ASSESSING SERVICE QUALITY IN LANGUAGE SCHOOLS: A MULTICRITERIA APPROACH

AVALIAÇÃO DA QUALIDADE DE SERVIÇOS EM ESCOLAS DE IDIOMAS: UMA ABORDAGEM MULTICRITÉRIO

André Luís Policani Freitas
Doutor em Engenharia de Produção
andrepolicani@yahoo.com

Mileine Henriques Elias Santiago
Mestra em Engenharia de Produção
mileineadm@gmail.com

Abstract – This work presents a methodological approach based on two decision-aid methods to assist students in choosing language schools (LS) and LS managers in identifying the most critical criteria for their schools to retain current students and to attract new students. By conducting a experimental study based on the self-reported perceptions of a group of young Brazilian students, the AHP method and the Weighted Average (WA) method were used to measure the importance of the criteria and the performance of the LSs on each criterion and, finally, to order the LSs from best to worst. Quartile analysis was used to determine the most critical criteria in LSs. As a result, the teacher-related criteria, student-teacher-staff relationships, the teaching methodology, and accessibility for disabled people were considered the most important criteria. Both methods were satisfactory but the WA method was simpler to apply.

Keywords: Service quality management, language school performance, benchmarking, multi-criteria decision making, school climate.

Resumo – Este trabalho apresenta uma abordagem metodológica baseada no emprego de dois métodos de apoio à tomada de decisão para auxiliar estudantes na escolha de escolas de idiomas e gestores de escolas de idiomas na identificação dos critérios mais críticos em suas escolas na retenção dos estudantes atuais e para captar novos estudantes. Por meio de um estudo experimental realizado a partir das percepções fornecidas por um grupo de jovens estudantes brasileiros, o método AHP e o método da Média Ponderada foram utilizados para mensurar a importância dos critérios e o desempenho das escolas de idiomas à luz de cada critério e, finalmente, para obter um ranking das escolas de idiomas, da melhor à pior. A Análise dos Quartis foi utilizada para determinar os critérios mais críticos nas escolas de idiomas. Como parte dos resultados, os critérios relacionados aos professores; ao relacionamento entre professores, alunos e funcionários; metodologia de ensino; e acesso a pessoas portadoras de necessidades especiais forma considerados mais importantes. Ambos os métodos apresentaram resultados satisfatórios, contudo a Média Ponderada foi mais simples de utilizar.

Palavras-chave: gerenciamento da qualidade de serviços, desempenho de escola de idiomas, *benchmarking*, decisão multicriterial, clima escolar.

1. Introduction

In a globalized world, interactions among countries are increasing, and in turn, the interest in people who know how to effectively engage in such interactions is also increasing. In such a scenario, second and foreign language education are topics that are attracting increasing interest all over the world (Dixon et al., 2012). One of the indications of this demand is the increasing interest of organizations in multilingual professionals, that is, professionals who are fluent in more than one language. This situation is occurring in Brazil, and various aspects influence the demand for second language learning in language schools.

With the ninth largest economy in the world and as the fifth largest country in territorial size, Brazil is unequivocally the most important country in Latin America (British Council, 2019). The Brazilian population is estimated to have 210 million inhabitants (IBGE, 2019), which corresponds to approximately half of the population of South America. However, unlike Spanish, Portuguese is not a widely spoken language in the neighboring countries (Aristizábal & Welch, 2017). On the other hand, English is the most Brazilians' preferred second language for learning, and language schools are the default option for learning English in Brazil (British Council,

2019).

Research on Brazilian perceptions of education indicates that education is highly valued. For the elite, education is an important marker of social ascension; for the middle class, it is an important tool for social progression (British Council, 2014). This aspect is especially important since the schooling level in Brazil needs to be higher for the country to be more competitive.

