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**AN IMPORTANCE-PERFORMANCE
ANALYSIS OF SERVICE QUALITY IN THE
CROSSFIT CONTEXT**

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Master thesis presented to the Social Sciences and Technology Faculty of Universidade Europeia, to fulfill the requirements necessary to obtain the Master's degree in Management carried out under the scientific guidance of PhD Thiago de Oliveira Santos, Sports Management Coordinator of Social Sciences and Technology Faculty of Universidade Europeia.

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Keywords

Importance-Performance; IPA-Matrix; Service Quality; Customer Satisfaction; CrossFit; Lisbon

Abstract

This research analyses the importance and the performance of service quality items, applied to CrossFit boxes in the region of Lisbon.

CrossFit is one of the most disputable fitness programs of the last centuries. Despite for its reputation for intensity and injuries, the CrossFit industry has seen a rapid growth in number of affiliates and memberships. CrossFit businesses are facing nowadays intense competition because of the CrossFit industry's growth, forcing them to constantly innovate and adjust and changing market conditions. While several CrossFit gyms, also called as CrossFit box, have been concentrating on growing their clientele, several managers have certainly forgotten how important service quality is to keep their existing customers.

For this research, a total of 184 valid responses were collected from 12 CrossFit boxes located in the region of Lisbon. After analysing all the responses, it can be said that the service quality in the CrossFit boxes in the region of Lisbon is considerably good, but there are several items that should be improved to avoid losing customer retention and achieve service excellence. The items of the survey 'level of cleanliness and hygiene of the facility' and the 'maintenance and condition of the training areas' are the items with the worse performance rating in study and where the managers in CrossFit boxes in Lisbon should immediately focus on.

Any industry that relies on services must provide high quality services to succeed. Sustaining a competitive advantage in the fitness industry depends on client retention. For CrossFit boxes to expand and become more profitable, it is crucial to have a solid understanding of how to manage and provide high quality services.

Despite the significance of service quality, there has not been much scientific research on the application of service quality in the fitness industry, especially not in CrossFit. Therefore, this research aims to explore the importance and performance of service quality in CrossFit boxes, using the Importance-Performance Analysis developed by Martilla and James (1977). By understanding the priorities and needs of the CrossFit clients this research aims to identify areas of improvement and provide suggestions to enhance the service quality in CrossFit boxes in the region of Lisbon.

Table of Contents

List of Figures	VI
List of Tables.....	VII
List of Appendices	VIII
List of Acronyms, Initialisms and Abbreviations	IX
Chapter 1 - Introduction	1
1.1 Motivation	2
1.2 Research Problem	3
1.3 Aims to Research.....	3
1.4 Thesis Structure	4
Chapter 2- Literature Review	6
2.1 Introduction to CrossFit.....	6
2.2 Service and Service Quality in Fitness	8
2.3 Importance-Performance Analysis	10
Chapter 3- Methodology	14
3.1 Scale Content Validation	15
3.2 Participants	19
3.3 Procedures	19
3.4 Instruments	20
3.5 Data Analysis.....	22
Chapter 4- Results	23
4.1 Results of Service Quality	24
4.2 Results of IPA-matrix.....	28
Chapter 5- Discussion	32
5.1 Discussion and practical implications	32
5.2 Limitations.....	37
5.3 Future Challenges	38
References	40
Appendices	43

List of Figures

Figure 1: Importance-Performance Analysis	11
Figure 2: Importance-Performance Analysis Matrix	29
Figure 3: Importance-Performance Analysis Matrix with names of the items	31

List of Tables

Table 1: Dimensions and number of items of the survey	14
Table 2: Adapted dimensions and number of items of the survey	15
Table 3: Items for the final survey	18
Table 4: Final adapted dimensions and number of items of the survey	21
Table 5: Final dimensions and items of the survey	21
Table 6: Frequency and percentages of the participants characteristics	23
Table 7: Frequency and percentages of the participants	24
Table 8: Frequency and percentages of the characteristics of the participants	24
Table 9: Means of performance and importance of the dimension general conditions	25
Table 10: Means of performance and importance of the dimension competence of professionals	25
Table 11: Means of performance and importance of the dimension relationship with the clients	26
Table 12: Means of performance and importance of the dimension building	27
Table 13: Means of performance and importance of the dimension complementary services	28

List of Appendices

Appendix A: Validation of the survey	43
Appendix B: Scores and comments of expert/ person number 1	44
Appendix C: CVI	45

List of Acronyms, Initialisms and Abbreviations

IPA- Importance-Performance Analysis

SQ – Service quality

AMRAP – As many rounds as possible

WOD – Workout of the day

CVI- Content validity index

I-CVI – Item- level content validity index

S-CVI/UA – Scale- level content validity index based on the universal agreement method

Chapter 1 - Introduction

Sedentarism, one of the most feared terms of the modern man (Freitas & Lacerda, 2019). Due to an increase in sedentary behaviours and a decrease in physical exercise, the way of life in recent decades has had a significant impact on mental health. A sedentary lifestyle is known to raise the chance of developing various mental diseases, which can lead to sleep problems as well as a poor level of happiness (Delgado Villalobos et al., 2022). Being healthy is becoming continuously more important for the new generations. Starting from implementing small training areas in the office until adopting new diet trends as Keto or veganism. However, the continual search for getting “fitter” has as consequence or as opportunity the expansion of new fitness brands and companies. The competition among fitness companies has become significant issue that managers and researchers must be aware of (Freitas & Lacerda, 2019). Companies must act flexible and rapidly to competitive market changes to grant the firms survival (Porter, 1996).

The fitness chains' expansion strategies are founded on two principles: leveraging internal resources to grow organically and/or acquiring competitors to increase their market share. On the other hand, even though the health and fitness centres, especially small and medium ones, to gain a competitive edge they must start placing an emphasis on service quality. The first thing that must be understood is that a fitness facility or club is a service- intensive industry, where the main purpose is to offer high quality services (Freitas & Lacerda, 2019).

Customer retention continues to be a critical success factor in fitness sector, and service quality has a significant impact on that retention. Service excellence in a fitness club has a direct impact on the profit margin and overall club growth in the competitive marketplace. Customer satisfaction, loyalty, and good word-of-mouth are increased by effective service quality management (Xu et al., 2021). Unfortunately, often due to the lack of confidence, perspective, and attitude by the managers of maintaining a new strategy, can result to inappropriate decisions that may negatively affect the business (Porter, 1996).

With the help of the literature review made for this research, several known authors as García-Fernández (2020), Burillo (2018, 2020), Garcia-Unanue (2018, 2020), León-Quismondo (2020), Yildiz (2011), Rial et al. (2008) were identified as authors that have contributed significantly to the knowledge of service quality in fitness centres. The mentioned authors identified that several studies were conducted around the service quality concept in different sectors and companies, but they also concluded that there was a lack of research in service quality applied in fitness centres. Most of the developed studies were inspired by the authors Parasuraman, Zeithaml and Berry (1985), that have published the SERVQUAL questionnaire and Martilla and James (1977), publishers of the importance-performance analysis.

Although several scholars have addressed the importance of service quality in managing fitness centres, none has explored the importance and performance of service quality in CrossFit gyms. CrossFit is a new rising branded exercise program, that consists of constantly varied, high-intensity functional movements, involving several classic physical activity abilities (Glassman, 2020). For this reason, the present research will address the service quality in CrossFit boxes, place

where CrossFit classes take place, by applying the importance-performance analysis developed by Martilla and James (1977) with the purpose of identifying the actual service performance of the CrossFit boxes and the key elements that could be improved, by understanding the customers priorities and needs.

1.1 Motivation

The main motivation for this research is directly related to the necessity of understanding the perceived service quality in CrossFit boxes, more particularly from customers perspective, to verify existing gaps between the importance and performance given. By defining for each service, its performance and importance, also known as the IPA, the findings of the study can be a crucial instrument for box owners, box head coaches or managers to understand the members wants and needs, and to allocate their resources in the most efficient way. That premise is supported by both research and corporate experience, which further suggests that excellent service quality performance results in significant improvement in revenue, cost savings, and market share. Due to the collected facts regarding service quality and the universal acceptance of this concept, businesses have ranked service quality as one of the most crucial strategic structures for the upcoming several years (Parasuraman et al., 1992).

The importance-performance analysis (IPA), which has its roots in the work of Martilla and James (1977), has adapted to several sectors of services marketing, making it an effective method for measuring customer satisfaction while also serving as a valuable management tool (Rial et al., 2008). Arias-Ramos, Serrano-Gómez, & García-García, 2016; Martínez-Caro, Martínez-Caro, & Díaz-Suárez, 2014; Serrano-Gómez, Rial, Sarmento, & Carvalho, 2014; Tarrant & Smith, 2002; Yildiz, 2011, applied the IPA model, that was originally linked to the marketing field, into the sports sector from the consumers perspective (León-Quismondo et al., 2018).

The applied studies in the fitness sector, more specifically CrossFit are very limited, nearly not existing, consequently, the bibliography found was not enlightening regarding this subject. The idea of using the already existing IPA in CrossFit boxes in the region of Lisbon came from the lack of information and studies carried out in the CrossFit community. This was one of the several motivations for this study, allied with the personal interest regarding the rising “sport” CrossFit.

Due to the evolution of the sport in Portugal and rise of competition in the region, it is necessary for organizations to continually develop skills and improvement in their service quality since the quality of the service is an important factor to get and maintain customer loyalty. Higher service quality leads to higher customer satisfaction, loyalty, and competitive advantage, leading to better organizational performance (Yildiz, 2011).

1.2 Research Problem

In 1998 Raymond Quivy and Luc Van Campenhoudt's described the problematic as a way of questioning the studied phenomenon, by adopting a theoretical approach or perspective to address the problem, which was formulated by the initial question (Quivy & Campenhoudt, 1998). Applying Raymond Quivy and Luc Van Campenhoudt's logic into the current research, the studied phenomenon is the service quality in CrossFit boxes, the perspective to address was the associates perspective and the initial question was to understand the customers satisfaction regarding the current service quality in the CrossFit gyms.

Thus, the research problem was defined as the following:

Which are the most important variables that have impact in the service quality of the CrossFit boxes in the region of Lisbon, from associates' perspective, and which is their performance?

Since no significant research was found about the service quality in the CrossFit industry, the opportunity to study the phenomenon of the service quality in CrossFit was given. With the help of an existing matrix, called IPA, this research aims to understand the impact of service quality, from consumers perspective.

Considering that the service quality in CrossFit is within the researcher's interests and above all, this subject seems to be an unexplored topic at scientific research level. The presented problem is aligned with the aims to research, with the defined goals and should be the guiding line for the research. The function of the problem is to give structure to the project, delimit the study, reduce from the outset operational needs and most importantly, should contribute to focus the research (Rosado, 2015).

1.3 Aims to Research

In 2009 Fortin described that the goal of a study should be "*a declarative statement that specifies the key variables, the target population and the orientation of the research*" (p.161). The goal of this research is to identify the important aspects of service quality in the CrossFit community in Lisbon, that contribute positively or negatively to the business, with which a new allocation of resources can be suggested. With the understanding of the importance for the consumer of each service quality, a new prioritisation and allocation of resources could be proposed.

Beside the main research goal, three specific objectives were defined as well:

O1: Identifying the key items to obtain higher service quality in CrossFit boxes in the region of Lisbon.

Establishing the key elements that are important for improving service quality might be considered not that relevant for managers since they have already an overview of the important items, but previous research confirms the existence of discrepancies between executives' perceptions and consumers expectations (Parasuraman et al., 1985).

By finding out the key items for a good service quality in the CrossFit box from associates' perspective, the managers/ head coaches will be able to compare if their perspective of important items of service quality matches the customers' perspective. In case of high discrepancies between the importance items for the clients and the managers/ head coaches it is suggested that the managers/ head coaches rethink about the items and possibly reallocate their resources to the high importance items.

The second objective is:

O2: Analysing the association between the importance and performance of the defined service quality variables, from consumers perspective.

After identifying the attributes being measured, a survey with scales corresponding to importance of/ and satisfaction with each attribute will help to measure the importance and performance of each item. With the application of the IPA suggested by Martilla and James (1977), the managers/ head coaches will be able to identify the items where they should focus on, and/ or maintaining the satisfaction of items with both, a high importance score and high satisfaction score.

Q3: Analysing the perception of satisfaction from the associates view regarding their attended CrossFit box.

The third goal is to understand the current overall perceptions of the users from their frequented CrossFit box. According to Parasuraman et al. (1991, p.39) "*understanding customer expectations is a prerequisite for delivering superior service*". The level of satisfaction and conviction is a crucial element in the user's stability and long-term persistence in the industry (Serrano, 2015). Therefore, the addition of higher service quality could contribute to a better long-term relation with the client.

