the knowledge transfer. The results of multiple regression are presented in Table 4.

### Figure 2 – Conceptual Model for Multiple Regression



Source: Elaborated by the authors.

**Table 4 – Indicators of the estimated regression**

Source	SQ	g.l.	M.Q.	F	Sig	R	R2	R2 Adjust	Stand. Error
Regression	23.146	3	7.715	9.662	.000	.474	.225	.201	.893
Residue	79.854	100	.799						
Total	103.000	103							

Source: Elaborated by the authors.

The results in Table 4 show that only 3 independent variables had influence on the results of the dependent variable of knowledge transfer, and that these together explain 20% of the transfer factor. All the independent variables were significant at 5%, with exception of the local responsiveness, with significance at 15%. Despite this fact, it was kept to increase the explanation (adjusted R2) from 19% to 20%.

The three variables that presented influence were: global integration, local responsiveness, and mechanisms, as shown in Table 5.

**Table 5 – Coefficients of the estimated regression**

Model		Non-Standardized Coefficients		t B	Sig. Std. Error
		B	Std. Error		
1	(Constant)	0	.088	.000	1.000
	Mechanisms	.407	.088	4.620	.000
	Global	.207	.088	2.356	.020
	Local	-.127	.088	-1.446	.151

Dependent Variable: Transfer

Source: Elaborated by the authors.

Based on Figure 3, it is possible to build the formula of the estimate of knowledge transfer in Brazilian subsidiaries from the factor of mechanisms, global integration, and local responsiveness.

**Figure 3 – Formula obtained from the Multiple Regression**

$$\text{Transfer} = 0.407 \times \text{Mechanisms} + 0.207 \times \text{Global Integration} - 0.127 \times \text{Local Responsiveness}$$

Source: Elaborated by the authors.

Establishing the *global integration* and the *local responsiveness*, the more mechanisms are used, the greater will be the transfer of knowledge. Similarly, establishing the mechanisms and the *local responsiveness*, the more the level of *global integration*, the more will be the transfer of knowledge.

On the other hand, establishing the mechanisms and the level of *global integration*, the greater the level of *local responsiveness* of the company, the lower will be the transfer of knowledge carried out.

## Verification of Hypothesis 2

The Likert-type scale variables (V21 to V27) were used for the verification of Hypothesis 2, which aimed to identify the mechanisms of transfer of knowledge deemed more important and most used. The question (V36) requested the interviewee to ordinate the mechanisms of knowledge transfer deemed the most important for the Marketing area, using 7 for the most important and 1 to the least important, as well as NA when such item did not apply to the reality of the company.

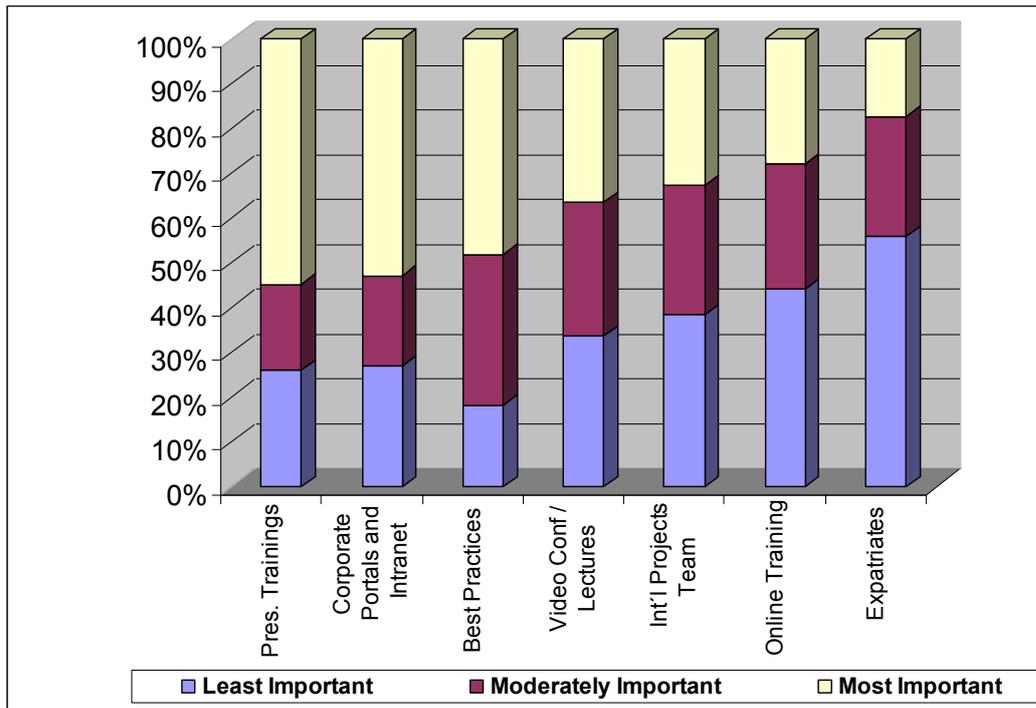
The answers of the order of importance attributed to the various mechanisms are presented in Figure 4 that shows the various types of mechanisms on the horizontal axis, and on the vertical axis, the importance attributed, grouped in 3 ranges: least important (grades N/A, 1, 2); moderately important (grades 3 and 4); most important (grades 5, 6, 7).