Nowadays, the language teaching market in Brazil is very competitive. There are several language schools in Brazil, each of which offers infrastructure, teaching methodologies and teaching materials, among other relevant features relevant. Furthermore, over the last years, the diffusion of online language courses offered both by educational institutions and commercial organizations has accelerated (Lin & Warschauer, 2015), and there has been an increasing number of so-called "bilingual" schools, in which second language teaching is inserted into the school curriculum.

In this competitive scenario involving multiple variables, two peculiar situations are present: first, it is very common for people and organizations to have difficulty choosing a language school, and second, the assessment of service quality in language schools appears to not be a common practice in academia. Both situations can be considered decision problems. Decision aiding (DA) seeks to use science to shed light on managerial decisions and/or guide complex decision-making processes within organized systems. As a corollary, because DA helps to create solutions, and not simply describe problems, it prioritizes a dynamic approach to facilitate the insertion of DA practitioners into the decision-making process. In some cases, DA can thus contribute to legitimating a final decision (Figueira et al., 2005).

Multiple-criteria decision analysis (MCDA) is a branch of Operations Research field of study that aims to give decision makers tools to enable them to advance in solving decision problems where several - usually contradictory - criteria and points of view must be taken into account (Vincke, 1992). Despite the diversity of MCDA approaches and methods, the basic elements of MCDA are very simple: a finite or infinite set of actions (alternatives, solutions, courses of action, etc.), at least two criteria, and at least one decision maker (Figueira et al., 2005).

This work presents a multicriteria approach to measuring the quality of services in language schools to contribute to the analysis of this problem. By means

of an exploratory study conducted with Brazilian second language students, two multicriteria DA methods (the analytic hierarchy process (AHP) and the weighted average (WA) method) were used to evaluate language schools and to identify the most important and most critical criteria in each language school. The AHP (Saaty, 1977) is one of the most popular MCDA methods and it aids decision makers in choosing the best alternative that incorporates qualitative considerations and quantitative factors into subjective decision-making (Vincke, 1992). Several studies (e.g., Chua Chow & Luk, 2005; Min & Min, 2011, 2013) have applied comparative evaluation models using the AHP for competitive service quality benchmarking (Singh, 2016). Conversely, the WA method is very commonly used in practice for its simplicity (Vincke, 1992).

This work is organized as follows. We first describe the theme of second learning education in Brazil and service quality in language schools, which is followed by a description of the exploratory study and the methodological approach for assessing service quality in language schools. In the subsequent findings section, the results are presented and discussed. Finally, the last section presents the theoretical contributions and the managerial implications of the study, as well as proposals for future works.

2. Service Quality in Language Schools

Language schools are typically service companies. Class performance is probably the main service performed in language schools. Such services generally cannot be counted, measured, inventoried, tested, and verified in advance to assure quality (intangibility). The classes, especially those with a high work content, are often heterogeneous; class performance usually varies from teacher to teacher, from student to student and from day to day (heterogeneity). Because service performance and results are inseparable (inseparability), the quality of the class is instantly perceived by the students. In addition, because classes cannot be saved to be performed at another time (perishability), they are perishable.

Such characteristics are valid both for classroom-based courses and for online

courses. Marketing strategies have been suggested for problems in language schools as follows: create a strong organizational image (intangibility); emphasize the selection and training of public contact personnel, especially staff and teachers (inseparability); customize administrative services and classes (heterogeneity); and use strategies to cope with the fluctuating demand of students (perishability) (Parasuraman et al., 1985).

Certain activities are typically performed in most language schools. First, the customer enters a language school to receive information about the courses. This information generally involves issues related to the teaching material, teaching methods, school infrastructure and price. Sometimes, a customer must wait to be attended, and it is common for the staff to offer the customer an opportunity to attend a demonstration class. Language schools are not retail companies, such as restaurants or supermarkets. Over time, students of a language school and their families develop feelings towards and relationships with teachers, staff, and other students, which constitute their educational life. Thus, three concepts are very important to take into account in the assessment and management of service quality in language schools: moments of truth, servicescapes and the school climate.