1.4 Thesis Structure

The reflection proposed in this research is divided into 5 chapters, which is supported by bibliography references that assist the research and the collected information, through a carried-out survey.

The first chapter is the starting point of the research, where the investigator motivations for the research are mentioned, as well as the definition of the problematic and the aims to research.

This is followed by the review of the existing literature, in which the principal concepts for this study are described.

Chapter three consists of methodology for the research, where the participants, procedures and instruments are mentioned. In this same chapter the data analysis will be done.

In chapter four the results of the previous suggested chapter, are mentioned, as well as the IPA-matrix and followed by the discussion and conclusion of the results in the fifth and last chapter.

Chapter 2- Literature Review

Reviewing the literature is equivalent to reviewing what has been written in the field of research being studied. As interesting as the research questions may be, they cannot be addressed without considering the knowledge already acquired in the chosen research domain. The review of literature is therefore an essential step in exploring a research domain. The literature review is a process of conducting an inventory and critical examination of existing publications. Synthesising and summarising the chosen articles provide the researcher with the material for conceptualising the research (Fortin, 2009).

This research was conducted with the purpose of presenting key concepts for readers to understand and to build a theoretical foundation for the research's development. For the literature review an extended scoping review was conducted. The number of articles found for the subjects "service quality", "fitness", "IPA", "CrossFit" and "organization" were 2339 articles. The exclusion criteria were just academic papers only, articles published during 2017 until 2023 and full text available. Several relevant articles were published before 2017, but since the concept service quality suffered several changes and conclusions in the past few years, the investigator decided to consider in the review of literature just articles from 2017 until 2023. After excluding several publications, a manually selection of relevant articles was done by the investigator, followed by an exclusion of articles that are not in quartile 1, 2 or 3 of the journal indexes of the scientific field. Due to the lack of relevant articles in "service quality", "fitness" and "IPA", the quartile 3 was also taken into consideration. In the last step, the duplicates were removed and additional articles that are not in the scope of the exclusion criteria, but are relevant for the research were also chosen, as for example, articles and statements published on-line by CrossFit themselves, high impact articles in "service quality" or "CrossFit" since 2013 and articles suggested by the advisor.

2.1 Introduction to CrossFit

CrossFit is a branded exercise program that consists of constantly varied, high-intensity functional movements, involving several classic physical activity abilities, such as gymnastics, Olympic weightlifting, and functional training (*Level 1 Training Guide*, 2020). Greg Glassman, a former gymnast, and his wife, Lauren Jenai, founded CrossFit as a business organization in 2000. Glassman started experimenting with new techniques to push his body to the limit because he thought his usual training plan wasn't physically demanding enough (Dawson, 2017). According to CrossFit, whose slogan is "forging elite fitness", CrossFit is not a specific fitness program, but a deliberate attempt to optimize physical competence by mastering each of the ten recognized fitness areas: Cardiovascular and respiratory endurance, stamina, strength, flexibility, power, speed, coordination, agility, balance, and accuracy (Glassman, 2002).

The brand CrossFit has rapidly expanded into a billion-dollar global fitness industry since its foundation in 2000. The purpose of the first opened CrossFit gym in Santa Cruz, California, by Greg Glassman, was to pursue excellence in coaching, programming, and incorporate community that supports each other. The CrossFit affiliate gym network made between 1.5 and 2 billion dollars in 2013 (Bailey et al., 2019). In the CrossFit Affiliates Map, available on the official webpage, all the current affiliated CrossFit gyms can be observed. The brand has more than 11 thousand affiliates worldwide and more than 4 thousand affiliates in Europe. Portugal itself has 116 affiliates and in the region of Lisbon 37 (CrossFit, 2022).

The CrossFit affiliation, started with the desire of several CrossFit athletes who wanted their own local gyms, and communities. The purpose of the affiliation programme is to bring more quality training to a broader audience. CrossFit itself can be done at home, in garage gyms, in a park or at the beach, but with CrossFit affiliates the user will always be surrounded by coaches and experts, that will guide user for the safest way to implement the program. The affiliation program will allow the manager/ head coach to legally use the CrossFit trademark. The affiliate will be part of the affiliate finder map, which is worldwide available, will have support from the CrossFit headquarters on business planning, marketing and much more (CrossFit, n.d).

CrossFit refers to itself as a fitness regimen, but it also refers to the community that spontaneously forms when people perform these workouts together. The physical location where CrossFitters train, referred to as “the box”, resembles a big shed-like contained or warehouse. The anonymity, unlikely traditional gyms where each user can do its own workout, independently of other users and can focus themselves by hearing their own music, watching tv or reading while using one equipment, is usually not given. Instead of being crowded with equipment, the CrossFit gyms are normally minimalistic and the interaction between the members and staff is a crucial component of the workout itself. CrossFit’s close-knit nature, well organized institution and the levels of trust that permeate the CrossFit community, have often been compared to a church or even seen as a cult (Dawson, 2017).

Unlike regular gym attendees who can do their workouts in a rather detached and passive manner, CrossFitters are actively and deliberately involved in the interaction situation at the box during the workout. The whiteboard, which normally broadcasts the warm-up and workout, is one of the main characteristics of each CrossFit box. Even though the boxes usually are not equipped with mirrors like most of the traditional fitness facilities, the whiteboard is one of several tools used to write down the scores and names of everyone who attended the class and encourages the competition among associates. Although the purpose of the whiteboard and other registration tools, as digital applications, is to encourage competition with oneself and constant striving to exceed one’s personal best, the CrossFit community has a greater impact on keeping the users engaged. The scores often reflect how much weight was lifted for the strength component, how quickly certain routines were finished, and how many repetitions of a given exercise were performed. Additionally, the scores reflect whether the exercise was completed exactly as instructed (marked by “RX”) or whether it was scaled or adjusted (marked by “scaled”) (Bailey et al., 2019; Dawson, 2017).

Another distinguished characteristic of CrossFit is their own language, as for example “box” stands for gym, “AMRAP” for as many rounds as possible, “WOD” for workout of the day and “For time” used to see how fast you can compete in a particular time (Dawson, 2017).

Bailey et al. (2019) observed that the appearance of most of the CrossFit gyms is very simple, often without mirrors, but according to their study it is simple to visually distinguish between newcomers and existing group members. People tended to quickly adopt the distinctive style of their group that included Reebok shirts and shorts with the CrossFit logo, high socks, and headbands (Bailey et al., 2019).

According to CrossFit (2020), the humble beginning in 2001 of posting daily workouts online, a community where human performance is assessed has developed. The platform CrossFit is an open-source platform, where anybody can contribute to show off fitness and fitness programming, and where coaches, trainers, and athletes may work together to enhance the art of science of improving human performance (Glassman, 2020).

“The magic is in the movement, the art is in the programming, the science is in the explanation, and the fun is in the community.” (Glassman, 2020)

2.2 Service and Service Quality in Fitness

After 1960, as services became even more important in industrialized economies, the origins of service quality began. The traditional concept of product quality was broadened to include not just the product itself but also the services that support it. The 1960s and 1970s served as a beginning for many industrial organizations regarding this aspect of quality. In 1970 the first two authors writing about service operations were Johnson et al. (1972) and Buffa (1976). The highly respected study by Parasuraman et al. (1985) was the pinnacle of the period between 1980-1985. Until 1995, also known as “theory testing/ empirical era” most of the studies focused on refining their dimensions and validating them empirically. After 1995 “service quality” started to be considered one of the most researched subjects. All the previous mentioned factors have contributed to the evolution of service quality. As a result of the phenomenal growth of the service as well as the increased importance among those industries to global economies, notions for service quality have emerged. Service quality is also being considered as a commercial necessity and as a manufacturing and informational technology (Prakasha & Mohanty, 2013).

As reported by Park et al. (2022), several researchers as Bitner & Hubbert (1994) or Hu et al. (2009) have provided empirical evidence that service quality and customer satisfaction are not the same. Service quality can be stated as a simple function of customer satisfaction because it is assumed to be an antecedent of customer satisfaction.

Service quality is difficult to be defined and measured, due to its intangibility. The term “service quality” can be used in many different contexts. For instance, it can be defined as the customer’s total perception of the business and its services’ relative superiority or inferiority. Comparing customer expectations with actual service performance, on the other hand, is a more

conventional definition of service quality. In other words, service quality has proven to be a challenging concept to understand and study (Shieh et al., 2019).

According to Prakasha & Mohanty (2013) definition, services are *“all economic activities whose output is not just a physical product is generally consumed at the time it is produced and provides added value in forms (with such features as building blocks, which are considered indicators for service quality) that are essentially intangible concerns of its purchaser”* (2013, p. 1050).

Parasuraman, Zeithaml, and Berry (1985), one of the first researchers investigating the service quality, proposed 10 criteria for evaluating service quality: credibility, safety, accessibility, communication, understanding of customers, reliability, sensitivity, ability, and etiquette, also known as the SERVQUAL model, one of the most used models to assess service quality. They categorized these criteria into five dimensions: tangibility, reliability, responsiveness, assurance, and empathy. The multi-item scale has in total 22 items. Then, using exploratory factor analyses of retail organizations, they developed the SERVQUAL instrument. The SERVQUAL approach assists numerous service and retailing firms in assessing consumers' expectations and perceptions of service quality and identifies areas that need managerial attention and action (Xu et al., 2021).

To characterize the domain of service quality, Cronin and Taylor presented in 1992 the SERVPERF as a multi-item scale that takes the 22 items of the SERVQUAL model. The authors concluded that the service quality is best assessed essentially through participant views of the service performance, without taking expectations into account, after comparing their findings with those from the SERVQUAL scale (Cronin & Taylor, 1992). Unfortunately, until today they are several disagreements and unsuccessful attempts to incorporate the SERVQUAL/ SERVPERF into new industries. In general, researchers have chosen one of the two main theories, the first, which is called the “Nordic” point of view by Grönroos (1982 and 1984), which has as main characteristic the description of the functional and technical quality of a service, the other point of view is called the “American” point of view and inspired by Parasuraman et al. (1988) which makes use of terms that define the elements of services, as for example reliability and empathy. The American school uses descriptive terminology, whereas the Nordic school defines service quality by using general category terms. Although each school emphasizes crucial elements of service quality, none fully encompasses the concept, also no effort has been taken to consider the potential connections between the various conceptualizations (Prakasha & Mohanty, 2013).

While some researchers have argued that the impact of service quality on consumers behaviours is negligible, most of the research on service marketing and sport spectators as for example by Biscaia et al. (2013) and Shonk et al. (2017), has shown that there are strong correlations between service quality and behavioural intentions in the sport organizations. Biscaia et al. (2021) concluded that customer value judgements are driven more by service quality characteristics than by the core product dimensions. The COVID-19 pandemic in 2020 has been an alert to give more importance to the service quality as well. Several researchers predict that on a long- term basis the fitness facility will have to deal with a decrease in memberships also after the pandemic. For managers this means that they will have to be careful about how they allocate their limited resources. For this reason, sport businesses need to understand not just how well their

customers think of their services but also how vital those services are to them to allocate resources to the correct services (Aicher et al., 2022).

According to Aicher et al. studies (2022), since the 1990s, research on sport service quality have analysed the spectators' experiences in major sports events. This early research on service quality in the sports field has as theoretical fundamentals the perspective of service quality, expectancy- disconfirmation theory and the service scape, which were used and applied to comprehend spectators' view of quality in sports events. Biscaia et al. (2013) enumerated several different approaches regarding the service quality in fitness, as for example the TEAMQUAL scale, adapted from the SERVQUAL model, that rates the level of service in specialized team sports, or the Sportscape, which was inspired by the Servicescape developed by Bitner (1992), that has as purpose assessing the spectators' perceptions of the stadium and the relationship with the attendance intentions. Even though the several different approaches to measure service quality, most of them suffered criticism among the different industries and researchers (Biscaia et al., 2013). Sport service quality research has only examined perceptions of organizational performance without first determining how significant the traits are to customers, which may limit sport organizations' capacity to find areas to divert resources. These techniques include the meta-analysis by Biscaia et al. (2021) that identified and excluded research that applied a combined measure of quality and satisfaction, such as that used in the importance-performance analysis (Aicher et al., 2022).

2.3 Importance-Performance Analysis

Although service marketing has advanced, sport management scholars have been extremely slow to adopt new strategies. As mentioned before, most of the studies conducted around the 2000's recommended the SERVQUAL model, Servicescape, and the expectancy-disconfirmation theory. The previous research highlighted emphasis on performance-only evaluations in sport management, but other researchers as Funk (2017) emphasized the necessity to stop quantifying performance and start paying more attention to what matters to the sport consumers. By doing so would give the sector more insights into how to enhance the sport experience (Aicher et al., 2022).

