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Operations strategy for health care services: analysis of competitive criteria and operational recommendations

Estratégia de operações em serviços de saúde preventiva: análise dos critérios competitivos e recomendações operacionais

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Abstract: The growing concern with human health has led to a significant increase in the practice of sports, which in turn, resulted in the development of the fitness sector. Managers are seeking solutions that attract more clients to their studios. This service area has grown and customers can be seen as part of this service. This paper analyzes the competitive criteria, lacking studies in the service area, and makes operational recommendations for health services such as physiotherapy, preventive gymnastics, Pilates, among others. The aim is to help managers with a consistent set of decisions about service operations, such as having strategic position in relation to premises, people, equipment, communication material, symbols and price. Data was collected through personal interview with 96 respondents in the south of Brazil. First through qualitative exploratory research and then through quantitative research. Statistical analysis was performed using the method of conjoint analysis through SPSS18 computer program. Results demonstrated the order of importance of criteria, such as service customization, referral, proximity and price, for determining the suggested operational recommendations.

Keywords: Service operations; Competitive criteria; Conjoint analysis.

Resumo: *A crescente preocupação com a saúde tem levado ao aumento significativo da prática de esportes. Devido a isto, a área de fitness tem se inovado. Os gestores estão buscando soluções que atraiam cada vez mais adeptos para seus estúdios. A área de serviços tem crescido constantemente e o usuário é visto como parte deste serviço. Este trabalho analisa os critérios competitivos, pouco estudados na área de serviços, e realiza recomendações operacionais para serviços de saúde, tais como de fisioterapia, ginástica preventiva, pilates, entre outros. O intuito é auxiliar os gestores com um conjunto de recomendações de operações em serviços, como ter posicionamentos estratégicos em relação às instalações, às pessoas, aos equipamentos, ao material de comunicação, aos símbolos e ao preço. Os dados foram coletados, por meio de entrevistas pessoais, com 96 entrevistados na região do sul do Brasil. Foi realizada, primeiramente, a pesquisa exploratória qualitativa e, em seguida, a pesquisa quantitativa. Para análise estatística, foi utilizado o método de análise conjunta por meio do programa computacional SPSS18. Os resultados evidenciaram a ordem de importância dos critérios competitivos, tais quais: atendimento, indicação, acesso físico e preço, determinantes para as recomendações operacionais sugeridas.*

Palavras-chave: *Operações de serviços; Critérios competitivos; Análise conjunta.*

1 Introduction

The service sector is one of the most important sectors for the economy, accounting for about 70% of Gross Domestic Product - GDP and 75% of jobs in Brazil (IBGE, 2011). Similar results are found in other countries (Oliveira & Roth, 2012; Chase & Apte, 2007), showing the importance and relevance of services to the economy of countries. Among the services that have distinguished themselves in Brazil, we can highlight the health sector and, more specifically, preventive health and high contact services, such as physical therapy, preventive gymnastics, gymnastics pilates, physiatry, acupuncture, among others. For example, health club services grow about 10% per year. According to General Registry

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Information Labor and Employment of the Ministry of Labor, the physical activity services segment reached in January 2010 a stock of 33,987 formal jobs, representing an increase of 23% compared to January 2007, only to illustrate the importance of the sector.

To stay competitive in the market, companies need to plan and produce its services according to what customers want. One of the challenges in the provision of services is the simultaneity of service delivery, as the production and consumption are performed at the same time (Sampson, 2000). Some questions regarding the presence of users in service delivery are: is the interest of the service provider to have physically present user at the time of the "production" of the service when there is the physical presence of the user, the desktop was living according to what users want? Both the "production" and consumption by the user involve the purchase of the service due to this the user's presence is essential for the implementation of service (Bowen, 1986).

The provision of preventive health and a high contact services bring additional challenges to the operations strategy, as the contact with the client during the production process can impact the health and the user's well-being. As example, Sampson (2000) presents a case where the patient went to the dentist and the procedure performed left the patient's tooth in pain. In this case the dentist destroyed value instead of creating it. That is, if the service is not provided so that both parties talk to each other, especially in health, treatment of a problem can lead to another, sometimes worse. Taking the example of a gym which, according to Santos et al. (2011), is of high contact with the user services, which participates as co-producer. If the services of a fitness facility are not provided with the help of qualified professionals, then users may have an injury. Another example is the fitness pilates, according to the website of Earth News (Terra, 2013), if not performed correctly, can bring problems to health. The same rationale applied to other preventive health services that involve the body and health of people.

From a theoretical point of view, there is a lack of empirical studies on service strategy operations (Roth & Menor, 2003). Rieg et al. (2014, p. 277) say

> [...] articles published in the last two decades turn to the description of the strategies adopted by companies and operations analysis of the contribution of this to the business strategy of the company. There are few empirical studies that show the process of formulating these strategies.

The formulation of strategies involves the analysis of operations of services, especially because of the intangibility of them (Fitzsimmons & Fitzsimmons, 2005). For Sampson & Froehle (2006) contact with the user and the intangibility are considered distinct characteristics of services. Sampson (2000, p. 350) it adds that "[...] there is a difficulty in knowing who is the supplier's knowledge when the service involves knowledge, such as health services, which are based on the knowledge of experts in this area". In preventive health services, user participation and the intangible nature of the service makes the production process even more difficult because the user must develop activities that contribute to their own satisfaction.

In this context, the use of competitive criteria can contribute to the strategy of service operations and for its implementation. Barros et al. (2003) say that companies should set some competitive priorities, leveraging resources, skills and opportunities that remain competitive. Identifying competitive criteria of preventive health services can contribute to the design of an operations strategy that can handle the additional challenges posed by this type of service. Furthermore, the use of competitive criteria can contribute to the design of operations that facilitate deployment strategies.

Therefore, this study sought to answer the following research problem: what are the competitive criteria that are most important to the operations of preventive health services? This work aims to map the relevant competitive criteria, from the point of view of users, and present a set of decisions (operations strategy) for preventive health services. To meet this goal, this study used the conjoint analysis technique to explore qualitatively and quantitatively competitive criteria posted by users of fitness pilates services. The qualitative phase involved in-depth interviews with 10 users of the service, while the quantitative stage involved the collection of attendance data for 96 users.

In the next section we will present the relevant theoretical framework presented to the research problem. Then the method, where the population and the sample will be addressed, the variables used, the stimuli, the data collection and joint analysis. After the results, discussion, conclusion and references.

2 Theoretical framework

This section presents the relevance of services in health, operations strategies, services operations and competitive criteria used in this research.