A moment of truth is a moment when a customer comes in contact with any aspect of the service company, and based on this experience, he/she forms an opinion concerning the quality of services. The cycle of service is a continuous sequence of moments of truth that the customer experiences as the service is provided. This configuration is natural, unconscious and "in the customer's mind" and may have nothing to do with the "technical" approach set by the company (Albrecht, 1999).

In a language school, students, parents, teachers, staff and managers can observe and interact with the ambient conditions (e.g., cleanliness, temperature, air quality, noise, music, lighting and odor); spatial layout and functionality (e.g., layout, equipment and furniture); and signals, symbols and artifacts (e.g., bulletin boards, building facade appearance and interior design). All these aspects are environmental dimensions of servicescapes, and they influence both customers' and workers' perceptions of service quality, behavior and well-being within the overall environment (Bitner, 1992; Sheng et al., 2016).

The school climate refers to the attitudes, beliefs, values, goals and norms that underlie the interpersonal relationships, teaching and learning practices; the level of academic achievement of the students; and the operation of the school, which reflects the quality and the character of school life. Such aspects promote or hinder students' abilities to learn and progress academically (NSCC, 2007; Thapa et al., 2013). The school climate is typically measured based on the perceptions and ratings of students, teachers, administrators, staff, and parents, and there is still no consensus on how to define school climate and the dimensions that need to be regularly measured (Olsen et al., 2018; Thapa et al., 2013). Furthermore, the relationship among school climate issues, servicescape dimensions and moments of truth is still not clear, although all of these aspects appear to influence service quality.

The evaluation of the service quality provided by language schools is still incipient. Walley et al. (2012) used SERVQUAL and importance-performance analysis to identify the key aspects of service quality relating to language training in China. Rieg et al. (2016) proposed 14 attributes and 3 dimensions based on the SERVQUAL to assess the quality of services in language schools. In their study, a questionnaire was applied to a sample of 120 students of a language school, and 97 questionnaires were considered.

This work aims to contribute to address the problem in question and a multicriteria approach is proposed to assess service quality in language schools regarding students' perceptions of the importance of the criteria and the performance of the language schools regarding each criterion.

3. The Methodological Approach

To assess service quality in language schools, the methodological elements for modeling the problem are defined, and some key points of the research are established.

3.1 Quality dimension and criteria (items)

Moments of truth, the servicescape dimensions and the school climate are thought to influence service quality in language schools. Based on these constructs, a set of quality dimensions and items (criteria) are proposed (See Table 1).

- Interpersonal relationships (D_1): When choosing a language school, friends' and teachers' suggestions are the most valued form of advice (British Council, 2014). In addition to promoting a positive school climate, good relationships between students, teachers and staff also contribute to attracting new students to language schools.

- Infrastructure (D_2): Sttudents generally do not go to language schools only to learn a foreign language. Children and adolescents enjoy having fun by talking to and playing online games with friends and other students. Thus, internet labs, snack bars and other physical facilities, as well as accessibility for disabled people, are issues included in the questionnaire.

- Classroom (D_3): The classroom is a specific aspect of the infrastructure. The classroom size, thermal comfort, lighting, sound insulation, comfort of the desks and cleanliness are issues thought to (de)motivate students to attend classes. It is possible that the number of students per classroom influences the quality of learning. According to the British Council (2014), in language schools, classes with more than 14 students are less functional.

- Teacher (D_4): The teacher is the person with whom students interact the most in a language school. In all classes, they are responsible for welcoming students, presenting content, clarifying doubts, encouraging student participation, administering and correcting oral and written tests, among other tasks.

- Teaching methods (D_5): It includes the teaching methodology, teaching materials, content covered in the course and extra class activities (i.e., cultural activities, movie classes, exhibitions, commemorative events). All teaching methods are thought to be important for maintaining a student's commitment to a language school.