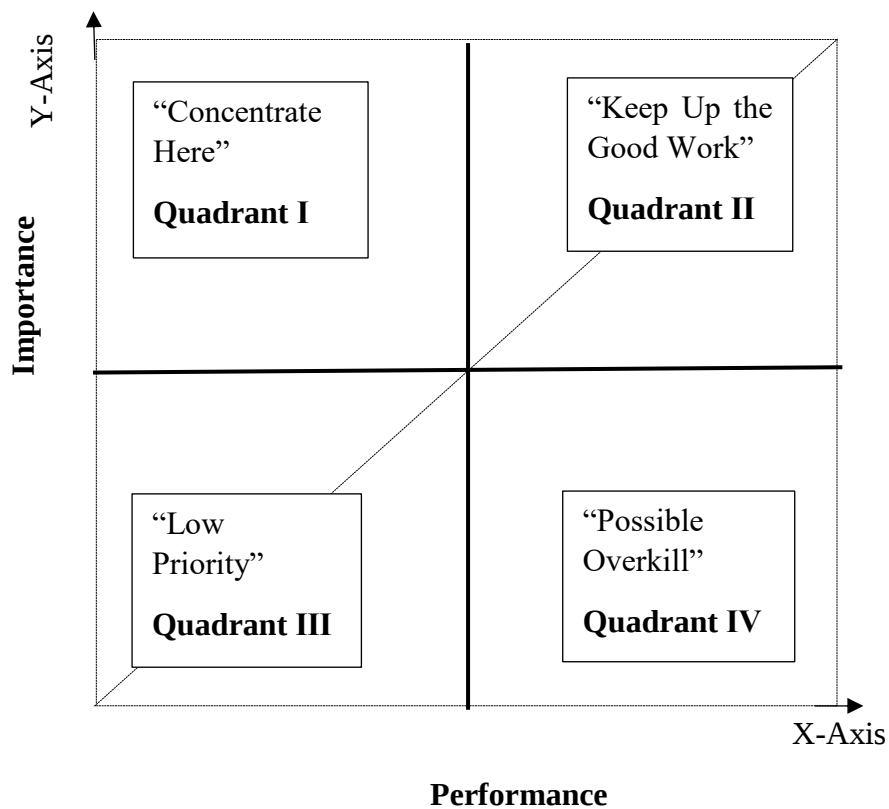
For nowadays success in sports organizations the strategic management of service perceptions and the physical environment of the sport venues are playing a very important role. The importance-performance analysis (IPA), published by Martilla and James in 1977 is one of several strategies that can be used to evaluate consumers perceptions and determine where managers should focus their efforts. Since it highlights the primary problems that demand an immediate response, this study can help managers enhance their management methods. Often used by academic literature on sports management, due to its ease of use. The application of the IPA can generate several benefits, as for example, supporting rigorous management decisions makings, being a powerful tool that is able to assist managers in setting better priorities and allocating limited resources and its performance evaluation guidelines benefit the company and investors (García-Fernández et al., 2020).

The IPA is a multidimensional grid, where on the x-axis the ratings of performance by the user are described and, on the y-axis the importance of the actual service is described. The grid, visible also in Figure 1, can be divided into 4 quadrants, quadrant I is ‘concentrate here’, quadrant II represents a ‘keep up the good work’, quadrant III is ‘low priority’ and the quadrant IV represents a ‘possible overkill’.

The first quadrant can be classified as a substantial weakness because of their low performance but high importance. The quadrant I can be a high alert to managers since customer dissatisfaction can lead to loss of the customers. As a result, a company should act right away to improve and to give high priority, while major strengths should be preserved, leveraged, and actively promoted. The items in the second quadrant have a high performance and a high importance for the customer, meaning that the items that fall into this quadrant are major strengths for the company and could improve the competitiveness in the market share. The quadrant III with low performance and low relevance might suggest that more effort is not necessary. The fourth quadrant is characterized by having low importance and high performance, may indicate that the resources allocated to them are excessive and should be invested elsewhere (Shieh et al., 2019).

Figure 1

Importance-Performance Analysis



Note. Adapted from “Service quality evaluation of a geriatric long-term care: A combination of SERVQUAL model and importance-performance analysis” by J. Shieh, K. Huang and H. Wu, 2019, *Journal of Statistics and Management Systems*, 22 (5), p. 834. Copyright 2023 by Informa UK Limited.

The IPA by Martilla and James (1977) proposed a three- step process, which has as components: 1. Identifying product or service attributes through literature review, focus group or other techniques; 2. Obtaining customers’ assessment of the importance and performance of the attributes/ items; 3. Calculating the importance and performance scores of the attributes/ items and plotting them on the IPA matrix. Although its simple use, the IPA approach also suffered criticism, which lead to the incorporation of the Gap analysis in the IPA. The Gap analysis consists of Gap 1, Gap 2, and Gap 3. The first Gap conducts a significance test to determine whether the results are statistically significant and is used to identify gaps between the services offered to the customer. Th Gap 2 is an evaluation of the focal organization’s position in relation to the marketplace rivals. This technique divides the matrix into the four mentioned quadrants, allowing the organization to identify key customer attributes and make precise differences across the attributes. Aicher et al. (2022) also mentioned that the IPA and gap analysis might lead to incorrect results since they exclude external outcomes, which makes it more difficult to assess predictive validity. They have also mentioned that the attributes of importance and performance should be viewed as separate factors and there may be an asymmetrical and nonlinear relationship between them. Therefore they have suggested the last Gap, which is composed by the three-factor theory that suggests that there are three categories with different impacts on customer satisfaction: basic, performance and excitement. The basic is composed by the elements that the client consider essential and are those that the company should give at minimum. If not met the criteria, may lead to unhappiness, but even if they are, they may not offer a competitive advantage or increase in customer satisfaction. Performance factors may lead to satisfaction, if not offered they can lead to dissatisfaction. The excitement factors are considered beneficial when provided, but do not have a negative impact if not provided. Customers do not expect these elements, therefore when provided and performed well, they become more significant and may even be a surprising factor (Aicher et al., 2022).

Other authors like Gérson Tontini and Amélia Silveira (2007) also criticized the measurement methods of the IPA-approach. When using a Likert scale, there are downsides to this method, such as customers’ propensity to place more value on fundamental services and a possible lack of discriminating ability because the customers consider everything to be significant. The approach depends on subjective customer assessments of performance and attribute relevance. Variations in the perspectives of different customers could result in biases in the statistics. As mentioned already by other authors, Gérson Tontini and Amélia Silveira (2007) also emphasizes on the criticism of the independence between attributes performance and importance. According to studies an attribute’s relative relevance may vary depending on how well it performs, and there is frequently a nonlinear relationship between attribute performance and satisfaction. Making poor decision regarding service enhancement could result from IPA’s failure to take these variables into account. When looking into improvements, IPA frequently overemphasis on Quadrant II (high relevance, low performance). This co emphasis might not necessarily coincide with client objectives or the most effective areas for enhancement. Additionally, the IPA may not provide a

complete understanding of the context in which an attribute is being accessed. It does not take into consideration particular consumer segments or contextual elements that might affect the performance and significance of an attribute. Another downside of the IPA-approach is the fact, that the IPA is a static analysis. At a given moment in time, IPA offers an overview of the performance and importance of each attribute. It might not reflect how client preferences evolve dynamically over time or how the competitive environment develops. Therefore, a onetime assessment of the IPA-approach might not be enough, but yes, several IPA-approaches throughout the year, could be more effective. Although the IPA identifies areas that require improvement, it might not provide comprehensive advice on tactics for improvement. Based on the IPA results, organizations might require additional tools and techniques to create action plans (Ormanovic et al., 2017).

Although the SERVQUAL model is a very commonly used tool to measure service quality, the purpose of this research is not to measure just service quality, but the customers perceptions of the service quality and their needs. For that reason, the application of the IPA which is a relatively simple tool to adapt to different fitness organizations and to adopt, regarding the short time of research, appears to be the most adequate tool. When using the IPA tool, it is critical to take the mentioned limitations into account. Each of the approaches has its advantages and disadvantages, but it is up to the managers to decide which method will access effectively and efficiently the desired information.

Chapter 3- Methodology

In 2018 Jairo León-Quismondo, Jorge García-Unanue and Pablo Burillo carried out research to observe the priorities in the management of fitness centres. The aim of this research was to find out the discrepancy between the values of Importance and Performance of the different elements of the fitness centres from the managers point of view. For the research León-Quismondo et al. applied the Importance-Performance Analysis (IPA), initially developed by Martilla and James (1977), with which the priority and secondary aspects in fitness centres can be determined, to suggest new allocation of organizational resources in the more efficient way (León-Quismondo et al., 2018).

The sample of the research by Jairo León-Quismondo, Jorge García-Unanue and Pablo Burillo consisted of 54 fitness centres managers, all of them occupying high rank positions in terms of responsibility and the fitness centres that they managed had to meet five different pre-defined requirements. The gathering of information was carried out with help of a survey that was designed based on the Importance-Rating Analysis by Martilla and James in 1977. Each manager had to evaluate in a five Likert scale, the level of importance of each item and afterwards the performance of each item. After an extended review of literature, León-Quismondo et al. defined 94 items for the survey. This number was reduced to 70 items after comparing them to the frequency that they appeared in the literature. In the last step the survey was evaluated and judged by a group of experts, including 4 university professors with more than 5 years of research experience in the fitness sector and 2 managers with more than 5 years of experience in the sector, which reduced the final survey to 61 items that had to be evaluated by their performance and importance. The 61 items were distributed into different dimensions of a specific area of the fitness centre, making up in total 10 dimensions (Table 1) (León-Quismondo et al., 2018).

Table 1

Dimensions and number of items of the survey

Dimensions	Number of items in dimension
1. General conditions	5
2. Customer Service	7
3. Marketing	5
4. Fitness and activity room	8
5. Water area	8
6. Changing rooms	6
7. Main services	5
8. Peripheral services	9
9. Complementary services	6
10. Others	2
Total items	61

Note. Reprinted from “Prioridades en la gestion de centros de fitness. Aplicación del análisis de importância- valoración” by J. León-Quismondo, J. García-Unanue and P. Burillo, 2018, *Journal of Sports Economics & Management*, 8(3), p. 120. Copyright 2018 The Authors.

3.1 Scale Content Validation

The developed survey by Jairo León-Quismondo, Jorge García-Unanue and Pablo Burillo in 2018 served as inspiration for this research. As the survey passed through an extended review of literature and evaluation of several experts in the fitness sector, the application of this survey for this research seemed appropriated. The survey was adapted by the author himself to the CrossFit environment by the exclusion, addition or modification of terms, items, or dimensions.

For the adapted survey a technique known as the content validation was used to guarantee that the instrument, in the present case the survey, evaluates the specific topic area it is intended to test. The content validity ratio was first proposed in a seminal paper by Lawshe in 1975 and has been widely applied to establish and quantify content validity in several different sectors. The Lawshe method was first proposed in a foundational publication in 1975, which is frequently used to measure content validity (Ayre & Scally, 2014). According to Yusoff (2019), it is particularly essential for research purposes, providing the content validity to support the validity of an evaluation tool like surveys. The same author also mentioned 6 steps for the content validation procedure, which are: 1. Preparing content validation form, 2. Selecting a review panel of experts, 3. Conducting content validation, 4. Reviewing domain and items, 5. Providing score on each item and in the last step 6. Calculating the CVI, also known as the content validity index (Yusoff, 2019).

For this purpose, 8 experts were contacted and provided their feedback in our content validation survey. The experts were asked to rate the relevance of each item and had the option to add a comment or suggestion in each dimension. The survey from Jairo León-Quismondo, Jorge García-Unanue and Pablo Burillo was adapted to the CrossFit reality and later it went through a validation process. The adapted survey had instead of 10 dimensions, 7 dimensions. In the following table the names of the dimensions and the number of items per dimensions are displayed.

Table 2

Adapted dimensions and number of items of the survey

Dimension	Number of items in dimension
General conditions	5
Customer Service	5
Marketing	5
Activity room	10
Changing rooms	6
Main services	6
Complementary services	9

Total items	46
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Note. Adapted from “Prioridades en la gestion de centros de fitness. Aplicación del análisis de importância- valoración” by J. León-Quismondo, J. García-Unanue and P. Burillo, 2018, *Journal of Sports Economics & Management*, 8(3), p. 120. Copyright 2018 The Authors.

Both surveys, the validation survey, and the official survey of the service quality in CrossFit boxes were carried out in the Portuguese language since the research is applied in Portuguese CrossFit boxes.

The first step was to prepare the content validation form, for which the translation of the original survey was done, and which was adapted to the CrossFit reality (appendix A).