2.1 Services in the field of preventive health

According to Saba (2006), there has been greater attention to the benefits of regular physical exercise. The media and health professionals encourage people to leave the lifestyle, elected by the World Health Organization (WHO) one of the main enemies of health. There was also an increase in demand for gyms, which are characterized by offering adequate space for physical exercise, for profit (Saba, 2006). For Costa (2011), there are several new ways in fitness, however, only some of these remain in the market. However, those services that remain help to changethe history of physical activities and as well as the vision of the people of the benefits of this new modality. So it was with the rise of fitness centers, and so being with pilates. The United States was the first country to receive a studio with this technique. According to Costa (2011, p. 90) "[...] it is estimated that about ten million people practice pilates". In Brazil there is a growth that can be seen by the number of studios, both in gyms, as in physical therapy clinics. "The rapid realization of results encourages more people to join the technique", says physiotherapist Solaine Perini (Costa, 2011, p. 90).

Typically, the high contact feature interaction (as is the case in a physiotherapist pilates studio) needs higher flexibility and requires a lot of skills to be related when practicing this embodiment of sport.The correct specification and management of resources is one of the main functions of operations manager and, so that it can carry out its activities properly, it is crucial that recognizes which degree of user interaction the contact feature is subject (Corrêa & Corrêa, 2010). It is possible to design the service based on the user, from the front line and rear personal staff. This reflects the fact that these services have to balance the decisions in all areas (Johnston & Clark, 2002). Following the concepts are presented relating to operations strategies that will assist in the development of operational recommendations.

2.2 Operations strategies

Skinner (1969) was the pioneer of some strategy settings in manufacturing, with the competitive strategy in companies requires the function operation with the processes. Focusing on operations, he defines the operations strategy as a tool whose main objective is to increase the competitiveness of the organization. Therefore, operations strategy seeks to organize the resources of the company and forming a pattern of consistent decisions, providing a suitable compound performance characteristic that enable the organization to compete effectively in the future (Corrêa & Corrêa, 2010). According to Slack & Lewis (2009, p. 57),

> [...] strategy is usually regarded as the 'standard decisions' that indicates the overall path of the company". Thus, "operations strategy is the general pattern of decisions that determines the long-term skills and their contributions to the overall strategy of any sort of operation, through the reconciliation of market requirements with operations resources.

Paiva et al. (2004) say that there are various definitions for operations strategy, not existing one that is widely accepted. There is an agreement that this definition shall coincide with the company's goals, achieve the objectives of the area of operations, to seek a competitive advantage and focus on a pattern of consistent decisions regarding the operations (Skinner, 1969; Giffi et al., 1990). However, Brown & Blackmon (2005) say that some concepts of operations strategies, including the trade-offs as competing priorities, have been criticized.

Santos et al. (2011) say that there is an increase of topics related to operations strategies in commitments of managers. Montgomery & Porter (1998) say that the strategy involves all and requires commitment and dedication by the entire organization. The inability of any competitor to reorganize and allocate their own resources before a strategic move to a competitor can put any competitive relationship to lose. The operations strategy helps determine the competitive priorities and strategic choices that will help build competitive criteria (Rosenzweig & Easton, 2010).

Companies have to select which dimensions they want to compete as well as they guide their decisions and actions in a coherent manner, seeking to turn them into a source of competitive advantage in the selected size. In order to facilitate understanding, these decisions were classified into nine categories of decision, such that: capacity, facilities, equipment, vertical integration, human resources, quality, scope, and new products, management systems and functional relationship (Paiva et al., 2004). According to Brown et al. (2013, p. 3), "[...] one of the problems that organizations have is not to see the strategic importance of operations management capabilities". Furthermore, underscore the relevance of management for effective competition and, as well, the delimitation of functions aimed at all sectors of organizations. The management operations and mutual benefit between raw materials and end user.

Slack & Lewis (2009, p. 32) say that "[...] one of the biggest mistakes a business can make is to confuse 'operations' with 'operational'. Operating

is the strategic opposite; it means detailed, localized, short-term, and everyday". Also, define the management operations as "[...] the resource management activities and processes that produce and deliver goods and services." The following strategies for specific service operations that will assist in operational recommendations.

2.3 Operations strategy services

"Operations strategy is less related to individual cases and more with the process of total transformation, that is, the business as a whole" (Slack & Lewis, 2009, p. 32). Therefore, the operation of a service is a constant challenge, since the organization's objectives, the needs of users and the command of the employees must be managed simultaneously in a constantly changing environment (Fitzsimmons & Fitzsimmons, 2005). In high contact service operations, the consumer can be seem as "inputs" for the provision of the service, along with the resources and skills of the operation (Corrêa & Corrêa, 2010). The so-called "experience" from the user point of view of service and "service production" from the process point of view is established. Can the user does not have contact with the whole process of service, however, those points that you can form the image of the "experience" favorable or not (Sampson & Froehle, 2006; Frei, 2006).

The degree of intensity of the interaction basically refers to the wealth (range, detail and depth) of the information exchanged in both directions in the interaction and the degree of customization intensity (also called customization) contact. Although the wealth of information exchanged in both directions is relevant to analyze the degree of contact, it is important to note that the flow of information in the user's sense for the service provider has greater weight than the service provider to the user, in determine the degree of interaction (Corrêa & Corrêa, 2010). Chase & Tansik (1983) add that the importance of contact with the user in the service delivery process is essential to the extent that the exchange of information and contact "face to face" are needed (Vickery et al., 2004).

Corrêa & Corrêa (2010) state that the degree of interaction between the user and the process has important implications for the management of the operation. The greater the degree of interaction (especially in terms of how much information the user sends to the process), the more the contact (the one that is the "dialogue" with the user) must be proficient to: i) know "hearing "communication (explicit and implicit) issued by the user; and ii) to interpret what you have heard and know how to react properly to what interpreted. There are studies that evaluate the influence of the user's knowledge to the success of operations. For example, Xue et al. (2007) found that more efficient users in the use of banking services are associated with higher profitability and loyalty.

As Gianesi & Corrêa (1994) and Santos et al. (2011), manage services is different task of managing the production of goods. What is important is to understand the special features of services that make the management of its operations is different from the manufacturing management. These characteristics should always be present in the mind of the manager of service operations, influencing their everyday decisions. According to Kotler & Keller (2010), the services have four main characteristics: intangibility, inseparability, variability and perishability. According to Frei (2006), organizations are able to manage these features know that the user is the key to competitive advantage.

The planning strategies is characterized by achieving the organization's objectives. That said, one has to "[...] quality management to focus and then the supply chain management, the development of relationships with suppliers is closely related to quality management" (Flynn & Flynn, 2004, p. 443). Thus, operations services play an important role in the formation of value provided to the user. The operations function is the heart or the central function of most organizations. It is the function that provides products or services to users, involving design, control and improvement of the system (Kotler, 1992). Following the competitive criteria, an important element for this research are exposed.