- Value (D_6): In assessing the amount paid by students to language schools, two

criteria appear to be relevant: the value of the teaching methods (including the teaching methodology, teaching material and multimedia material) and the course price (including infrastructure and classrooms).

Table 1 - Criteria and subcriteria

Qualit	Items (Subcriteria)
D_1. Interpersonal relationships	I_1. Friendliness of the staff; I_2. Interest of employees in serving students; I_3. Pleasant interactions among teachers, students and staff; I_4. Employee efficiency; I_5. Efficient communication among teachers, students, and staff; I_6. Trust in employees; I_7. Customer service; I_8. Interest of school coordinators and school principals in student learning.
D_2. Infrastructure	I_9. Study labs with internet access; I_{10}. Accessibility for disabled people; I_{11}. Physical facilities (bathrooms, corridors, reception, outdoor areas, etc.); I_{12}. Snack bars.
D_3. Classroom	I_{13}. Thermal comfort of classrooms; I_{14}. Lighting of the classrooms; I_{15}. Comfort of school desks; I_{16}. Sound insulation in classrooms; I_{17}. Size of classrooms in relation to the number of students; I_{18}. Cleanliness of the classrooms.
D_4. Teacher	I_{19}. Teachers' politeness; I_{20}. Teachers' attendance; I_{21}. Punctuality of teachers in starting and ending classes; I_{22}. Teachers' knowledge; I_{23}. Teachers' assistance; I_{24}. Teachers' didactics; I_{25}. Teachers' compliance with course content; I_{26}. Teachers' interactions with students; I_{27}. Teachers' avoidance of the use of the Portuguese language in class

D₅. Teaching methods	I₂₈. Teaching material; I₂₉. Teaching methodology; I₃₀. Content covered in language courses; I₃₁. Extra-class activities.
D₆. Value	I₃₂. Value of service (amount charged in relation to what is offered); I₃₃. Value of teaching material (amount charged in relation to what is offered)

3.2 Design of the questionnaire

The questionnaire designed to evaluate language school service quality was composed of two blocks of questions. In the first block, multicategory structured questions were defined to obtain responses concerning the characteristics and profile of the respondents, such as name (optional), gender, age, educational level, amount of time spent learning a second language and the language school attended. In the second block, two 5-point Likert scales were used to measure the importance (I) of each item (the values ranging from 1 (not important) to 5 (very important)) and the performance (P) of the language schools related to each item (the values ranging from 1 (very bad) to 5 (very good)). To ensure the content validity of the questionnaire, the questionnaire was analyzed by two language school managers and three researchers in the field of service quality management. Based on the suggestions and recommendations resulting from the content adequacy assessment, minor adjustments were made to the criteria.

3.3 Data collection

Convenience sampling was performed with students from several high schools, technical schools and universities who were currently learning a second language at a language school. We aimed to recruit respondents who were not in language schools during the evaluation process so they would not be influenced by the presence of staff and teachers of language schools or by improvements intentionally incorporated by language schools during the evaluation process. After the approval of the survey by high schools and universities administrators, the respondents were contacted personally, and the purpose of the research was presented. The

questionnaire was delivered during the respondents' classes, and the researchers remained on hand to respond to any questions or requests for clarification. The average time to fulfill the questionnaire was about 15 minutes. A total of 333 questionnaires were fully completed.

3.4 Set of alternatives (language schools)

The nine language schools with the largest number of respondents were selected to be analyzed; together, these schools represented 84% of the sample. The nine schools were Wizard, Cultura Inglesa, Number One, IBEU, Fisk, CNA, Celife, CCAA and Wise up. Only IBEU and Celife are not franchised schools. For confidential reasons, the language schools were denoted as LS_1, LS_2, ..., LS_9, which do not correspond to the order in which they were presented.