Following Yusoff’s steps for the content validation process, a review panel of experts had to be chosen. The chosen number of experts were 8. According to Yusoff (2019) the minimum number of experts is two and the recommended number of experts is from six to eight. The acceptable CVI (content validity index) value, for six to eight experts is at least 0.83.

Afterwards, the validation survey was sent via the platform Google Forms to the 8 experts since it is a very user-friendly platform. The experts had to rate each item from a scale 1= the item is not relevant for the measured domain to 4= the item is highly relevant for the measured domain.

In the fourth step, the domain and items were reviewed. After each dimension of the survey, we encouraged the experts to comment on the items in case they would have any suggestions or critics. All the feedbacks were taken into consideration.

Subsequently the submitted scores of the experts were documented for each person (see appendix B).

In the last step the CVI was calculated with the I-CVI index, also known as the item-level content validity index. To calculate the mentioned index, the experts’ ratings of agreement from 3 or 4 which represent ‘the item is really relevant’ and ‘the item is extremely relevant’ must be counted and divided through the number of experts. For each expert we did the counting of the agreement per item. The sum of all the experts’ agreements had to be divided through the total number of experts to get the I-CVI. The S-CVI/UA (scale-level content validity index based on the universal agreement method) is the proportion of items on the scale that have a relevance scale of 3 or 4 by all the experts. The score is given as 1, when all the experts agree, contrarily the score is 0. In the present research, all the UA scores returned 0 to all the items, meaning that there is not a clear agreement within the experts. A statistical analysis of the percentage of experts who considered the item to be ‘relevant’ is used to determine the validity of an item on the instrument. This analysis then calculates a value, above which the item should be kept in the survey (I-CVI > .83). The items above the value may be ignored in the final instrument (see appendix C) (Yusoff, 2019).

Although the CVI proposed already the items that should be considered, 7 items that were excluded by the CVI calculation, were considered in the final survey, since for some of those items the experts written feedback and suggestion were given and some of those items were considered very important for the researcher (see Figure 4). The important considered items were for example

'number of days open throughout the year' (2), since a typical work out cycle in CrossFit is performed every day with a rest day every fourth day or item 'feedback channels (suggestion boxes/ boards)' (3), which is also an important item when analysing the service quality itself (Dawson, 2017). Item 'brand of equipment in the training area' (13), were kept because in previous research people tended to give importance to purchase from the typically known "CrossFit brands" as Reebok for example (Bailey et al., 2019). The items 'locker service' (17) and 'physiotherapy service/ osteopathy service or other' (19) were kept due to their possible importance for the clients. Both services are easy to adopt if the necessary physical space for both services are given. CrossFit is a high intensity program, that can lead as all the other sports to injuries, especially if poor mechanics are combined with load, for this reason the idea of suggesting having a small room where these kinds of therapies could take place seemed adequate (*Level 1 Training Guide*, 2020). The remaining 2 items that were also excluded from the CVI, but incorporated in the survey, item 'gifts that reward frequent clients' (9) and item 'cleaning material to disinfect the used equipment' (15), got suggestions in the experts' validation survey and which were considered in the final survey. Both items were changed considering the expert's feedback and one new item was added ('coherence between coaches in teaching methods and class management' (4)), also considering the experts' feedback.

Table 3*Items for the final survey*

Dimensions	Adaptations	Importance and performance of the items applying them in CrossFit Boxes (english version)	Agree or dismiss
General conditions	-	- Opening hours	Keep the item
	-	- Number of days in operation during the year	Don't keep the item
Customer service	-	- Feedback channels (suggestion box or suggestion board)	Don't keep the item
	- New item: Coherence between coaches regarding teaching methods and class management	- Coherence between coaches regarding teaching methods and class management	
	-	- Professionalism and technical skills of the coaches	Keep the item
	-	- Coaches' willingness to help	Keep the item
Marketing	-	- Social media	Keep the item
	-	- Special offers for new clients	Keep the item
	- Gifts that reward frequent customers and Box merchandising e.g., clothes	- Gifts that reward frequent clients	Don't keep the item
Training area	-	- Comfort of the training area	Keep the item
	-	- Maintenance and condition of the training areas	Keep the item
	-	- Cleanliness and hygiene level of the facility	Keep the item
	-	- Brand of equipment in the training area	Don't keep the item
	-	- Maintenance and condition of the equipment in the training area	Keep the item

	- Organisation of the training area and storage	- Cleaning material to disinfect the equipment used	Don't keep the item
Changing rooms	-	- Ventilation (T°) in changing rooms	Keep the item
	-	- Locker service	Don't keep the item
Main services	-	- Variety of the type of classes offered	Keep the item
Complementary services	-	- Physiotherapy/ osteopathy service or others	Don't keep the item
	-	- Wi-Fi	Keep the item
	-	- Quality of waiting area	Keep the item
	- Changing dimension to dimension 1	- Open Box hours	Keep the item

Note. Data collected by author on the 1st of February 2023.

3.2 Participants

The applied survey had additional demographic questions with the purpose of understanding the characteristics of the population, such as gender, age, education, and place where they practice CrossFit. The participants for the developed survey are members of affiliated CrossFit boxes from Lisbon. The participants for the survey had to fulfil 3 conditions. The first condition was to agree to participate in the research, considering the assurance of anonymity, the second condition was that the participants had to be at least 18 years old and the third condition, was that they attend to an affiliated CrossFit box. To be able to identify if the participant is attending to an affiliated CrossFit box, the respondents were asked to name the box they attend, allowing the researcher to identify if the box is an official CrossFit affiliate and if the box belong to Lisbon.

3.3 Procedures

The survey was carried on-line from the 9th of February 2023 until 18th of April 2023 via the platform Google Forms. All the 37 CrossFit boxes were contacted by e-mail and social media to collaborate with the investigator to collect the information. The goals of the study and the use of the collected information were described during the contact with the boxes. As counterpart the investigator offered to disclose the retrieved answers from the box with the head coach or manager of the box. The target audience, which had to meet the 3 prerequisites as mentioned before, were invited to participate in the survey through social media announcements, podcast announcements, head coach announcements and in newsletters. Before starting the survey, the

participants had on the first page information regarding their participation, that they will not get any payment for taking part of the study, that their participation is voluntary and that they can refuse and withdraw of this study any time and that the filling out of the survey will take approximately 5 minutes. Additionally the processing of personal data was also mentioned. The personal information collected would be anonymised and not disclosed to third parties. The data would only be used for the purposes of this research and in the context of scientific/academic publications. The participants were also informed regarding the data analysis. That after the collection phase the SPSS and Excel tool would be used and only the researchers will have access to the information. Each questionnaire will be assigned a random numerical code, from which the respective data will be associated. These will be analysed in strict accordance with European data privacy and security law – the GDPR (General Data Protection Regulation (EU) 2016/679 of the European Parliament and the Council of 27th of April 2016) and other legislation applicable to the processing of personal data. The responsables for the research were mentioned, as well as their contact for any questions. The first question of the survey was a mandatory field, that had to be filled out with a yes to continue the survey. This question was related the consent form, where the participants declared themselves that they have read and understood the information provided, including the scope of the research, its objectives and the processing of personal data. With this first question we had the agreement of the participants to take part in this research.

3.4 Instruments

The information for the present research was collected with the help of a survey that is based on the survey elaborated by Martilla and James in 1977. The population for this research was asked to rate the performance of the 22 listed items and the importance of the same, as well as 11 sociodemographic questions, making it in total 55 questions. The used rating scale was the Likert scale from ‘1= not satisfied’ to ‘5= extremely satisfied’ for the performance evaluation and from ‘1= not important’ to ‘5= extremely important’ for the importance scale.

The items used for the survey were selected with the help of the extended literature review (Bailey et al., 2019; Dawson, 2017; León-Quismondo et al., 2018; Park et al., 2022; Prakasha & Mohanty, 2013; Xu et al., 2021).

The first elaborated survey, which was an adaption of Jairo León-Quismondo, Jorge García-Unanue and Pablo Burillo survey, was composed of 7 dimensions and 46 items. After the content validation, there was a total of 28 ‘keep the item’ items (appendix C) and just 14 of them were selected for the final survey. Reason for this decision was the short time of data collection. To obtain the highest number of replies, the researchers had to exclude most of items to keep the survey short and quick to answer.

The final adapted and proposed survey (see Table 5) has the following dimensions and number of items (see Table 4):

Table 4*Final adapted dimensions and number of items of the survey*

Dimensions	Number of items in dimension
1. General conditions	4
2. Competence of professionals	3
3. Relationship with the clients	4
4. Building	7
5. Complementary service	4
Total items	22

Note. Data collected by author on the 1st of February 2023.**Table 5***Final dimensions and items of the survey*

Dimensions	Importance and performance of the items applying them in CrossFit Boxes (English version)
General conditions	Opening Hours Open Box Hours Number of days open throughout the year Variety of the type of classes offered
Competence of professionals	Coherence between coaches in teaching methods and class management Professionalism and technical skills of Coaches Willingness of Coaches to help
Relationship with the clients	Social media Special offers for new clients Gifts that reward frequent clients and Box merchandising e.g. clothes Feedback channels (suggestion box or suggestion board)
Building	Comfort of the training area Maintenance and condition of the training areas Level of cleanliness and hygiene of the facility Brand of equipment in the training area Maintenance and condition of the equipment in the training area Organisation of the training area and storage. Ventilation (T°) in changing rooms
Complementary services	Physiotherapy/ osteopathy service or others Wi-Fi Quality of waiting area Locker service
Total items	22

Note. Data collected by author on the 1st of February 2023.

3.5 Data Analysis

The responses of the users were collected via the platform Google Forms and afterwards exported to a Microsoft Office Excel-File. The data had to pass through a cleaning and transformation process, especially due to the open answer questions as for example the question “Which box do you attend”. After standardising the data, cleaning the evaluation cells that contained text, instead of a numeric number and changing the labels for better understanding the data base was imported to the software SPSS.

The analysis was carried out with IBM SPSS Statistics 28.0 (IBM Inc., Chicago, IL, USA), with the critical level of significance at $p < 0.05$. The frequency and percentage for the variables were used to describe the descriptive data. Relative and absolute distributions were used for each item.

To analyse the service quality the mean and standard deviation for the attribute Performance (M(P)) and Importance (M(I)) were calculated, as well as the discrepancy (Gap) between the performance and importance (M(P) – M(I)). Considering Zeithaml and Berry (1988) suggestion the Cronbach’s alpha was calculated to evaluate internal consistency. According to them the higher the value of the Cronbach’s alpha, the greater the internal consistency of the scale. The Cronbach’s alpha for the performance, corresponded $\alpha = 0.957$ and for the importance, $\alpha = 0.916$, both representing a very good consistency of the items.

A paired sample *t*-test was also run to determine whether there is a statistically significant difference between the mean performance and importance scores for each item. A positive M(P)-M(I) difference and a significant *t*-test result indicate a quality surplus, which means that the customers’ expectations are exceeded. A negative M(P)- M(I) difference and a significant *t*-test result, reflect a negative performance of the item and a high importance for the customer (Yildiz, 2011).

The analysis regarding the importance and performance of the items, will be done with the help of the IPA-matrix, developed by Martilla and James in 1977. The previous mentioned calculations, as the Gap and the paired *t*-test, which is used to compare data that is not independent, but has a natural pairing, was applied to compare the importance and performance values. The difference calculated between the means of the performance and the importance, also known as Gap, will give the coordinate of the position in the grid of the IPA-matrix. To build the IPA-matrix itself a new data base with the means of the performance items and the importance items was uploaded. A simple scatterplot was used to analyse the relationship between the two variables.

In the following chapter the results of the collected data will be displayed, by splitting them into the results of service quality and results of the IPA matrix.

Chapter 4- Results

Parasuraman et al. (1991) described that to deliver a superior service the manager must understand the customers' expectations; therefore, the members of several CrossFit boxes were asked to rate the current importance and performance of the box they attend, to understand their experience. Taking into consideration that 12 CrossFit boxes participated in the survey, the expected number of respondents per CrossFit box was 50 responses, making it a total of 600 responses. Based on the collected data, 184 responses were considered as valid. Most of the respondents (54.9%) have their CrossFit box located in Lisbon. The cities Lisbon, Odivelas and Sintra have the highest percentage of respondents, accounting for over 85% of the responses. The proportion of males in the sample is 94/184, which is equal to 51.1%. Similarly, the proportion of females in the sample is 90/184, which is equal to 48.9%. Most of the respondents are between 31 and 40 years, representing 45.7% of the total sample. Those aged 18 to 30 years old represented 29.3%, and those aged between 41 to 60 years old represented 24.7% of the sample. Regarding the distribution of the education, the data shows that most of the respondents (81.5%) have completed the higher education, while 18.5% completed secondary education.