Similar to the operations strategy, operations strategy services also starts with the definition of competitive criteria that influence the structure and infrastructure choices, which, in turn, will influence the competitive ability of the company (Roth & Menor, 2003). In addition, the operations strategy services requires an alignment between design and service delivery system with the concept of service and user participation (Ponsignon et al., 2011). This has implications for the definition of competitive criteria, as they are the basis for the whole strategy.

2.4 Competitive criteria

Concepts of competitive criteria were first addressed in the manufacturing sector. Wheelwright (1984) puts as concepts of competing priorities that should be expanded, given the diversity of criteria, in addition to product prices, which may be part of the strategies in manufacturing companies. This set of criteria strengthens the basis for the competitive advantage, which includes quality, reliability,

flexibility, speed, and cost (Slack, 1993). Slack & Lewis (2009, p. 58) have these as

> [...] performance dimensions that define the market position of the company planned. Each performance goal will have an effect in and out of operation, influenced by the importance of the user and performance compared to competitors.

Liou & Tzeng (2012) reinforce the relevance of a set of criteria that can lead to user satisfaction, thereby influencing decision making in choosing the service/product.

However, these competitive criteria began to be studied in service operations as well. Gianesi & Corrêa (1994) say that the determination of the criteria prioritized by users allows the management of operations to guarantee the performance of these criteria. According Araújo (2004), identify the criteria that users use to evaluate the suppliers services helps to guide companies strategies. As a result, companies can achieve the expectations of users and form a competitive advantage. But, sometimes, there are distortions between what the company believes to be the best set of criteria to satisfy their users and one that really satisfies.

There is a school of thought that believes that it is necessary to prioritize some competitive criteria, because the company can not obtain a satisfactory performance in all both criteria (Skinner, 1969; Wheelwright, 1984; Safizadeh et al., 2000; Silveira & Slack, 2001). Already Paiva et al. (2004) identify the trade-offs among the competitive criteria and Gomes & Brunstein (1995) say that, because of this, one must define which criteria are relevant to the needs and expectations of users, in order to get success in an operations strategy. This strategy consists on analyzing the mismatches between two or more criteria, that is, situations in which the improvement of a criterion may result in a negative impact on each other. Already Rieg et al. (2014) present the final price of the service versus the location as a trade-off, in which the company surveyed had underperformed against the competition in the price criterion because priority location to meet operational needs. In the analysis of criteria as relevant for this research, the personalized service and the price stipulated by the service could be a trade-off (Paiva et al., 2004).

However, according to Rosenzweig & Easton (2010), there is in literature discussions related to the use of several competitive priorities simultaneously without damage to any of them (Ferdows & Meyer, 1990; Corbett & Van Wassenhove, 1993; Rosenzweig & Roth, 2004). Moreover, they are dynamic, it will change with time and circumstances (Ferdows & Meyer, 1990). For example, the trade-off between cost and quality, according to which it was thought that investing in quality the product cost increase, was broken, and currently, it is perfectly possible to get a good quality product within reasonable cost from new technologies and, particularly, new management tools.

As stated above, the competitive criteria originated in manufacturing and expanded in the service operations. Chart 1 can be observed criteria defined by some authors. In this work, after results of the qualitative research field with user pilates in order to define what criteria would be used in the analysis were cited two criteria not included in this chart, such that: "location" or, as defined by the author "physical access" and "indication".

As the study developed by Teixeira & Paiva (2008), in which the trade-offs of operations are evaluated from the service users' perspective, it is important to ensure that the prioritization criteria are justifying it from the view of users, irrespective of

Chart 1. Competitive criteria for service operations.

Authors	Gianesi & Corrêa (1994)	Slack et al. (2009)	Corrêa & Corrêa (2010)	Paiva et al. (2004)	Johnston & Clark (2002)
Competitive Criteria	Cost Attendance Speed Flexibility reliability Safety Accessibility Competence Tangibility Consistency	Cost Quality Speed Flexibility reliability	Cost Quality Speed Flexibility reliability	Cost Quality Speed Flexibility innovativeness	Cost Quality Speed Flexibility reliability Safety Accessibility

Source: Gianesi & Corrêa (1994), Slack et al. (2009), Corrêa & Corrêa (2010), Paiva et al. (2004), Johnston & Clark (2002). Adapted by the authors.

the search method. At this point it is worth noting that the risk of misunderstanding if the company underestimates the importance of conducting this research directly to its users, current or potential, "deciding" which internally competitive criteria that prioritizes market. After prioritizing the criteria by the markets, establishing the priority objectives of the operation system, it is important to consider whether this set of objectives is internally consistent, that is, it allows a strategy of focused operations (Gianesi & Corrêa, 1994).

According to Santos et al. (2012) some competitive criteria are specific to gyms, which were adapted according to these criteria specifically considered relevant to the pilates studio. Regarding the criterion "Location", such as it was defined as "physical access", that is, the preference of the studio is closer to the residence or place of work. The criterion "indication" was added because of the importance given by the interviewed users to the reference given by other user's gym and pilates services. Chart 2 defines some characteristics of such criteria.

After the definition of these characteristics, the research method used for the development of this work is presented.

3 Method search

In this chapter you will be presented the statistical technique and the methodological approach used for the development of this work. The methodological approach involved two steps: i) qualitative, which served for the construction of the stimuli to be presented to respondents in the quantitative stage; and ii) quantitative, for identification and analysis of the preferences of the users of the analyzed services. We sought to identify and quantify the relevant competitive criteria in providing services in the health area, specifically in the form of Pilates. Because of the significant increase in pilates studios in this area and, as well, concern about health, we opted for the application of research in this sector.

3.1 Conjoint analysis

The conjoint analysis comprises reactions of users and reviews of predetermined combinations of criteria that represent products or services potential and provides an overview of the composition of user preferences, setting the ideal product to match it (Hair et al., 2005). This choice is due to the fact that the conjoint analysis is a technique that determines the relevance given by users to the criteria and usefulness of each level of these criteria.

Building specific combinations (stimuli/profiles), the researcher seeks to understand a respondent's preference structure. The preference structure "explains" not only how important each criterion is the general decision, but also as the different levels within a criterion influencing the formation of a general preference (utility) (Hair et al., 2005). One of the advantages of conjoint analysis is that the presentation of the criteria and their levels approach the users of real purchasing situation.

To Hair et al. (2005), utility is the conceptual basis for measuring the value of joint analysis. Each level of a particular criterion gets a certain utility, which is a function of the preference of the respondent that is making judgment on the incoming stimuli. As estimates of partial utilities are converted to a common scale, the higher the partial utility impact on the general usefulness of certain criteria. The largest contribution to the overall utility, the most important factor is the factor with the largest amplitude partial utilities.