3.5 Methods

Cronbach's alpha and item-to-total correlations were used to measure the questionnaire reliability. Quartile analysis (Freitas et al., 2006) was used to classify the items (criteria) into four priority levels (critical (C), high (H), moderate (M), and low (L)) based on the importance averages for the criteria. The three quartiles were considered the border values. The importance averages were used to calculate the quartiles by which the criteria were classified into the levels (Freitas & Freitas Neto, 2017; Freitas & Lacerda, 2019). For example, the criteria with importance averages below the first quartile were designated as low priority, and questions with importance averages above the third quartile were designated as critical priority.

The AHP method and the WA method were used to measure the importance of the criteria and the performance of the language schools on each item and, finally, to order the language schools from best to worst.

The use of the AHP were supported by the following three principles. First, it is necessary to construct the hierarchy. In the context of the problem of selecting the best language school, this principle involves identifying the overall objective (the selection of the best language school), the quality dimensions that must be satisfied

to fulfill the overall objective, the criteria that are related to the quality dimensions, and the alternatives (See Figure 1).
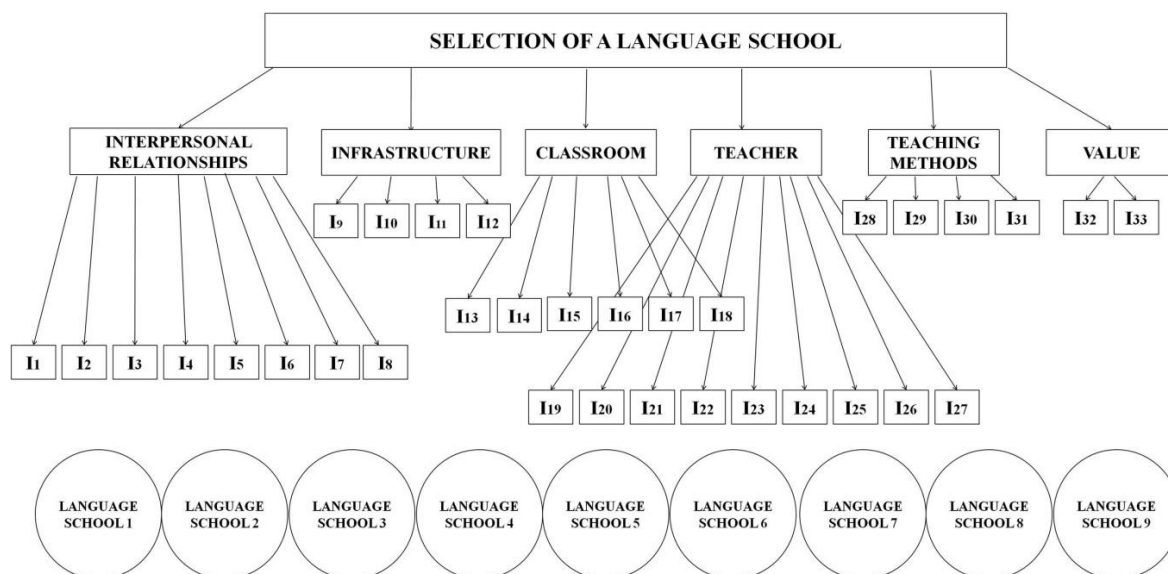
Figure 1 - Structure of the hierarchy

Second, pairwise comparisons are made to specify the decision maker' preferences using the Saaty's fundamental scale (Table 2), that is, to compare pairs of the constituent parts in each level of the hierarchy against a criterion in the next higher level (Saaty & Vargas, 2012). This step involves identifying the relative importance of each quality dimension over another concerning the overall objective, the relative importance of each criterion over another in relation to the dimension to which they belong, and the relative performance of each alternative (language school) over another with respect to each criterion. The judgments made in the pairwise comparisons are synthesized and normalized to establish the relative priorities of each part.