Table 6

Frequency and percentages of the participants characteristics

Variables	Category	f	%
Gender	Female	90	48,9
	Male	94	51,1
Age group	≥ 18 years - 30 years	54	29,3
	≥ 61 years	1	0,5
	31 years - 40 years	84	45,7
	41 years - 50 years	40	21,7
	51 years - 60 years	5	2,7
Education	Secondary Education	34	18,5
	Higher Education	150	81,5

Note. Data collected by author on the 19th of April 2023.

Regarding questioning the respondents if they practice other sports beside CrossFit, 112 (60.9%) members answered 'no', while 72 (39.1%) responded 'yes'.

Table 7*Frequency and percentages of the participants*

Variables	Category	f	%
Do you practice any other sport beside CrossFit?	No	112	60,9
	Yes	72	39,1

Note. Data collected by author on the 19th of April 2023.

Out of the 184 respondents, 45 (24.5%) have been practicing Crossfit for 1 to 2 years, 55 (29.9%) for 3 to 5 years, 48 (26.1%) for more than 5 years and 36 (19.6%) for less than one year. Most of the respondents (44.0%) attend to Crossfit training in the afternoon, while 39.7% attend in the morning and 16.3% in the evening.

Table 8*Frequency and percentages of the characteristics of the participants*

Variables	Category	f	%
For how long have you been doing Crossfit?	From 1 to 2 years	45	24,5
	From 3 to 5 years	55	29,9
	More than 5 years	48	26,1
	Less than a year	36	19,6
What period of the day do you frequently train?	Morning	73	39,7
	Afternoon	81	44
	Night	30	16,3

Note. Data collected by author on the 19th of April 2023.

4.1 Results of Service Quality

The dimension ‘general conditions’ is composed of 4 items (Table 9) that represent services that are not related to tangibles or assurance and that are essential for the business.

In the ‘general conditions’ two items, ‘opening hours’ and ‘variety of the type of classes offered’, with a negative gap can be observed, which represents a deficit in the performance of the two items. The *t*-test value in the ‘opening hours’ correspond to -5,150, which demonstrates a significant difference between the performance and importance rating. The *p*-value for ‘opening hours’ ($< 0,001$) is statistically significant and indicates that the observed difference is unlikely to have occurred by chance. The gap and the *t*-test values are negative but are relatively small discrepancies between the performance and importance indicating that the items may not be as crucial to the clients as the other dimensions. The ‘opening hours’ has an importance rating of 4,77 and the ‘number of days open throughout the year’ a rating of 4,69, making them the items with

the highest importance for the customers. The performance rating for the ‘number of open days throughout the year’ is slightly higher than the importance rating, indicating that there may not be much space for improvement because this element has already been handled well.

Table 9

Means of performance and importance of the dimension general conditions

Dimension: General conditions	Performance M(P)	Importance M(I)	Gap	t-test value	p- value
Opening Hours	4,57	4,77	-0,207	-5,150	< 0,001
Open box Hours	4,33	4,20	0,127	1,340	0,182
Number of days open throughout the year	4,71	4,69	0,022	0,565	0,573
Variety of the type of classes offered	4,35	4,41	-0,055	-0,838	0,403

Note. Data collected by author on the 19th of April 2023.

The dimension ‘competence of professionals’ has as main goal to analyse the service delivered by the coaches (Table 10). The performance ratings are doing relatively well since the ratings ranges from 4,64 to 4,69 out of 5 and for the importance from 4,82 to 4,83. There may be certain discrepancy in the way coaches are teaching and managing courses that may be addressed to meet customer expectations, as evidenced by the ‘coherence between coaches in teaching methods and class management’ having the greatest gap score of -0,180. With a p-value of < 0,001 and a *t*-test result of -4,798 for this item, showing a statistically significant difference between the performance and importance evaluations.

Although there are smaller discrepancies between performance and importance ratings for ‘coaches’ professionalism and technical skills’ and ‘willingness to help’ (-0,147 and -0,143), there may still be room for improvement in these areas. There is an actual disparity between the performance and importance evaluations, as shown by the statistical significance of the *t*-test findings.

Table 10

Means of performance and importance of the dimension competence of professionals

Dimension: Competence of professionals	Performance M(P)	Importance M(I)	Gap	t-test value	p- value
Coherence between coaches in teaching methods and class management	4,64	4,82	-0,180	-4,798	< 0,001
Professionalism and technical skills of Coaches	4,68	4,83	-0,147	-4,310	< 0,001

Willingness of Coaches to help	4,69	4,83	-0,143	-3,586	< 0,001
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Note. Data collected by author on the 19th of April 2023.

The third dimension is the dimension of the ‘relationship with the clients’ (Table 11), which include the interaction in social media with the clients and the establishment, the special offers for new clients, gifts that reward frequent clients and box merchandising as for example clothes and feedback channels from where the clients can give suggestions.

By looking at the data, it appears that the item ‘social media’ has the largest gap score of 0,482, which suggests that there could be a big discrepancy between its performance and importance ratings. In particular, the fact that the importance rating of 3,68 out of 5 is lower than the performance rating of 4,17 points out that customers might not value ‘social media’ as highly as the business currently does. With a p-value of < 0,001 and a t-test value of 5,954 for this item, it can be assumed that there is a statistically significant difference between the importance and performance ratings.

Between the performance and importance ratings for the remaining aspects, which include ‘feedback channels’, ‘special offers for new clients’ and ‘gifts that reward frequent clients and box merchandising’ there are also significant gaps, suggesting that there may be room for improvement in these areas as well. There is an actual distinction between the performance and importance evaluations, according to the statistically significant t-test values for the item’s ‘special offers’ and ‘feedback channels’. Although, the gap score is negative, the t-test value for the ‘gifts that reward frequent clients and box merchandising’ is statistically significant, suggesting that customers may place greater importance on this item than the establishments do. The performance and importance assessments differ statistically significantly, as shown by the p-values for these items, which range from 0,014 to 0,026.

Table 11

Means of performance and importance of the dimension relationship with the clients

Dimension: Relationship with the clients	Performance M(P)	Importance M(I)	Gap	t-test value	p-value
Social media	4,17	3,68	0,482	5,954	< 0,001
Special offers for new clients	3,71	3,49	0,221	2,244	0,026
Gifts that reward frequent clients and box merchandising e.g., clothes	3,19	3,49	-0,299	-2,486	0,014
Feedback channels (suggestion box or suggestion board)	3,41	3,67	-0,263	-2,441	0,016

Note. Data collected by author on the 19th of April 2023.

The ‘building’ dimension measures client opinions on the boxes’ physical facilities, including the level of cleanliness of the facility, comfort of the training areas, organisation of the training area and other items (Table 12).

All the items have high significance scores, visible in the p-value row ranging from 0,001 to < 0,001 and in the *t*-test values, which suggests that customers view them as essential elements of their Crossfit experience and that there is a significant difference between performance and importance. The biggest gap score is for ‘maintenance and condition of the training areas’ (-0,514) which shows that there is an alerting discrepancy between how well the box does in this item and how important it is to the members.

Table 12

Means of performance and importance of the dimension building

Dimension: Building	Performance M(P)	Importance M(I)	Gap	t-test value	p- value
Comfort of the training area	4,13	4,47	-0,337	-4,715	< 0,001
Maintenance and condition of the training areas	3,91	4,54	-0,637	-7,345	< 0,001
Level of cleanliness and hygiene of the facility	3,77	4,39	-0,615	-6,415	< 0,001
Brand of equipment in the training area	4,43	3,73	0,701	7,397	< 0,001
Maintenance and condition of the equipment in the training area	4,08	4,59	-0,514	-6,993	< 0,001
Organisation of the training area and storage	4,30	4,51	-0,203	-3,321	0,001
Ventilation (T°) in changing rooms	3,60	4,14	-0,544	-5,849	< 0,001

Note. Data collected by author on the 19th of April 2023.

The ‘complementary services’ dimension’s importance and performance scores are quite similar, showing that most of the client’s expectations are being met (Table 13). However, the ‘locker service’ has a sizable gap, as evidenced by the *t*-test value of -3,374 and the p-value of 0,001. This implies that customers perceive significant difference between the importance and performance of the ‘locker service’. The ‘wi-fi’ and ‘quality of waiting area’ have very small gaps with almost identical performance (3,65 and 3,87) and importance (3,66 and 3,82) scores. Customers do value the ‘physiotherapy/ osteopathy service or others’ and are quite satisfied with the performance, based on the small positive gap score (0,067).

Table 13*Means of performance and importance of the dimension complementary services*

Dimension: Complementary services	Performance M(P)	Importance M(I)	Gap	t-test value	p- value
Physiotherapy/ osteopathy service or others	3,97	3,91	0,067	0,741	0,460
Wi-Fi	3,65	3,66	-0,008	-0,060	0,952
Quality of waiting area	3,87	3,82	0,047	0,515	0,607
Locker service	3,15	3,70	-0,545	-3,374	0,001

Note. Data collected by author on the 19th of April 2023.

Based on the presented tables (Table 9- Table 13), it is visible that there are large differences between performance and importance scores in several dimensions of the service quality. For instance, the ‘opening hours’ had a sizable negative disparity in the dimension ‘general conditions’, whereas the ‘number of days open throughout the year’ had a modest positive gap. The ‘coherence between coaches in teaching methods and class management’, ‘professionalism and technical skills of coaches’, and ‘willingness of coaches to help’, revealed large negative gaps in the ‘competence of professionals’ dimension. Also, the ‘gifts that reward frequent clients and box merchandising’, from the dimension ‘relationship with the clients’, had a significant negative gap, while ‘social media’ had a significant positive gap. The ‘level of cleanliness and hygiene of the facility’, ‘maintenance, and condition of the equipment in the training area’, and ‘maintenance and condition of the training areas’ had all displayed large negative gaps in the ‘building’ dimension. Finally, the ‘locker service’ had a sizable negative gap in the ‘complementary services’ dimension. These results indicate that there is potential for improvement in several service quality categories, so it is crucial for service providers to give these areas top priority to meet the clients’ expectations.

4.2 Results of IPA-matrix

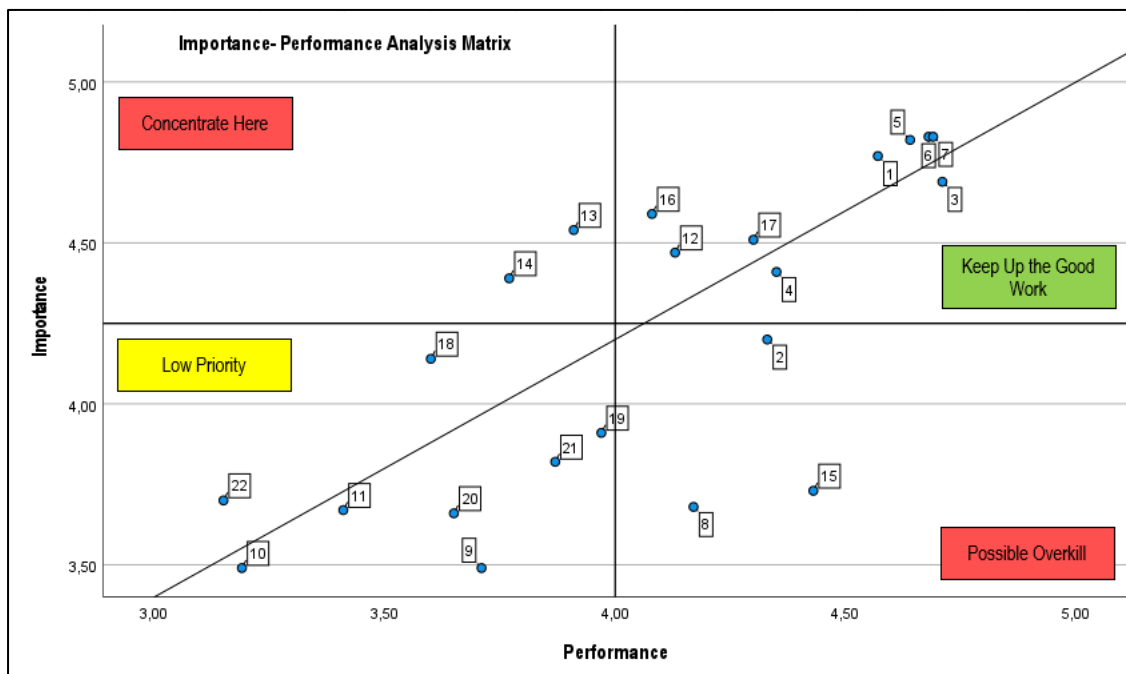
The analysis regarding the importance and performance of the items, will be done with the help of the IPA-matrix, developed by Martilla and James in 1977. The paired *t*-test, which is used to compare data that is not independent, but has a natural pairing, was applied to compare the importance and performance values. The differences, if significant ($p < 0.05$) demonstrate a value of discrepancy between the perception of performance and importance in the customers opinion (Grabchak, 2022). The importance-performance analysis includes the difference between the levels of performance and importance, which is represented by a diagonal line, also known as iso-rating line. The items positioned above the line are associated to dissatisfaction levels, whereas the elements located below are related to satisfaction levels. With this division, improvement efforts are possible for each item with an importance rating higher than the associated performance rating. Furthermore, as it is assumed that a higher gap results in greater dissatisfaction, the greater the discrepancy between the importance and performance for an item, the greater the necessity for corrective measures (Abalo et al., 2007).