For the application of conjoint analysis method several cards are created to represent the services

Chart 2. Specific criteria competitive for pilates Studio.

COMPETITIVE CRITERIA	CHARACTERISTICS
Reliability	Equipment safety.
Speed	Service agility.
Flexibility	Flexible hours. Customization.
Attendance	Quality service.
Competence	Competence of instructors.
Empathy	Empathy instructors and reception.
Tangibles	Hygiene and cleaning. physical environment. Comfort equipment.
Availability	Availability of equipment and instructors.
Indication	The studio has been referenced by a physician (a) or friend (a).
Price	Not always the lowest price means the ability to user's attraction.
Location	The point itself is not success factor. In addition to other variables, physical access is relevant.

Source: Santos et al. (2012). Adapted by the authors.

evaluated in this study. Each card represents a service with unique features, with no two equal cards. Respondents will have to order these cards (services) according to your preference.

3.2 Qualitative stage

This step explores the views of individuals in relation to a product, good or service, identifying those attributes that are usually assessed by the users of services. The purpose of this step is to obtain data for the construction of stimuli (cards) that will be used in the quantitative stage. Thus, the in-depth interview was used that, according to Malhotra (2001), is a semi-structured interview, direct, personal, where a single respondent is tested by an interviewer to discover motivations, beliefs, attitudes and underlying feelings about a topic. As sampling technique, the technique used was called "snowball" where a respondent indicates another. When information begins to be repeated, a respondent to another, then it is assumed that this step has reached the "saturation point", that is, according to the objectives of the researchers, there is no new relevant information.

The sample consisted of ten pilates users with heterogeneous characteristics, such as different cities, age, sport practice time in question, among others. The aim was to obtain information to indicate which criteria are relevant in the decision-making process for service purchase in a pilates studio. Furthermore, the purpose was to acquire more descriptive information of respondents, such as the time of practice, age and profession, the price paid, the amount of times practiced a week, the city practicing pilates, if the studio it is near or far from their homes, among others. Results were obtained from respondents and, based on these results, the criteria were to be evaluated: indication, price, service, physical structure, physical access, flexibility and empathy.

According to Malhotra (2001), it is important that the researcher identifies the criteria and criteria levels to be used in the construction of the stimuli. criteria levels denote the values that these take. For example, one criteria may be price, and their levels can be something like R$50.00 (level 1), R$100.00 (level 2) and R$150.00 (level 3). The criteria should be relevant to influence the preference and the user's choice and, as well, easy to use, so that respondents remain motivated during the evaluation of the profiles (stimuli). From the analysis of the results, however, tt was found that some criteria, such as physical structure, flexibility and empathy, did not get different responses. It is thus defined four competitive criteria that would be important for a successful outcome of this study: indication, price, service and physical access. In relation to the chosen criteria, here are some details to the definition of their respective levels:

a) **price**: 3 price levels for practicing pilates twice a week were set: R$100.00, R$150.00 and R$200.00;

b) **customization**: set to "custom" for a group of three people serviced by the pilates professional, and "group" for groups of more than three people;

c) **physical access**: it is considered the studio location preference: near the residence or workplace;

d) **referral**: "yes" if it is relevant to the studio have been referred by a doctor (a) or friend (a), or "no."

Chart 3 summarizes the criteria and their respective levels resulting from the qualitative stage. As a note, the column "code" serves only as a reference for use in software.

Chart 3. Definition of competitive criteria and their levels.

COMPETITIVE CRITERIA	CODE	LEVELS
Physical Access	1	Next to the residence
	2	Next to the workplace
Referral	1	Yes
	2	No
Customization	0	Custom
	1	Above 3 Group
Price	1	R$100.00
	2	R$150.00
	3	R$200.00

Source: Authors.

3.2.1 Stimuli

According to Malhotra (2001), the orthogonal frames are constructed from basic full factorial design. Two sets of data are obtained: i) a set of estimation is used to calculate partial function value for the criteria levels; and ii) it held a set used to evaluate the reliability and validity. The total number of profiles, that is, cards, or set of criteria defined for the analysis, three with two levels and a card with three levels, resulting in 24 cards ($2 \times 2 \times 2 \times 3 = 24$). To avoid distortions and/or discouragement when choosing the respondent due to the large number of cards, it was decided to employ a fractional factorial design, reducing the amount of cards to be presented to respondents. It was used the computer program SPSS18 to build the stimuli orders of all the respondents: 8 profiles to be the main stimuli set and another set of 4 stimuli for validation purposes. We obtained input data for both the main stimuli set as well as for the validation of stimuli, totaling 12 profiles, as shown in Chart 4. Based on these results, the cards were constructed (Appendix A). The material used for making the cards was the coated paper due to the durability compared to other materials, as the significant amount of respondents, may occur and damage the latter respondents are negatively influenced by the appearance of the cards.

The cards were taken card to maintain their looking good. There was used larger and colorful letters for easier viewing at the time of choice by respondents. Chart 5 presents a card template made for research and other cards are in Appendix A.

After the production of the cards, the data collection process began. In the next section, the quantitative stage, issues related to sampling and data collection are addressed, along with the resuls of conjoint analysis technique.

3.3 Quantitative stage

According to Malhotra (2006), the quantitative study measuring the data applies a form of statistical analysis. This step therefore is to assess quantitatively the importance of competitive criteria and their respective levels identified in the qualitative stage. In addition, it provides the results responsive to the search problem posed in this study.

3.3.1 Sample and data collection

A total of 96 people were interviewed, including 10 instructors and/or owners of a pilate's studio, but also users. All other participants are regular pilates users. In order to merge different audiences, the sample was collected in different cities of the Metropolitan Area of Porto Alegre (MAPA), such as Porto Alegre, Gravataí, Esteio, Sapucaia do

Chart 4. Cards set by SPSS18.

Profile	Levels	COMPETITIVE CRITERIA			
		Physical Acess	Indication	Service	Price (R$)
1	**1 - 2 - 1 – 3**	Next to the residence	No	above 3 Group	200.00
2	**2 - 1 - 1 – 1**	Next to the workplace	Yes	above 3 Group	100.00
3	**2 - 1 - 0 – 3**	Next to the workplace	Yes	Custom	200.00
4	**1 - 1 - 0 – 1**	Next to the residence	Yes	Custom	100.00
5	**1 - 2 - 0 – 1**	Next to the residence	No	Custom	100.00
6	**1 - 1 - 1 – 2**	Next to the residence	Yes	above 3 Group	150.00
7	**2 - 2 - 1 – 1**	Next to the workplace	No	above 3 Group	100.00
8	**2 - 2 - 0 – 2**	Next to the workplace	No	Custom	150.00
Validation Stimuli					
9	**2 - 1 - 0 – 1**	Next to the workplace	Yes	Custom	100.00
10	**2 - 1 - 1 – 2**	Next to the workplace	Yes	above 3 Group	150.00
11	**2 - 1 - 0 – 2**	Next to the workplace	Yes	Custom	150.00
12	**1 - 2 - 0 – 2**	Next to the residence	No	Custom	150.00

Source: Authors.