Table 2 - Saaty's scale

Grade of Importance/Preference	The linguistic scale
1	Equally important/preferable
3	Moderately more important/preferable
5	Strongly more important/preferable
7	Very strongly more important/preferable

9	Extremely more important/preferable
2, 4, 6, 8	For compromise between the above values
Reciprocals of above	If object i has one of the above nonzero numbers assigned to it when compared with object j, then j has the reciprocal value when compared with i

Third, the overall consistency of the judgments should be checked by means of the consistency ratio (*CR*). (Saaty, 2012) presents some procedures to calculate the consistency ratio index. The CR values should be 10% or less to be acceptable. If CR is more than 10%, the judgments perhaps should be revised.

The Weighted Average (WA) method is probably the most employed multicriteria decision aid method (Goicoechea et al., 1982; Vincke, 1992). Given two alternatives a and b evaluated concerning a set *F* of criteria (j = 1, 2, ..., n), the WA method involves the construction of a preference structure as represented in (1):

$$\begin{cases} aPb \ if \ and \ only \ if \ \sum_{j=1}^{n} w_j g_j(a) > \sum_{j=1}^{n} w_j g_j(b) \\ aIb \ if \ and \ only \ if \ \sum_{j=1}^{n} w_j g_j(a) = \sum_{j=1}^{n} w_j g_j(b) \end{cases} \quad (1)$$

In such a case, wj represent 'weights' or substitution rates among criteria. $g_j(a)$ and $g_j(b)$ represent, respectively, the score or performance of a and b on the criterion j. Preference relations aPb (a is preferred to b) and aIb (a and b are indifferent) are established by comparing the WA values of the alternatives. Several alternatives can be considered in a real world decision problem. The best alternative is that of the greater WA value. All criteria should be expressed in identical units and the differences among the values of the alternatives on the criteria can compensate for each other.

4. Results and Discussion

The average age of the respondents was 16.4 (*SD*= 2.1) years, and 52.3% of them

were female. A total of 80.4% of the respondents had studied in a language school for more than one year, and 92.7% of them were studying in high school or technical school. English was the most preferred second language (93.4%) to learn.

Cronbach's alpha analysis revealed that the questionnaire is valid and reliable regarding the importance of the criteria and the performance of the language schools for the following dimensions: Interpersonal relationships (α_I = 0.78; α_P = 0.83), Classroom (α_I = 0.79; α_P = 0.72), Teacher (α_I = 0.70; α_P = 0.80) and Teaching methods (α_I = 0.62; α_P = 0.76). Only the alpha of the Infrastructure dimension (α_I = 0.53; α_P = 0.61) was slightly inferior than the lower recommended limit of reliability for exploratory studies. The alpha values and item-to-total correlations indicate that the exclusion of any item would not significantly increase the reliability of the dimension to which it belongs.

Table 3 shows the values of the importance of each criterion and the performance of each language school from the perspective of their students. Based on the application of the WA method with the opinions of all students taken into account, the results indicate that the Infrastructure (not considering the classroom) and Value are the least important quality dimensions. In contrast, Teacher is the most important dimension. The quartile analysis confirms this result, revealing that the most important criteria are those related to the teachers' attributes. Pleasant interactions among teachers, students and staff (I_3), the interest of school coordinators and principals in student learning (I_8) and the teaching methodology (I_{29}) are also very important for the students. Snack bars (I_{12}), extra-class activities (I_{31}) and study labs (I_9) are the least important criteria.