For each item, the means and *t*-test were calculated (See Table 9 to Table 13), with which the IPA graph will be formed. On the x- axis, representing the performance and the y-axis representing the importance. The difference calculated between the means of the performance and the importance, also known as Gap, will give the coordinate of the position in the grid of the IPA-matrix. The previous explained grid, also visible in Figure 1, demonstrate the 4 quadrants of the IPA-matrix, where quadrant I is ‘concentrate here’, quadrant II represents a ‘keep up the good work’, quadrant III is ‘low priority’ and the quadrant IV represents a ‘possible overkill’ (Abalo et al., 2007).

Figure 2 presents the Importance-Performance Analysis Matrix, also known as IPA Matrix. The 22 items of the survey are distributed in the four quadrants. The numbers visible in the matrix represent the numeration of the items from the survey. For better comprehension in Figure 3, the quadrants and the corresponding items are listed. The Figure 2 has a five Likert scale, since the values used for this graph are the Gaps calculated from the performance and importance scores (all scores that had a five Likert rating). For better visual presentation we decided to cut the graph closer to the calculated coordinates, so that the numbers would be visible and so that the graph could fit into the paper without having to zoom it out extremely. This is also the reason why the iso-line might not look like is centralized, but it is.

Figure 2

Importance-Performance Analysis Matrix



Note. Data collected by author on the 19th of April 2023.

In the first quadrant, 'concentrate here', the items 'level of cleanliness and hygiene of the facility' (14) and 'maintenance and condition of the training areas' (13) are displayed. Both items have higher importance scores than the actual performance scores. The items have high importance for the clients but very bad performance, making it into items that the manager/ head coach should immediately focus on.

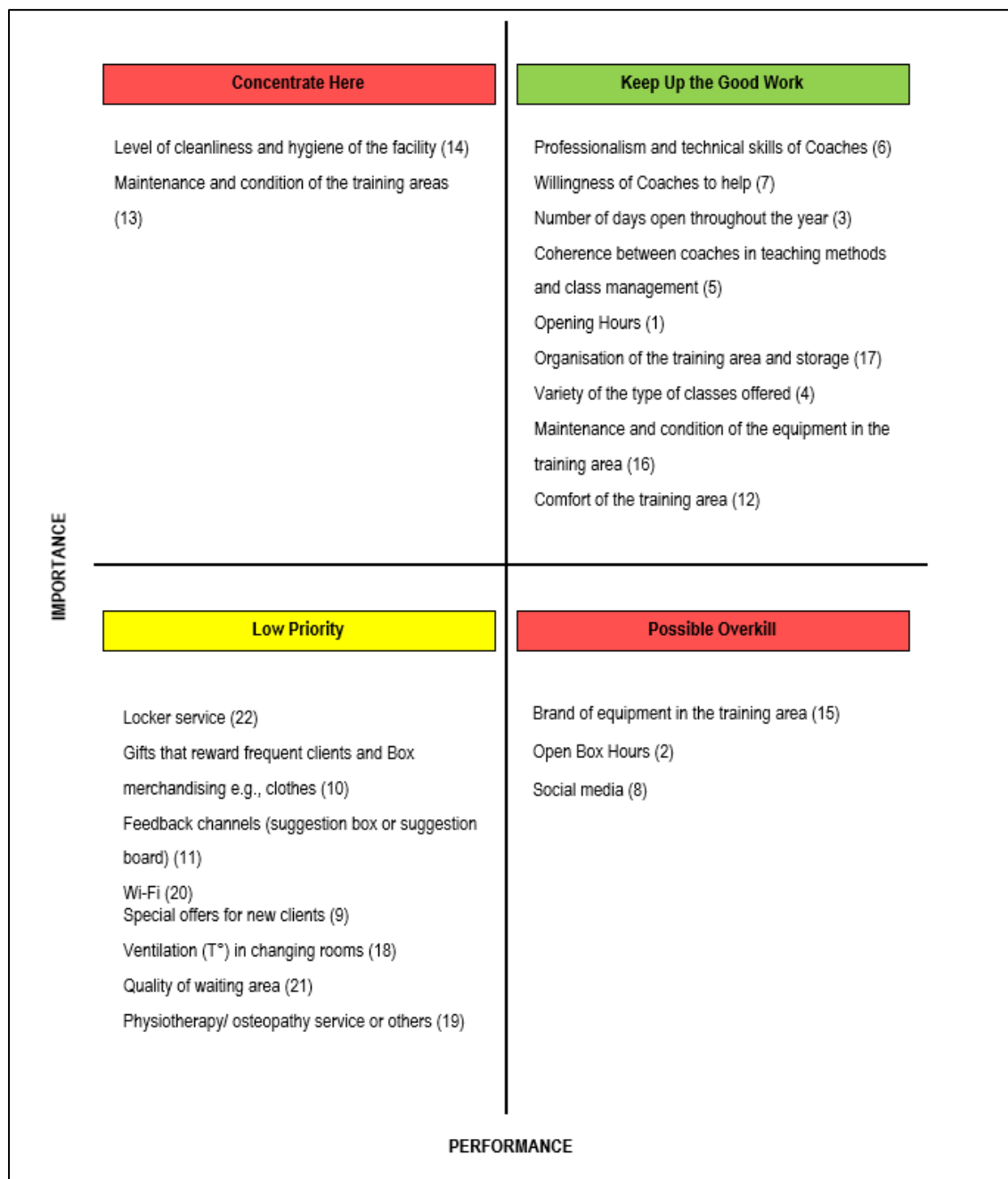
The second quadrant, 'keep up the good work', has in total 9 items, also visible in Figure 3, which have positive performance and importance scores. Specially the items 'professionalism and technical skills of Coaches' (6), 'willingness of coaches to help' (7), 'number of days open throughout the year' (3) and 'coherence between coaches in teaching methods and class management' (5) are the items with the best performance and importance scores and have very similar importance and performance coordinates. According to Shieh et al. (2019), the items positioned in quadrant I should be reinforced by the management to provide service excellence and to build better long-term relationships with the clients.

The third quadrant, 'low priority', has in total 8 items and is characterized by its low priority for the performance and for the importance. The item 'ventilation (T°) in changing rooms' (18) is the item with the highest importance coordinate and a relatively low performance coordinate. The items 'locker service' (22), 'gifts that reward frequent clients and box merchandising e.g., clothes' (10), 'feedback channels (suggestion box or suggestion board)' (11) and 'special offers for new clients' (9) presented considerable small importance ratings for the customers, meaning that those items could be potentially improved, but since those items have almost no importance for the client the manager/ head coach should not invest deeply in those items to avoid turning them into 'possible overkill' items.

The fourth quadrant, also known as 'possible overkill', is a possible waste of resources. This area corresponds to very good performance ratings but low importance rating, which suggests that the organization is wasting valuable resources on unimportant elements (Rial et al., 2008). The last quadrant, 'possible overkill', has the items 'brand of equipment in the training area' (15), 'open box hours' (2) and 'social media' (8). All three items have similar performance coordinates but vary in the importance coordinates. The item 'open box hours' (2) has the highest importance coordinate and the second highest performance score.

Figure 3

Importance-Performance Analysis Matrix with names of the items



Note. Data collected by author on the 19th of April 2023.

Chapter 5- Discussion

5.1 Discussion and practical implications

The goal of this research was to identify the important aspects of service quality in the CrossFit community in Lisbon, that contribute positively or negatively to the business, with which a new allocation of resources can be suggested. With the understanding of the importance for the consumer of each service item, a new prioritisation and allocation of resources can be proposed.

In this present chapter some discussions and suggestions will be made regarding the collected data and the items. The practical implications will be mentioned, as well as possible future challenges. It is important to highlight that for this research 12 boxes have participated and that the collected data does not reflect the importance and performance of just one particular CrossFit box. The following discussion will be about the items that could and should be improved in most of the CrossFit boxes in the region of Lisbon to reach higher levels of service quality.

The dimension ‘general conditions’ (Table 9) received positive ratings overall, but there are areas that can be improved to better align with user expectations. As mentioned by Serrano (2015) the level of satisfaction and conviction is a crucial element in the user’s stability and long-term persistence in the industry. Therefore, the importance of aiming for higher service quality can contribute to a better long-term relation with the client. The data shows that there is a sizable discrepancy between the performance rating for opening hours and its perceived value. It is advised to assess the present operating hours and make modifications in accordance with user requirements and preferences to address this. It may involve extending the opening hours, allowing more flexibility in scheduling, or making sure there is enough staff on hand during busy periods. Regular communication and feedback collected from the clients can help identifying specific hours of the day that need improvement. With a profounder analysis Edmonds (2020) was able to identify how many CrossFit classes per day the boxes tend to have, which classes are the most frequent ones and which tendencies the members have. In his study he concluded that the late afternoon classes tend to have bigger waiting lists and that the members usually stick to certain times during the week. As the opening hours were criticised more than the open box hours and the number of days open throughout the year it indicates that the members are not satisfied with actual hours and/- or number of classes during the day. Possibly, there is also a higher demand for the afternoon classes since most of the CrossFit athletes in Lisbon attend to the afternoon classes (44%) (see Table 8).

Other item of the first dimension (Table 9) that should be focused on is the variety of type of class offered. There is a slight gap between the perceived importance and the performance rating of this item. Based on the findings, introducing new types of classes or modules, by diversifying the existing offers, or implementing specialized programs could help to meet the varied needs of the clients. The basis and the offer of the CrossFit workouts is a blend of different modalities, this is what makes CrossFit differ from other training plans (Bailey et al., 2019). By criticising the variety of type of classes offered, there might be missing some different modalities

in the CrossFit classes. There is a need to analyse which classes are currently being offered and which classes can be added. CrossFit is about optimizing physical competence in each of the 10 fitness domains: cardiovascular/ respiratory endurance, stamina, strength, flexibility, power, speed, coordination, agility, balance, and accuracy (Glassman, 2020). To have the perfect blend of modalities, it is important to look up the basis and fundamentals of CrossFit and adding classes that complement the CrossFit classes, as for example adding just aerobic classes, as bike classes, or gymnastic classes, mobility classes or weightlifting classes.

For the dimension of ‘competence of the professionals’ (Table 10), overall, this data suggests that the coaches are generally competent and highly rated by the customers. The item coherence between coaches in teaching methods and class management could be slightly improved. As each coach has his own way of teaching methods, skills, and attitude it is important to see if the coaches are coherent, professional, and willing to help. Service providers who exhibit high levels of competence and knowledge are more likely to inspire confidence and trust in their clients, leading to a favourable assessment of the service quality (Parasuraman et al., 1985). As a result, customers are more satisfied and loyal to service providers who have the requisite knowledge and abilities to handle complex tasks, leading to grater satisfaction and loyalty. In this context, it is critical to assess the dimension of professional competence in service quality. The overall competency of the professionals can be increased, leading to better experience for the clients, by investing in training and development programs, fostering a supportive culture, and implementing effective feedback mechanism. It is important that CrossFit Portugal gives the same level of CrossFit courses to all the CrossFit coaches, but it is even more important that the managers and head coaches focus on the internal consistency in the coaches. CrossFit Portugal does teach the coaches in their Level 1, 2 and 3 seminars, but a closer monitoring of the teaching methods by the coaches should be done internally by the managers/ head coaches. Additionally, to have a healthy environment inside the community it is also important that the coaches realize the physical and mental effort of the members to be able to push their limits in a workout. Several members might embrace physical challenges to gain approval of others, therefore the coaches have to be always aware of this aspect of community because the health of their members is the top priority (Bailey et al., 2019).