Chart 5. Card model used in quantitative research stage.

1			
CUSTOMIZATION	**REFERRAL**	**PRICE**	**PHYSICAL ACESS**
More than 3 people	No	R$200.00	Near the residence

Source: Authors.

Sul, São Leopoldo, Novo Hamburgo, Rolante and Campo Bom/RS.

According Hair et al. (2007), flexibility in the location where interviews are conducted helps to improve participation rates, giving the opportunity to the researcher to explain the project and its importance to the interviewees. Most interviews were conducted in the pilates studios, facilitating access to respondents and providing clarification and understanding of interviewees. No more than one user was interviewed at a time, because there could be influences on perceptions affecting consequently the validity of the study (Mentzer & Flint, 1997).

After data collection, with the results of the interviews, along with the implementation of the joint technical analysis, compiled the results in the computer program SPSS18 and, from this, we obtained the following results reported.

4 Results

Most respondents use the service for less than a year. Also it was observed that the majority of the users are female, with college level and age group 31-50 years. Tables 1 and 2 show the results of the profile of the 96 respondents from the sample of this research.

Table 3 presents the results of the conjoint analysis with the values of the utilities, which served to set the card with greater relevance, and the importance of each criterion. Results show that the most important criterion is the customization; the second most important criterion is the referral; the third is physical access; and the fourth is the price. To Hair et al. (2005), utility is the conceptual basis for measuring the value of joint analysis. It is a subjective judgment of one preference for each individual. As the partial utility estimates are converted to a common scale, the higher the partial utility impact on the overall usefulness. The largest contribution to the overall utility, the most important factor is the factor with the largest amplitude partial utilities.

According Hair et al. (2005), and to portray the impact of each level with estimates of partial utilities, conjoint analysis can assess the relative importance of each criterion. As estimates of partial

Table 1. Number of users by age and practice time pilates.

Age (years)	Frequency	Practice Time (years)	Frequency
30	22	up to 1	73
From 31 to 50	50	1 to 2	16
From 51 to 80	24	Over 2	7
	Total of 96 users		

Source: Authors.

Table 2. Number of users and occupation.

Education	Frequency	Sex	Frequency
Higher level education	69	Female	86
Middle level education	15	Male	10
Students	12		
	Total of 96 users		

Source: Authors.

Table 3. Utility values and importance of competitive criteria.

Criteria	Levels	Factors	Utility	Importance
Physical access	1	Next to the residence	0.352	2.192
	2	Next to the workplace	0.352	
Referral	1	Yes	0.799	5.311
	2	No	0.799	
	0	Custom	0.000	2.543
Customization	1	Above 3 Group	1.729	
Price	1	R$100.00	0.792	9.953
	2	R$150.00	1.487	
	3	R$200.00	2.086	
Model constant				**6.654**

Source: Adapted by the authors.

utilities are generally converted into a common scale, the most important criterion is the highest amplitude (low level to high level) of partial utilities. The importance of each criterion values may be converted to percentages which total one hundred percent dividing each amplitude criterion for the sum of all the amplitudes.

As shown in Table 3, the degree of importance of the customization criterion was the highest, with approximately 32.5% of importance. Secondly, the criterion statement with 25.31% of importance. Then, the physical access appears as the third most important criterion, with 22.19% of importance. Finally, the price with 19.95% of importance to respondents of the study.

Then, it was defined the utility values for each profile/card. For example, to find the utility for the profile number 4 (see Chart 4), the following calculation is made: 0.000 + 0.799 to 0.792 + 0.352 + 6.654 = 6.693, see e.g. Table 4.

The total value of the 12 profiles utilities were added. The higher the value of the sum of utilities, the greater the importance of the considered card stimulus. As a result, for example, the group of 96 participants users of the research, the most important is to have a "next to the residence" studio as physical access, which has been referred by a friend (a) or medical (a), up to three users per class (customized) and a price of R$ 100.00, for practicing twice a week. Chart 6 bellow show the result of the order of cards in accordance with the utility values of this study.

5 Discussion

According to Filippini (1997) the nature of management of operations is applied, developed from the need to solve problems that arise in manufacturing and service organizations. Thus, according to Santos et al. (2011) it is important that companies identify and evaluate their skills and strategic resources for the development of operations strategies that support the achievement of competitive advantages in the long term. We understand that this identification of skills and knowledge of how they were developed is essential for the development of operations strategy. Already Gomes & Brunstein (1995) argue that the operations strategy identifies the target market and develop services targeted to its users, positioning itself against the competition.

However, operating area of research is conducted with greater focus on products rather than services. As a result, we see many studies discussing competitive criteria of manufacturing area but few studies discussing the competitive criteria os services. This work shows that some criteria for services

Table 4. Utility model sum of.

Criteria	Level		Utility
Customization	0	Custom	0.000
Referral	1	Yes	0.799
Price	1	R$100.00	-0.792
Physical access	1	Next to the residence	0.352
Model constant			6.654
Total value of the usefulness of this profile			**6.993**

Source: Authors.

Chart 6. Order of importance of cards "run" in SPSS18.

Profile	Σ Utility	Physical Acess	Referral	Customization	Price (R$)
4	6.993	Next to the residence	Yes	Custom	100.00
9	6.289	Next to the workplace	Yes	Custom	100.00
11	5.594	Next to the workplace	Yes	Custom	150.00
5	5.435	Next to the residence	No	Custom	100.00
3	4.995	Next to the workplace	Yes	Custom	200.00
12	4.740	Next to the residence	No	Custom	150.00
6	4.569	Next to the residence	Yes	Above 3 Group	150.00
2	4.560	Next to the workplace	Yes	Above 3 Group	100.00
8	4.036	Next to the workplace	No	Custom	150.00
10	3.865	Next to the workplace	Yes	Above 3 Group	150.00
7	3.002	Next to the workplace	No	Above 3 Group	100.00
1	2.412	Next to the residence	No	Above 3 Group	200.00

Source: Authors.

may be different from those found for product. Such as the criterion indicated as part of a process experience an intangible service. This criterion was identified in the qualitative stage and had not been identified in manufacturing strategy studies. One possible explanation is the fact that products are tangible and better reflect the characteristics such as weight, price, size, etc. In other words, products can be assessed more objectively since they can be touched and seen, while services are more difficult to assess because they can not be touched or seen. Thus, products have features that raise the importance of certain criteria, which can be different from those of services. One of the important points is that user participation, and the characteristics resulting from the intangibility of services, should be part of a service project. In the case of this study, it was found that in addition to user participation during the activities, other criteria are relevant, such as the customization, referral, physical access and price.