**Face-to-face trainings** were considered as least important by 26% of the interviewees, moderately important by 19%, and most important by 55%. This result indicates that this is one of the most important practices used by Brazilian subsidiaries for knowledge transfer in the Marketing area.

Carrying out an hypothesis p-value test for crossing variable V24 (use of training for the transfer of knowledge) with the answer of relevance given to the face-to-face training, it

was possible to obtain in the Fisher's exact test a  $p = 0.012$  that, since it is smaller than 0.05, confirms the hypothesis that there is an association between the use of training and the relevance of face-to-face trainings, to the extent that the more important the training is considered, the more it is used by the Brazilian subsidiaries.

**Figure 4- Mechanisms x Order of importance attributed**



Source:

Elaborated by the authors.

**Corporate portals and intranet** were evaluated as least important by 27% of the interviewees; 20% evaluated it as moderately important, and 53% as most important. This was the second largest percentage of most important, indicating that this is also a very important practice used by the Brazilian subsidiaries for the transfer of knowledge in the Marketing area.

Carrying out a hypothesis p-value test for crossing variable V21 (use of corporate portals for the transfer of knowledge between the headquarters and the subsidiary) and variable V22 (use of corporate portals for the transfer of knowledge between subsidiaries) with the answer of importance given to the corporate portals and Intranet, it was possible to obtain in the Fisher's Exact Test a  $p = 0.012$  and  $p = 0.013$ , respectively, that, since they are smaller than 0.05, confirms the hypothesis that there is an association between the use of

corporate portals and the importance given to the corporate portals and Internet, to the extent that the more important the portal is considered by the subsidiary, the more it is used.

It is important to stress that, from all mechanisms arranged, this was the only one that obtained relevance when crossed with the variable size (small, medium, and large) of the company, with  $p=0.036$  in the Fischer's exact test. This can be interpreted as: the larger the company, the more important it is considered by the manager and the larger is the use of Corporate Portals and Intranet as a mechanism of knowledge transfer in the Marketing area.

**Best practices** were considered by 18% as least important; 34% as moderately important; 48% as most important. This result shows the significant relevance of this mechanism of knowledge transfer.

Carrying out a hypothesis p-value test for crossing variable V23 (to what extent your company uses and discloses the best global practices) with the answer of relevance given to the best practices, it was possible to obtain in the Fisher's exact test a  $p= 0.06$ , which demonstrates, with a level of relevance of 10%, that there is an association between the use of best practices and the relevance given to the best practices. The more important the subsidiary considers best practices, the more this mechanism of knowledge transfer is used.

The mechanisms of **video conference and lecture** were considered by 34% as least important; 30% as moderately important; 37% as most important. These results indicate that this item had an intermediate result, not being one of the most used mechanisms, nor presents such low values as those of expatriates, on-line training, and international projects teams.

**International projects teams** were considered by 38% as least important; 29% as moderately important; 33% as most important. This result points out that this practice is not yet very common in Brazilian subsidiaries.

**On-line trainings** were evaluated as least important by 44% of the interviewees; moderately important by 28%, and as most important by 28%. Compared to the other results, this is a practice not yet very common for the transfer of knowledge in the Brazilian subsidiaries.