The most critical language school service criteria include the interest of coordinators and school principals in student learning (I_8) and accessibility for disabled people (I_{10}). If the quality of services is measured with a performance-based approach, language schools should give special attention to customer service (I_7), study labs (I_9), snack bars (I_{12}), the comfort of the school desks (I_{15}), sound insulation (I_{16}), extra class activities (I_{31}), the value of service (I_{32}), and the value of teaching material (I_{33}). Walley et al. (2012) revealed that critical service attributes include "consistently high teaching quality", "lectures start and finish on time", "availability of learning materials", "cost of training", "rooms in which teaching takes place" and

"access to information and resources to support learning". Rieg et al. (2016) concluded that the most critical attributes are concerned with the "existence of teaching laboratories and comfortable rooms", "teachers with fluency in language and didactics", "confidence transmitted by teachers", "good location", and "modern equipment". Thus, with the exception of the issues related to the cost of learning (I_{31} and I_{32}), those results are not in agreement with our findings.

For benchmarking purposes, asterisks (*) indicate the best language school in each subcriterion or, in other words, "the optimal alternative or the optimal solution on each criterion". However, the results indicate that there is no language school which is the best in all criteria. The results show that LS_8 and LS_4 are the best and worst ranked language schools, respectively.

Quartile analysis can also be especially important for benchmarking purposes, since it can help managers of language schools identify the most critical criteria in terms of the importance of the criteria and schools' performance on each item. More specifically, such analysis can be used by managers to identify the weakness and strengths of their own schools as a self-evaluation process and to identify the weakness and strengths of each competitor as a benchmarking analysis.

The most critical situation occurs if an item is critical both for the importance of a criterion and the performance of the language school on that item. For example, Table 3 shows that accessibility for disabled people (I_{10}) is very critical for LS_2 and LS_7.

The value of service appears to be more critical for LS_5, and teachers' avoidance of the use of the Portuguese language in English classes (I_{27}) is more critical for LS_9 students. LS_8 is the best-performing language school in terms of the interest of employees in serving students (I_2), and this item is more critical for this language school than for the others. The teaching material (I_{28}) is another critical item for LS_8. Several analyses can also be conducted on language schools that have criteria that are equally critical in terms of importance and have high priority in terms of performance.

Table 3 also shows the overall performance ($\overline{\overline{P}}$) of each language school,

which represents the performance-only measure of service quality and the results of the WA method. Notably, the ranking orders of the language schools are not the same for both methods; that is, there is a slight difference in the overall scores of the alternatives, and the addition of the importance weights may influence the final order. However, unless the researcher aims to determine the importance of the criteria, the performance-only based service quality evaluation also appears to be adequate to measure service quality.

Table 3 - Average Importance of the criteria and average performance of the language schools