The information of the dimension ‘relationship with the clients’ (Table 11), points to the possibility that the business may need to change its social media investments and focus to more effectively full fill customer expectations. Additionally, to exceed customers’ expectations, there might be opportunities to enhance gift-giving programs and box merchandising as well as special offers for new clients and the feedback channels. For the item special offers for new clients, the current performance is satisfactory and there is a moderate gap between the importance and the performance. To enhance this item, it is recommended to assess the effectiveness of existing special offers and consider introducing new incentives or promotions to attract new clients. This may involve making market research, analysing the competitor offerings, and implementing innovative strategies to make the offerings more appealing. Similar for the gifts that reward frequent clients and box merchandising, it is important to explore innovative ways to offer personalized gifts, since the CrossFit community gives high importance to have the “CrossFit style” (Bailey et al., 2019). The mission of the box merchandising is to create more inclusiveness inside the community

because CrossFit is about the team-like relationship (Dawson, 2017). Actively encouraging clients to provide feedback, promptly addressing their suggestions, and implementing relevant changes will demonstrate the organization's commitment to client feedback and will enhance the overall client experience.

The 'building dimension' (Table 12) measures client opinions on the boxes' physical facilities. The significance of tangibles dimensions in service quality has been underlined in several well-known research studies. The SERVQUAL model, which is frequently used for evaluating service quality, has in total five dimensions. The dimension tangibles are one of the five aspects that affect customers' views of service quality (Zeithaml & Berry, 1988). The box should focus on enhancing all the items listed in Table 12. Enhancing the '*level of cleanliness and hygiene of the facility*', '*maintenance, and condition of the equipment in the training area*', are few examples of immediate actions that the organization should make. The item comfort of the training area is also an item that should be improved. To improve the item, it is recommended to assess the current facilities and make necessary improvements to enhance comfort level. This may involve upgrading seating arrangements, optimizing temperature control, providing adequate lighting, and making sure that the training space has a welcoming atmosphere. The perceived importance and performance rating for the maintenance and condition of the training area are significantly at odds with one another. Regular maintenance inspections should be carried out to address any issues promptly. Additionally, implementing a proactive maintenance plan, repairing equipment or facilities as needs, and ensuring a clean and well-maintained environment will contribute to a positive user experience. One of the items that have performed the worst was the cleanliness of the facility and the maintenance and condition of the equipment in the training area. It is essential to emphasize in cleanliness and have strict cleaning procedures. A clean environment for users can be achieved through consistent cleaning practices, and providing hygiene essentials such as hand sanitizers and disinfect wipes can contribute to creating a clean and hygienic environment for users. In Edmonds (2020) study he also mentions that one of the main critics of many CrossFit boxes is the level of cleanliness. He mentioned one box where the cleanliness was complimented by the associates and their practices were after the workout to clean and return the equipment that they have used. Additionally, many members voluntarily would perform additional cleaning session to ensure that the box was well organized and cleaned. The members were encouraged to co-produce the physical environment that they desired. In this way they were the consumers and producers of their own space, maintain and taking care of the box they attend to (Edmonds, 2020). A well-maintained training area can be improved by regularly inspect and maintain the equipment to ensure proper functioning, as well as conducting routine maintenance checks.

The quality of services depends significantly on complementary services, commonly referred to support services. The last dimension, '*complementary services*' (Table 13) complement the primary offering and improve the clientele's entire experience, as for example the existence of wi-fi, physiotherapy/ osteopathy services, quality of waiting area and locker service. The item locker service has a significant negative gap. To improve this item, it may involve enhancing the security and convenience of the lockers, ensuring sufficient availability, and addressing any issues or complaints regarding the locker service. For the physiotherapy/osteopathy services the data indicates a small positive gap. While the current performance is relatively satisfactory, there may

still be room for improvement. By improving the qualifications and expertise of the service providers, offering a wider range of complementary services, and ensuring convenient scheduling option for the clients, the item could perform even better. It would be also important to make the members of the box aware of the existing physiotherapy/osteopathy services and the benefits of the treatment. As the item is performing better as its importance, new ways of attracting new clients should be implemented.

Summarised the goal of this research was to identify the important aspects of service quality in the CrossFit community in Lisbon, that contribute positively or negatively to the business, with which a new allocation of resources can be suggested. With the understanding of the importance for the consumer of each service item, a new prioritisation and allocation of resources was proposed.

This research was mainly inspired by the research of Léon-Quismondo et al. (2018) that applied the Importance-Performance Analysis (IPA), initially developed by Martilla and James (1977), with which the priority and secondary aspects in fitness centres could be determined, to suggest new allocation of organizational resources in the more efficient way. Other theories and models were also analysed in the study, as for example the use of the SERVQUAL model or the Servicescape, but they emphasised mainly on performance-only evaluations in sport management, while other investigators as Funk (2017) emphasised the necessity to stop quantifying performance and start paying more attention to what matters to the sport consumers. By understanding and considering not just the performance of the elements but also the importance of the elements from the service quality, it would give the organization more insights into how to enhance the sport experience (Aicher et al., 2022). For this reason, the IPA-matrix was the main tool for this research (Figure 2 and Figure 3).

It is important to highlight that the analysis of the service quality with the IPA approach was done previously in the fitness sector, mainly in gyms and fitness centres, but for the CrossFit community this subject seemed to be an unexplored topic at scientific research level.

Evidenced by the collected data (Table 6), it can be said that CrossFit is practiced by all genders, from different age groups and educations, making it a very inclusive and attractive sport. CrossFits' capacity to inspire and motivate their clients to continue practicing their sport can be seen in Table 8, with almost 60% of the respondents practicing CrossFit for more than three years. As mentioned before, CrossFit's close-knit nature, well organized institution and the levels of trust that permeate the CrossFit community, have often been compared to a cult (Dawson, 2017).

One of the several objectives of the research was to identify the key items to obtain higher service quality in CrossFit boxes in the region of Lisbon. Nevertheless, this research has shown that the service quality can not be measured by the organizational performance without determining how significant traits are to the customers (Aicher et al., 2022). For this reason, the concept of higher service quality had to be redefined by the investigator. This research considers as high service quality, items that have a high importance for the clients and that perform well. In this new definition the importance weights more than the performance because the performance can in most of the cases be easily improved and the importance ratings that are personal opinions cannot be easily changed. The items with a performance rating $> 4,00$ were selected as the key items to higher

service quality (Table 9 to Table 13). The key items to obtain higher service quality in CrossFit boxes are: *'opening hours'*, *'open box hours'*, *'number of days open throughout the year'*, *'variety of the type of classes offered'*, *'coherence between coaches in teaching methods and class management'*, *'professionalism and technical skills of coaches'*, *'willingness of coaches to help'*, *'comfort of the training area'*, *'maintenance and condition of the training areas'*, *'level of cleanliness and hygiene of the facility'*, *'maintenance and condition of the equipment in the training area'*, *'organisation of the training area and storage'* and *'ventilation (T°) in changing rooms'*. All the mentioned items have high importance scores for the clients. Not all the listed items have a performance score of > 4,00 but should have a performance score of > 4,00. Those items with a performance score < 4,00 % should be immediately improved to avoid high dissatisfaction levels from the clients. These items are evidence of the feedback provided by the clients, displaying the customer needs and wants. To avoid discrepancies between executives' perceptions and consumers expectations it is recommended for managers/ head coaches to look up the important items for the customers (Parasuraman et al., 1985).

The second objective was to analyse the association between the importance and performance of the defined service quality variables, from consumers perspective. This task was performed by calculating the discrepancy, of the importance and performance scores (Table 9 to Table 13), which gave the coordinate of the position in the grid of the IPA-matrix (Figure 2 and Figure 3). The IPA-matrix suggested where the managers/ head coaches should focus on, as well as maintaining the satisfaction of items with, a high importance score and high satisfaction score. A positive $M(P)-M(I)$ difference and a significant t -test result indicate a quality surplus, which means that the customers' expectations are exceeded. A negative $M(P)-M(I)$ difference and a significant t -test result, reflect a negative performance of the item and a high importance for the customer (Yildiz, 2011). The Gap analysis consists of Gap 1, Gap 2, and Gap 3. The first Gap conducts a significance test to determine whether the results are statistically significant and is used to identify discrepancies between the services offered to the customer. The Gap 2 is an evaluation of the focal organization's position in relation to the marketplace rivals, divides the matrix into the four mentioned quadrants, allowing the organization to identify key customer attributes and make precise differences across the attributes. The last Gap is composed by the three-factor theory that suggests that there are three categories with different impacts on customer satisfaction: basic, performance and excitement. The basic is composed by the elements that the client consider essential and are those that the company should give at minimum. If not met the criteria, may lead to unhappiness, but even if they are, they may not offer a competitive advantage or increase in customer satisfaction. Performance factors may lead to satisfaction, if not offered they can lead to dissatisfaction. The excitement factors are considered beneficial when provided, but do not have a negative impact if not provided. Customers do not expect these elements, therefore when provided and performed well, they become more significant and may even be a surprising factor (Aicher et al., 2022). The basic factors are item that have a negative but not a very significant gap. The performance factors are considered items with elevated negative gaps that can lead to high customer dissatisfaction. The excitement factors are the positive gaps, which have a higher performance than importance for the clients and could become more significant for the clients. In the gap analysis the dimensions *'general conditions'* and *'relationship with the clients'* were the dimensions that have performed the best, with the "best" discrepancy in the item opening hours (-

0,207). The items with the highest discrepancy were mainly in the dimension '*building*', but also in the dimension '*relationship with clients and complementary services*'. The dimension '*building*' has warning gap scores representing high dissatisfaction scores ($\text{gap} \leq -0,51$). The items with small negative gaps, also known as the basic factors, as for example visible in the dimension '*general conditions*' can be improved but are not that concerning as other items since the difference between the performance and the importance is not that big. The excitement factors, as for example in dimension '*complementary services*', items physiotherapy/osteopathy and quality of waiting area have a positive gap and their performance is better than the importance given to those items. These factors can contribute to customer loyalty and positive word-of-mouth.

The third objective was to understand the current overall perceptions of the users from their frequented CrossFit box. The results displayed in Figure 3, show clearly where the clients were satisfied with the current performance. The first quadrant, which represents 'keep up the good work', has in total 9 items out from 22 (41%). The items from the first quadrant, are tangibles items, as '*maintenance and condition of the equipment in the training area*', are assurance items as '*professionalism and technical skills of coaches*', are empathy items as '*organization of the training area and storage*', are reliability items as '*number of days open throughout the year*' and responsiveness items as '*open box hours*'. All the five dimensions of the SERVQUAL model were mentioned in the quadrant 'keep up the good work', giving it a considerable positive overall perception from the CrossFit box in Lisbon. Overall, it can be said that the service quality in the CrossFit boxes in the region of Lisbon is considerably good. The '*level of cleanliness and hygiene of the facility*' and the '*maintenance and condition of the training areas*' are the items with the worse performance rating in study. Managers/ head coaches should highly give attention to both items since the level of satisfaction and conviction is a crucial element in the user's stability and long-term persistence in the industry. Beside of having 41% of the items in the 'keep up the good work', the managers and head coaches should focus on all the remaining items. The quadrant 'concentrate here' has the items that require immediate action to avoid higher dissatisfaction levels. The quadrant 'low priority' does not have a high priority for the clients and could be discharged by the managers/ head coaches but it is very important to have a look on those items so that can be improved and not move to the quadrant 'possible overkill'. The last quadrant 'possible overkill' are also items that should have immediate action since they do not contribute to the success of the service quality. Those items are a possible waste of resources that could be allocated to other more important items. This research is not about identifying mainly the items that are not performing very well but is about all the different items that contribute positively and/or negatively to the overall service quality experience. The addition of higher service quality could contribute to a better long-term relation with the client (Serrano, 2015).

5.2 Limitations

Due to the limited time frame of three months, not every CrossFit box was able to prepare their clients for the survey and had to decline the survey, discharging several possible respondents. Also considering the time and the limited audience in Portugal the questions for the survey had to

be significantly reduced, avoiding that the participants would not conclude the survey due to its' complexity. During the data collection it was noticed that several CrossFit boxes were not open to participate in the study. After making a presential visit in some of the CrossFit boxes and explaining more detailed the advantages of the study, most of the boxes agreed in participating. Other practical implications were that several items of the survey were not applicable in all CrossFit boxes, as for example locker service and physiotherapy/ osteopathy and other services. Diverse respondents have also replied with the answer "not applicable" on items that existed in their box, but from which they were not aware of. The number of items had to be reduced to the number of 22 items for the performance and 22 items for the importance, because as more time the respondents would spend on filling out the survey, as lower could be possibly the number of interested respondents. As visible in the mentioned examples the study had several implications, most of them related to the short time frame. It is suggested that for future research an extended time frame should be given, as well as the possibility to have more detailed information.