Given the need for service operations strategy and based on the findings in this study, it is possible to define which criteria are more important for decisions maker of a pilates studio. The competitive criteria considered the most important is the customization of the service. Although users have shown preference for a lower price, the service customization becomes relevant for this type of health service. Thus, the staff and employee training for customer service are essential to maintain high service levels by a company that delivered pilates services.

In addition, one of the important points in this research was to understand the criteria "referral", also defined as the "mouth-to-mouth". The service operations literature has paid little attention to this criterion. Our findings shown that, especially in health services, it is essential that the service has been referred by someone. This referral is even more useful if done by a professional such as the doctor. According to Wang (2011), the word "mouth-to-mouth" influence the consumer's decision, both positively and negatively. The assessment users make about the service quality influence their purchase intention, resulting in the final decision to buy or not the service. Due to the intangible nature of services, you can not know how much the service is in line with user expectations. In this context, the use of experience of the service for others are fundamental to provide a more objective evaluation, even if it has been done by someone else.

In turn, physical access criteria obtained a value of importance below the service customization and referral, but also relevant for service operations. Given the increasing traffic jam, causing difficulties in finding parking slots in urban areas, this criterion becomes important for the studio location facility. Thus, installing the studio near residences or commercial buildings becomes a priority. The existence of that competitive criterion also becomes a finding of this study that distinguishes it from other studies on competitive criteria since facility location is not a usual competitive criteria in the operations management literature. One reason for the low importance of this criterion may be the fact that most studies on this subject are focused on products. In this case, the location may not be so important since the tangilibity allows for distribution of products by means of transport and storage. Services, on the other hand, cannot be stored or transported and, because of that, the location of the operations becomes important, as highlighted by the participants in this study.

Regarding the criteria price, we note that this is the last importance criterion, contrary to the expect of some studio owners. Users prefer to pay less for the service, but do not mind paying more if they have other criteria in accordance with your expectations. There was an interesting fact when we saw that only the owners and trainers placed first in importance the price criterion. The service customizaiton, referral, and physical access are more important than the price for most users. Contradicting so for example in another sector, the result of research Peinado & Graeml (2014, p. 484) that "[...] the price is still used as the main application for winning criterion in the selection of suppliers by automakers vehicles".

To understand the competitive criteria, put them in order of importance, and set operations strategies are essential for managers in the services sector. Especially in front-line services, such as pilates studios in order-taking assertive decisions, in order to maintain the long-term market. However, as shown by Santos et al. (2004), the existence of a project of service operations, related to specific competitive criteria in services, seeks to provide a greater utility value for users in order to provide consistency in operations aimed at the competitive advantage.

However, during this study, it was noticed the lack of attention related to the relevant user in the service sector. Slack (2005) states that much of the literature does not understand the organizational complexity. Torres & Miyake (2011) say that the strategy of increasing the participation of users in services is limited, and there are still a gap in the service operations literature. Santos et al. (2011) add that there is recognition of operations strategies, however, there is a shortage in the identification of approaches and analytical skills in the preparation of strategies. These skills, as argued by Lewis (2003),

are formed from the combination of resources and processes in strategic planning organizations. Here are some relevant considerations to the final objective of this research.

6 Final considerations

This study aimed to identify the importance of some competitive criteria in health services. The purpose of this research was analyzing the competitive criteria to get a consistent set of operations decisions that may help managers of pilates studios. To do so, we initially review the literature to better understand these competitive criteria. Then, we set up the most appropriate method for analysis of these criteria. An exploratory research served to the definition of the relevant criteria, thus leading to a more specific quantitative research in this type of service. The choice of the method of conjoint analysis, along with the computer program SPSS18 served to measure the importance and utility of each competitive criteria used in the analysis. As a result we obtained the following criteria in order of importance: service customization, referral, physical access, and price.

One contribution of this study was to identify competitive criteria frequently discussed in operations, such as the referral and facility location. As the services in a pilates studio are considered high contact services, personal in-depth interviews conducted in this paper proposed a further insight on the importance of considered relevant criteria for the operational management in a studio. The quality and differentiation of the service are able to attract users, which do not mind paying more for it. The most important criterion is service customization, showing that users want personalized service, with a minimum users per class, different from a conventional gym where, in addition to the noise caused by the presence of several people. In addition, through interviews, you can watch the emotional users, who said they were the technique similar to yoga, where there is concentration, favoring an environment with fewer users.

Another contribution was the identification of the important criteria in health care service operations that can also be applied to physiotherapy services, physiatry, acupuncture, and other similar purposes. The health care has become increasingly important in people's lives, finding themselves in a phase of increasing usage and hence offer by the companies. In this view, the definition of what the user expects the service from targeted and specific research is essential for businesses to create service projects most likely to be aligned to what users want, providing better services, better use resources and providing higher quality services. From the point of view of public policies, the results of this study can serve as a basis for the development of new studies that assist the policymakers to create guidelines that companies interested in providing this type of health service. For example, as the location is an important criterion for users, public managers can guide companies providing this àse service set up in residential neighborhoods or so to limit the amount of existing businesses in residential neighborhoods in order to foster or prevent many or few companies are created in the same area.

Our findings show the need for the operations to become an important part of the decision-making process because the criteria deemed important by users can prevent expenditure of time with irrelevant decisions. Important to emphasize the importance of research of satisfaction with the users in order to know if the services are in line with expectations by users. Identify the importance of competitive criteria leads to constant search for market information. Since the intangibility of services we see the importance of maintaining the appearance of everything and everyone according to what the user expects, because the user is part of the service, that is, they are inseparable. Managers should take care to always keep the same level of service in all sectors, causing the variability does not interfere with the quality of service. In terms of demand and perishability, one should take advantage of periods of low demand to offer something more users, trying to decrease the amount of users during peak hours.

Finally, research as well as statistical methods such as conjoint analysis show how important it is to know information obtained directly from the user. And, for further analysis, we can investigate the competitive criterion "indication" harder, because of their importance, especially in health, as seen in this work.