**Expatriates** were pointed out by 56% of the interviewees as least important, moderately important by 27%, and as most important by only 17%.

Carrying out a hypothesis p-value test for crossing variable V27 (use of expatriates for the knowledge transfer) with the answer of relevance given to expatriates, it was possible to obtain in the Fisher's exact test a  $p<0.001$ , that, since it is smaller than 0.05, confirms the hypothesis that there is an association between the use of expatriates and the relevance of the

item expatriates, in a manner that the little importance given to the expatriates by 56% of the interviewees is related to the little use of expatriates in Brazil. One possible reason for this reduced number of expatriates may be the physical distance of the main countries of origin: United States, Japan, and European countries to Brazil, or even the fact that the subsidiaries of multinationals in Brazil included in the sample already have a high level of consolidation and maturity of their operations.

Confronting the results obtained with hypothesis H2, it is possible to verify that it has been partially confirmed, since the mechanisms indicated as important and mostly used were: **face-to-face training; corporate portals and Intranet and best practices. Expatriates** were considered as least important and little used by the Brazilian subsidiaries.

## CONCLUSION

The analysis of the data from the survey allowed a series of inferences statistically relevant in relation to the sample researched. Among the main inferences, we highlight:

- Although the researched companies were in general globally integrated, this study also showed them to have a strong component of local responsiveness of their products and services;
- There is a positive correlation between the level of global integration and the intensity of knowledge transfer received by the Brazilian subsidiaries;
- The main mechanisms of knowledge transfer used by the Brazilian companies are: corporate portals and *Intranet (especially among the large companies)*, exchange of best global practices and face-to-face trainings;
- Expatriates as a mechanism of knowledge transfer seems to be little used among the subsidiaries of MNCs operating in Brazil;
- The greater the need for local responsiveness, the lower is the intensity of knowledge transfer from the headquarters to the subsidiaries.

This research also verified that the knowledge transfer to the Brazilian subsidiaries can be explained with the formula obtained from the multiple regression that indicates that the knowledge transfer is influenced by the mechanisms used, plus the level of global integration

of the company, less the level of local responsiveness. This formula explains 20% of the knowledge transfer.

These results prove Hypothesis 1 that the knowledge transfer in the marketing area received by the Brazilian subsidiaries of multinationals varies in according to the level of global integration and local responsiveness adopted by the company.

Considering the dimension of the mechanisms of knowledge transfer, it was possible to verify that face-to-face trainings were considered as the most important and were highly used. Corporate portals and Intranet were cited as the second most important and highly used mechanism, followed by best practices, also considered as most important and highly used.

One surprise was the fact that expatriates were shown as least important and with little use. It is possible to suppose that this fact is related to the geographic distance between Brazil and the main countries of origin of the multinationals, such as United States, Japan, and European Countries, and the maturity of the subsidiaries of the sample researched (these had an average operating period of 40 years).

Hypothesis 2 was partially proved, since the knowledge transfer in marketing varies according to the mechanisms used, but the expatriate mechanism presented little importance and use.

As mentioned above, the knowledge of marketing has a high tacit component given that it depends on the experience with the local market, which includes the customs of the consumers and the conduct and skills of the competition. Despite this fact, it was possible to verify a certain prevalence of the transfer of more explicit knowledge using the portals, intranet, best practices, and face-to-face trainings that to an extent aim at diffusing some basic methodologies that apply in any context. Tacit knowledge transfer, in turn, the most important in the marketing context, was relegated to a lower level of importance in the group of companies analyzed, with little evidence of significant investments in the transfer of personnel, traveling of executives, and international project teams.

Future research should collect data from multiple respondents to minimize the risk of common method bias. The validity of the current data on knowledge transfer was limited due to the use of only one respondent per subsidiary, a weakness in most international research. Future research should also examine other factors of knowledge transfer such as the relationship between the parties involved, the importance of subsidiary to MNCs, the sender's characteristics, and the characteristics of the knowledge transferred can extend the present model. While this study makes important contributions to our understanding of the

relationship between global integration, local adaptation, mechanisms used, and knowledge transfer in the MNC, clearly, additional research is needed to further develop the field of knowledge management.

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