Additionally, it must be mentioned that another limitation of the IPA tool is the fact that it depends on the attributes and dimensions that usually the organization defines. The IPA is an easily understandable guide to identify the most critical product or service attributes that need managerial attention (Abalo et al., 2007). Those attributes that are defined by the management does not mean that they are also important and valuable for the client. Therefore, the researcher has defined the attributes from the client perspective, as he is also a client, but got the experts approval in the scale content validation. It can not be forgotten that the aim of this tool is not just to identify the attributes and dimensions that need managerial attention, but also understanding the customers needs and wants from their view.

5.3 Future Challenges

The service quality and importance-performance analysis continue to be a highly discussed subject without certain conclusions, which method and theory is the most correct. If the use of the importance-performance was the best or not for analysing the importance and performance of the service quality in CrossFit boxes in the region of Lisbon is disputable, but for future research it would be very interesting to compare the findings of the same sample but applying different methods and theories. Another interesting study could be comparing the service quality study from customer perspective and the service quality study from the managers/ head coaches perspective to find out the real discrepancy between the clients and managers/ head coaches perceptions.

CrossFit is a relative new brand in Portugal and has not the same size of audience as in Spain, Brazil or in the United States of America. With a more representative sample and an extended timeframe to collect the data, it would be possible to retrieve much more information and to have a significant impact in the CrossFit community. The scientific articles regarding CrossFit are mostly related to injuries, athlete performance, urinary intolerance, and nutrition, making it even more important to explore and to give to know about the service quality in CrossFit. It is not the responsibility of the researcher to have all the answers, rather continuing asking questions and explore unexplored ideas. It is the researchers' responsibility to push the boundaries of knowledge,

to question received wisdom, and to motivate other to do the same. This research has expanded the understanding of service quality in the CrossFit community in the region of Lisbon.

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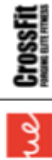
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Appendices

Appendix A: Validation of the survey



Validação do questionário - Universidade Europeia & CrossFit Boxes em Lisboa

Dimensões/ Dimensions	Impacto e desempenho dos itens aplicando-os nas Boxes de CrossFit (Portuguese Version)	Priorities in the management of fitness centers. Application of Importance-Performance Analysis (León-Quismondo et al., 2018) (Spanish Version)
Condições gerais	Proximidade da box com a sua residência	Proximidade a los hogares de los usuarios
	Accesibilidade para pessoas com mobilidade reduzida	Accesibilidad para personas con discapacidad
	Preço da mensalidade e matrícula	Precio de la cuota y matrícula
	Horário de funcionamento	Horario y número de días de funcionamiento al año
Atendimento ao cliente	Número de dias de funcionamento durante o ano	Medios de sugerencias (botón o tablón de sugerencias)
	Meios de sugestões (caixa de sugestões ou tabela de sugestões)	Información sobre nuevos servicios o cambios de los existentes
	Informação sobre novos serviços ou mudança de serviços já existentes	Trabo amable y personalizado del personal técnico
	Atendimento personalizado e simpático dos Coaches	Profesionalidad del personal técnico
Marketing	Profissionalismo e competências técnicas dos Coaches	Eficacia y logro de resultados del personal técnico
	Disponibilidade dos Coaches em ajudar	Boletín de noticias por email
	Email newsletter	Página web
	Website	
Área de treino	Redes sociais	Oferas especiales
	Oferas especiais para novos clientes	Regalos que premiam al cliente habitual
	Prendas que recompensam clientes frequentes	Amplitud de los espacios deportivos
	Conforto da instalação	
	Conforto da área de treino	Estado de conservación de los espacios deportivos
	Manutenção e estado de conservação das áreas de treino	Nivel de limpeza e higiene de los espacios deportivos
	Nível de limpeza e higiene da instalação	Marca de las máquinas y material de la sala fitness
	Marca dos equipamentos na área de treino	Número de las máquinas y material de la sala fitness
	Número de equipamentos na área de treino	Modernidad de las máquinas y material de la sala fitness
	Variedade do equipamento na área de treino	Estado de conservación de las máquinas y material de la sala fitness
	Manutenção e estado de conservação do equipamento na área de treino	
	Magnésio disponibilizado em aula	
Banheiros	Material de limpeza para desinfetar o equipamento utilizado	
	Tamanho/espaco dos banheiros	Amplitud de los vestuarios
	Limpeza e higiene dos banheiros	Limpeza e higiene de los vestuarios
	Ventilação (T°) nos banheiros	Ventilación (T°) en los vestuarios
	Qualidade do duche (pressão, volume e temperatura da água)	Calidad de las duchas (presión, volumen y temperatura del agua)
	Serviço de cacos	
	Acessório de higiene (Secador e dispensadores de gel de banho)	Sistema de cierre de taquillas
	Variedade do tipo de aulas oferecidas	Variedad y número de actividades ofertadas
Serviços principais	Número de aulas oferecidas	Variedad y número de actividades ofertadas
	Variedade no tipo de aulas (Weightlifting, Conditioning, Strength etc.)	
	Serviço de Personal Training	
	Adaptações das aulas para (Scaled)	
	Aula de CrossFit Kids e/ou Teens	Actividades intergeneracionales
	Serviço de nutrição	
	Serviço de fisioterapia/ osteopatia ou outros	
	Máquinas de vendas (Café, Refeições rápidas e bebidas)	Máquinas de vending
Serviços complementares	Wi-Fi	Wi-Fi
	Qualidade do local de espera	Televisores en la sala fitness
	Sentimento de inclusão entre os sócios e os coaches	
	Número de competições internas	
	Atividades que reforçam o sentimento de comunidade entre os sócios (almoços, viagens etc.)	Gimnasio como un punto de encuentro social
	Horário de Open Box	

Appendix B: Scores and comments of expert/ person number 1

Validation questionnaire - Universidade Europeia & CrossFit Boxes in Lisbon		Item relevance					SUM	
Dimensions	Importance and performance of the items applying them in CrossFit Boxes (english version)	P1	1	2	3	4		
General conditions	Proximity of the box to your home	3				1	1	
	Accessibility for people with reduced mobility	2			1		0	
	Tuition and registration fee	4				1	1	
	Opening hours	3				1	1	
Customer service	Number of working days throughout the year	4				1	1	
	Feedback channels (suggestion box or suggestion board)	3				1	1	
	Information on new services or changes to existing services	4				1	1	
	Personalised and friendly service from the coaches	3				1	1	
Marketing	Professionalism and technical skills of the coaches	4				1	1	
	Availability of the coaches to help	4				1	1	
	Email newsletter	2			1		0	
	Website	2			1		0	
Training area	Social media	3			1		1	
	Special offers for new clients	3			1		1	
	Gifts that reward frequent clients	3			1		1	
	Comfort of the facility	3				1	1	
Training area	Comfort of the training area	4				1	1	
	Maintenance and condition of the training areas	4				1	1	
	Cleanliness and hygiene level of the facility	4				1	1	
	Brand of equipment in the training area	3				1	1	
Changing rooms	Number of pieces of equipment in training area	4				1	1	
	Variety of the equipment in the training area	3				1	1	
	Maintenance and condition of the equipment in the training area	4				1	1	
	Magnesium available in class	3				1	1	
Man services	Cleaning material to disinfect the equipment used	3				1	1	
	Size/space of changing room	3				1	1	
	Cleanliness and hygiene of the changing rooms	4				1	1	
	Ventilation (T°) in changing rooms	3				1	1	
Man services	Shower quality (water pressure, volume and temperature)	2				1	0	
	Locker service	3				1	1	
	Hygiene accessories (hair dryer and shower gel dispenser)	2				1	0	
	Variety of the type of lessons offered	3				1	1	
Man services	Number of classes offered	3				1	1	
	Variety in the type of classes offered (Weightlifting, Conditioning, Strength etc.)	3				1	1	
	Personal Training service	2			1		0	
	Class adaptations for (Disabled)	4				1	1	
Complementary services	CrossFit Knots and/or rent class	3				1	1	
	Nutrition Service	2				1	0	
	Physiotherapy/ osteopathy service or others	3				1	1	
	Vending machines (Coffee, fast food and drinks)	3				1	1	
Complementary services	Wi-Fi	3				1	1	
	Quality of the waiting area	3				1	1	
	Sense of inclusion between members and coaches	3				1	1	
	Number of internal competitions	2				1	0	
Complementary services	Activities that reinforce the sense of community among members (lunches, tips etc.)	2				1	0	
	Open Box Hours	3				1	1	

Appendix C: CVI

Dimensions	Importance and performance of the items applying them in CrossFit Boxes (english version)										Expert in agreement	ICOVI	UA	Agree or dis/miss
General conditions	Proximity of the box to your home	1	1	1	1	1	1	1	1	1	0	0.75	0	Don't keep the item
	Accessibility for people with reduced mobility	0	0	0	1	0	1	0	1	0	0	0.25	0	Don't keep the item
	Tuition and registration fee	1	1	1	1	1	1	1	1	0	6	0.75	0	Don't keep the item
	Opening hours	1	1	1	1	1	1	1	1	0	7	0.875	0	Keep the item
	Number of working days throughout the year	1	1	1	1	1	1	0	1	0	5	0.625	0	Don't keep the item
Customer service	Feedback channels (suggestion box or suggestion board)	0.80	0.80	0.80	0.80	0.80	0.80	0.40	0.80	1.00	S-CV/Aw	0.65	0	Don't keep the scale
	Information on new services or changes to existing services	1	1	1	1	1	1	0	1	1	5	0.625	0	Don't keep the scale
	Personalised and friendly service from the coaches	1	1	1	1	1	1	1	1	1	7	0.875	0	Keep the item
	Professionalism and technical skills of the coaches	1	1	1	1	1	1	1	1	1	8	1	0	Keep the item
	Availability of the coaches to help	1	1	1	1	1	1	1	1	1	8	1	0	Keep the item
Marketing	Email newsletter	1.00	1.00	1.00	0.60	1.00	0.90	0.90	1.00	1.00	S-CV/Aw	0.90	0	Keep the scale
	Website	0	0	0	0	0	0	0	0	1	4	0.5	0	Don't keep the item
	Social media	1	1	1	1	1	1	1	1	1	2	0.25	0	Don't keep the item
	Special offers for new clients	1	1	1	1	1	1	1	1	1	8	1	0	Keep the item
	Calls that reward frequent clients	1	1	1	1	1	1	1	1	1	7	0.875	0	Keep the item
Training area	Comfort of the facility	0.60	0.60	0.80	0.60	0.60	0.60	0.60	0.60	0.80	S-CV/Aw	0.65	0	Don't keep the scale
	Comfort of the training area	1	1	1	1	1	1	1	1	1	7	0.875	0	Keep the item
	Maintenance and condition of the training areas	1	1	1	1	1	1	1	1	1	7	0.875	0	Keep the item
	Cleanliness and hygiene level of the facility	1	1	1	1	1	1	1	1	1	8	1	0	Keep the item
	Brand of equipment in the training area	1	0	1	0	1	0	1	0	1	3	0.375	0	Don't keep the item
Changing rooms	Number of pieces of equipment in training area	1	1	1	1	1	1	1	1	1	7	0.875	0	Keep the item
	Variety of the equipment in the training area	1	1	1	1	1	1	1	1	1	7	0.875	0	Keep the item
	Maintenance and condition of the equipment in the training area	1	1	1	1	1	1	1	1	1	7	0.875	0	Keep the item
	Magnesium available in class	1	0	1	1	1	1	1	1	1	7	0.875	0	Keep the item
	Cleaning materials to disinfect the equipment used	1	0	1	1	1	1	1	1	1	3	0.375	0	Don't keep the item
Main services	Staffspace of changing room	1.00	0.70	1.00	0.60	0.90	0.90	0.90	0.80	0.80	S-CV/Aw	0.80	0	Don't keep the scale
	Cleanliness and hygiene of the changing rooms	1	1	1	1	1	1	1	1	1	6	0.75	0	Don't keep the item
	Ventilation (T°) in changing rooms	1	1	1	1	1	1	1	1	1	8	1	0	Keep the item
	Shower quality (water pressure, volume and temperature)	0	0	1	0	1	0	1	0	1	7	0.875	0	Keep the item
	Locker service	1	0	1	0	1	0	1	0	1	4	0.5	0	Don't keep the item
Complementary services	Hygiene accessories (hair dryer and shower gel dispenser)	0	1	1	0	1	0	1	0	1	5	0.625	0	Don't keep the item
	Variety of the type of lessons offered	0.67	0.67	1.00	0.33	1.00	0.17	1.00	1.00	1.00	S-CV/Aw	0.73	0	Don't keep the scale
	Number of classes offered	1	1	1	1	1	1	1	1	1	8	1	0	Keep the item
	Variety in the type of classes offered (Weightlifting, Conditioning, Strength etc.)	1	1	1	1	1	1	1	1	1	8	1	0	Keep the item
	Personal training service	0	0	0	1	1	0	1	1	1	4	0.5	0	Don't keep the item