Future studies could explore respondents from other locations and with other profiles, obtaining data from other samples that enable the validation or refutation of our results. This study reveals the preferences of people who already use the service in a pilates studio, but does not reveal the preferences of the people who do not use. Future studies may explore the preferences of people who do not practice Pilates. In addition, future studies may be made with people from different social classes, from the lowest to the highest in order to identify the existence of a variation in the use of preferences that the health service. This study was restricted to four criteria and therefore further studies can analyze the importance of other health services criteria and investigate the preferences of users in other types of services.

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References

Araújo, M. L. (2004). *Fatores competitivos de desempenho em uma empresa de sistemas de segurança patrimonial: identificação e avaliação sob a ótica do usuário* (Trabalho de conclusão de curso). Universidade Federal do Rio Grande do Sul, Porto Alegre.

Barros, J. P., No., Fensterseifer, J. E., & Formoso, C. T. (2003). Os critérios competitivos na produção: um estudo exploratório na construção de edificações. *Revista de Administração Contemporânea*, 7(1), 67-85.

Bowen, D. E. (1986). Managing customers as human resources in service organizations. *Human Resource Management*, 25(3), 371-383. http://dx.doi.org/10.1002/hrm.3930250304.

Brown, S., & Blackmon, K. (2005). Aligning manufacturing strategy and business-level competitive strategy in new competitive environments: the case for strategic resonance. *Journal of Management Studies*, 42(4), 793-815. http://dx.doi.org/10.1111/j.1467-6486.2005.00519.x.

Brown, S., Bessant, J. R., & Lamming, R. (2013). *Strategic operations management* (3rd ed.). London: Routledge.

Chase, R. B., & Tansik, D. A. (1983). The customer contact model for organization design. *Management Science*, 29(9), 1037-1050. http://dx.doi.org/10.1287/mnsc.29.9.1037.

Chase, R. B., & Apte, U. M. (2007). A history of research in service operations: what's the big idea? *Journal of Operations Management*, 25(2), 375-386. http://dx.doi.org/10.1016/j.jom.2006.11.002.

Corbett, C. J., & Van Wassenhove, L. N. (1993). Trade-offs? What trade-offs? Competence and competitiveness in manufacturing strategy. *California Management Review*, 35(4), 107-122. http://dx.doi.org/10.2307/41166757.

Corrêa, H. L., & Corrêa, C. A. (2010). *Administração de produção e operações* (2nd ed.). São Paulo: Atlas.

Costa, R. (2011). *A força do pilates*. *Revista Isto É*, 35(2186), 90-97.

Ferdows, K., & Meyer, A. (1990). Lasting improvements in manufacturing: in search of a new theory. *Journal of Operations Management*, 9(2), 168-184. http://dx.doi.org/10.1016/0272-6963(90)90094-T.

Filippini, R. (1997). Operations management research: some reflections on evolution, models and empirical studies in OM. *International Journal of Operations & Production Management*, 17(7), 655-670. http://dx.doi.org/10.1108/01443579710175583.

Fitzsimmons, J. A., & Fitzsimmons, M. J. (2005). *Administração de serviços: operações, estratégia e tecnologia da informação* (4th ed.). Porto Alegre: Bookman.

Flynn, B. B., & Flynn, E. J. (2004). An exploratory study of the nature of cumulative capabilities. *Journal of Operations Management*, 22(5), 439-457. http://dx.doi.org/10.1016/j.jom.2004.03.002.

Frei, F. X. (2006). Breaking the trade-off between efficiency and service. *Harvard Business Review*, 84(11), 93-101. PMid:17131566.

Gianesi, I. G. N., & Corrêa, H. L. (1994). *Administração estratégica de serviços: operações para a satisfação do usuário*. São Paulo: Atlas.

Giffi, C., Roth, A. V., & Seal, G. (1990). *Competing in world class manufacturing: America's 21st century challenge*. New York: Irwin Professional Publishers.

Gomes, T., Fo., & Brunstein, I. (1995). Considerações sobre o planejamento para a qualidade de serviços e os fatores de sucesso de novos empreendimentos. *Revista Gestão e Produção*, 2(1), 97-108.

Hair, J. F., Jr., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2005). *Análise multivariada de dados* (5th ed.). Porto Alegre: Bookman.

Hair, J. F., Jr., Babin, B., Money, A. H., & Samouel, P. (2007). *Fundamentos de métodos de pesquisa em administração*. Porto Alegre: Bookman.

Instituto Brasileiro de Geografia e Estatística – IBGE. (2011). *Comunicação Social. PIB cresce 1,3% em relação ao trimestre anterior e chega a R$939,6 bilhões*. Rio de Janeiro.

Johnston, R., & Clark, G. (2002). *Administração de operações de serviço*. São Paulo: Atlas.

Kotler, P. (1992). *Administração de marketing: análise, planejamento, implementação e controle* (2nd ed.). São Paulo: Atlas.

Kotler, P., & Keller, K. L. (2010). *Administração de marketing* (12th ed.). São Paulo: Pearson.

Liou, J. J. H., & Tzeng, G.-H. (2012). Commentson "Multiple Criteria Decision Making (MCDM). Methods in Economics: an overview". *Technological and Economic Development of Economy*, 18(4), 672-695. http://dx.doi.org/10.3846/20294913.2012.753489.

Lewis, M. A. (2003). Analysing organisational competence: implications for the management of operations. *International Journal of Operations & Production Management*, 23(7), 731-756. http://dx.doi.org/10.1108/01443570310481531.

Malhotra, N. K. (2001). *Pesquisa de marketing: uma orientação aplicada* (3rd ed.). Porto Alegre: Bookman.

Malhotra, N. K. (2006). *Introdução à pesquisa de marketing*. São Paulo: Pearson Prentice Hall.

Mentzer, J. T., & Flint, D. J. (1997). Validity in logistics research. *Journal of Business Logistics*, 18(1), 125-144.

Montgomery, C. A., & Porter, M. E. (1998). *Estratégia: a busca da vantagem competitiva* (2nd ed.). Rio de Janeiro: Campus.

Paiva, E. L., Carvalho, J. M., Jr., & Fensterseifer, J. E. (2004). *Estratégia de produção e de operações*. Porto Alegre: Bookman.

Ponsignon, F., Smart, P. A., & Maull, R. S. (2011). Service delivery system design: characteristics and contingencies. *International Journal of Operations & Production Management*, 31(3), 324-349. http://dx.doi.org/10.1108/01443571111111946.

Oliveira, P., & Roth, A. V. (2012). The Influence of service orientation on B2B e-service capabilities: an empirical investigation. *Production and Operations Management*, 21(3), 423-443. http://dx.doi.org/10.1111/j.1937-5956.2011.01256.x.

Peinado, J., & Graeml, A. R. (2014). A prática da gestão de operações nas organizações. *Revista de Administração de Empresas*, 54(5), 483-495. http://dx.doi.org/10.1590/S0034-759020140503.

Rieg, D. L., Scramim, F. C. L., & Del Roio, M. L. (2014). Modelo para formulação de estratégia de operações em serviços: um estudo de caso em uma empresa de Contact Center. *Revista Eletrônica Sistemas & Gestão*, 9(3), 276-289. http://dx.doi.org/10.7177/sg.2014.v9.n3.a5.

Rosenzweig, E. D., & Easton, G. S. (2010). Trade-offs in manufacturing? a meta-analysis and critique of the literature. *Production and Operations Management Society*, 19(2), 127-141. http://dx.doi.org/10.1111/j.1937-5956.2009.01072.x.

Rosenzweig, E. D., & Roth, A. V. (2004). Towards a theory of competitive progression: evidence from high-tech manufacturing. *Production and Operations Management*, 13(4), 354-368. http://dx.doi.org/10.1111/j.1937-5956.2004.tb00223.x.

Roth, A. V., & Menor, L. J. (2003). Insights into service operations management: a research agenda. *Production and Operations Management*, 12(2).

Saba, F. (2006). *Liderança e gestão para academias e clubes esportivos*. São Paulo: Phorte.

Safizadeh, H. H., Ritzman, L. P., & Mallick, D. (2000). Revisiting alternative theoretical paradigms in manufacturing strategy. *Production and Operations Management*, 9(2), 111-140. http://dx.doi.org/10.1111/j.1937-5956.2000.tb00328.x.

Sampson, S. E., & Froehle, C. M. (2006). Foundations and implications of a proposed unified services theory. *Production and Operations Management*, 15(2), 329-343. http://dx.doi.org/10.1111/j.1937-5956.2006.tb00248.x.

Sampson, S. E. (2000). Customer-supplier duality and bidirectional supply chains in service organizations. *International Journal of Service Industry Management*, 11(4), 348-364. http://dx.doi.org/10.1108/09564230010355377.

Santos, L. C., Varvakis, G., & Gohr, C. F. (2004). Por que a estratégia de operações de serviços deveria ser diferente? Em busca de um modelo conceitual. In *Anais do 24° Encontro Nacional de Engenharia de Produção – ENEGEP* (pp. 3454-3461). Rio de Janeiro: ABEPRO.

Santos, L. C., Gohr, C. F., & Varvakis, G. (2011). Um método para identificação e análise de competências e recursos estratégicos das operações de serviços. *Revista Gestão e Produção*, 18(44), 791-808.

Santos, L. C., Varvakis, G., & Gohr, C. F. (2012). Prioridades competitivas para a estratégia de operações de serviços: uma análise dos critérios de valor percebido de uma academia de ginástica. *Revista Produção Online*, 12(1), 133-158. http://dx.doi.org/10.14488/1676-1901.v12i1.837.

Silveira, G., & Slack, N. (2001). Exploring the trade-off concept. *International Journal of Operations & Production Management*, 21(7), 949-964. http://dx.doi.org/10.1108/01443570110393432.

Skinner, W. (1969). Manufacturing: the missing link in corporate strategy. *Harvard Business Review. Boston*, 47(3), 136-145.

Slack, N. (1993). *Vantagem competitiva em manufatura: atingindo competitividade nas operações industriais*. São Paulo: Atlas.

Slack, N. (2005). Operations strategy: will it ever realize its potential? *Revista Gestão e Produção*, 12(3), 323-332.

Slack, N., Chambers, S., & Johnston, R. (2009). *Administração da produção* (2nd ed.). São Paulo: Atlas.

Slack, N., & Lewis, M. (2009). *Estratégia de operações* (2nd ed.). Porto Alegre: Bookmann.

Teixeira, R., & Paiva, E. L. (2008). Trade-offs em serviços customizados e o ponto de vista do usuário. *Revista de Administração Contemporânea*, 12(2), 457-480. http://dx.doi.org/10.1590/S1415-65552008000200008.

Terra. (2013). *Pilates pode trazer problemas à coluna se praticado incorretamente*. São Paulo.

Torres, N., Jr., & Miyake, D. I. (2011). Melhoria de desempenho em serviços: alternativas para lidar com o *trade-off* entre eficiência e eficácia. *Revista Produção Online*, 11(1).

Vickery, S. K., Droge, C., Stank, T. P., Goldsby, T. J., & Markland, R. E. (2004). The performance implications of media richness in a business-to-business service

environment: direct versus indirect effects. *Management Science*, 50(8), 1106-1119. http://dx.doi.org/10.1287/mnsc.1040.0248.

Wang, X. (2011). The effect of inconsistent word-of-mouth during the service encounter. *Journal of Services Marketing*, 25(4), 252-259. http://dx.doi.org/10.1108/08876041111143087.

Wheelwright, S. C. (1984). Manufacturing strategy: defining the missing link. *Strategic Management Journal*, 5(1), 77-91. http://dx.doi.org/10.1002/smj.4250050106.

Xue, M., Hitt, L. M., & Harker, P. T. (2007). Customer efficiency, channel usage, and firm performance in retail banking. *Manufacturing & Service Operations Management*, 9(4), 535-558. http://dx.doi.org/10.1287/msom.1060.0135.

Appendix A. Cards used in the research field.

1			
Service	**Indication**	**Price**	**Physical Acess**
Above 3 Group	No	R$ 200.00	Next to the residence
2			
Service	**Indication**	**Price**	**Physical Acess**
Above 3 Group	Yes	R$ 100.00	Next to the workplace
3			
Service	**Indication**	**Price**	**Physical Acess**
Custom	Yes	R$ 200.00	Next to the workplace
4			
Service	**Indication**	**Price**	**Physical Acess**
Custom	Yes	R$ 100.00	Next to the residence
5			
Service	**Indication**	**Price**	**Physical Acess**
Custom	No	R$ 100.00	Next to the residence
6			
Service	**Indication**	**Price**	**Physical Acess**
Above 3 Group	Yes	R$ 150.00	Next to the residence
7			
Service	**Indication**	**Price**	**Physical Acess**
Above 3 Group	No	R$ 100.00	Next to the workplace
8			
Service	**Indication**	**Price**	**Physical Acess**
Custom	No	R$ 150.00	Next to the workplace
9			
Service	**Indication**	**Price**	**Physical Acess**
Custom	Yes	R$ 100.00	Next to the workplace
10			
Service	**Indication**	**Price**	**Physical Acess**
Above 3 Group	Yes	R$ 150.00	Next to the workplace
11			
Service	**Indication**	**Price**	**Physical Acess**
Custom	Yes	R$ 150.00	Next to the workplace
12			
Service	**Indication**	**Price**	**Physical Acess**
Custom	No	R$ 150.00	Next to the residence