			Alternatives (language schools)															
			LS1		LS2		LS3		LS4		LS5		LS6		LS7		LS8		LS9	
I_j	$\bar{\bar{I}}$	$\bar{\bar{P}}$	$\bar{i}$	$\bar{P}$	$\bar{i}$	$\bar{P}$	$\bar{i}$	$\bar{P}$	$\bar{i}$	$\bar{P}$	$\bar{i}$	$\bar{P}$	$\bar{i}$	$\bar{P}$	$\bar{i}$	$\bar{P}$	$\bar{i}$	$\bar{P}$	$\bar{i}$	$\bar{P}$
I_1	4.37[L]	4.27[H]	4.38	4.38	4.19	4.11	4.58	4.48	4.31	3.92	4.19	4.08	4.09	4.29	4.25	4.38	4.60	4.53*	4.50	4.36
I_2	4.62[M]	4.25[H]	4.63	4.40	4.43	4.09	4.75	4.55	4.59	3.78	4.46	4.15	4.48	4.08	4.63	4.25	4.93	4.60*	4.64	4.29
I_3	4.78[C]	4.52[M]	4.75	4.52	4.84	4.41	4.80	4.78*	4.87	4.20	4.62	4.27	4.68	4.76	4.82	4.56	4.87	4.73	4.64	4.71
I_4	4.65[H]	4.31[M]	4.72	4.44	4.61	4.19	4.78	4.48	4.49	3.84	4.46	4.12	4.64	4.52	4.63	4.39	4.87	4.60*	4.43	4.29
I_5	4.62[M]	4.26[H]	4.68	4.30	4.48	3.96	4.60	4.50*	4.59	4.01	4.50	4.16	4.64	4.29	4.71	4.25	4.87	4.47	4.64	4.43
I_6	4.43[L]	4.07[H]	4.52	4.07	4.33	3.96	4.46	4.43*	4.23	3.80	4.40	4.08	4.26	4.04	4.37	3.97	4.80	4.33	4.29	4.08
I_7	4.63[M]	3.94[C]	4.73	3.98	4.62	4.06	4.64	4.00	4.72	3.73	4.47	3.95	4.64	4.32*	4.55	3.62	4.87	4.27	4.76	3.92
I_8	4.75[C]	4.27[H]	4.76	4.26	4.66	4.19	4.83	4.55*	4.79	3.84	4.65	4.16	4.83	4.44	4.71	4.15	4.87	4.47	4.71	4.43
I_9	4.07[L]	3.86[C]	4.17	4.04	3.75	4.43*	4.25	3.85	4.17	3.68	3.81	3.53	4.05	3.75	4.58	4.25	4.53	3.52	3.95	3.40
I_{10}	4.65[H]	3.05[C]	4.63	3.50	4.72	3.05	4.76	2.53	4.64	2.57	4.56	3.28	4.39	3.12	4.89	3.84*	4.58	2.41	4.69	2.94
I_{11}	4.59[M]	4.14[H]	4.62	4.20	4.60	4.44*	4.73	4.25	4.50	3.63	4.50	4.20	4.52	4.04	4.50	4.38	4.80	4.40	4.57	4.21
I_{12}	3.52[L]	3.03[C]	3.81	3.04	3.26	2.33	3.76	3.90*	3.52	3.10	3.70	3.20	3.88	3.28	3.28	3.01	3.30	2.55	3.01	2.60
I_{13}	4.48[M]	4.45[M]	4.50	4.50	4.39	4.70	4.60	4.50	4.47	4.27	4.58	4.31	4.48	4.72	4.58	4.33	4.73	4.87*	4.36	4.53
I_{14}	4.66[H]	4.57[L]	4.67	4.58	4.63	4.65	4.78	4.60	4.72	4.55	4.54	4.38	4.60	4.68	4.58	4.46	4.93	4.93*	4.64	4.71
I_{15}	4.45[M]	3.90[C]	4.47	4.16	4.41	4.34*	4.40	3.88	4.47	3.47	4.44	3.57	4.48	4.08	4.42	3.29	4.76	4.27	4.36	4.14
I_{16}	4.36[L]	3.75[C]	4.43	3.89	4.30	3.92	4.43	3.65	4.37	2.73	4.19	4.04	4.33	3.84	4.20	3.51	4.47	3.98	4.43	4.36*
I_{17}	4.55[M]	4.09[H]	4.59	4.15	4.52	4.11	4.68	3.88	4.53	3.93	4.54	4.12	4.56	4.24	4.04	4.08	4.84	4.34*	4.57	4.29
I_{18}	4.70[H]	4.70[L]	4.69	4.72	4.75	4.89*	4.74	4.84	4.60	4.10	4.65	4.69	4.76	4.88	4.71	4.70	4.87	4.67	4.64	4.57
I_{19}	4.88[C]	4.70[L]	4.95	4.75	4.70	4.45	4.90	4.85	4.90	4.50	4.88	4.65	4.88	4.84	4.91	4.90*	5.00	4.73	4.79	4.71
I_{20}	4.92[C]	4.81[L]	4.90	4.87	4.95	4.84	4.98	4.83	4.83	4.67	4.96	4.73	5.00	4.96*	4.79	4.71	4.93	4.93	5.00	4.93
I_{21}	4.76[C]	4.60[L]	4.75	4.72	4.60	4.53	4.78	4.78	4.83	4.53	4.77	4.58	4.84	4.84*	4.54	4.58	4.93	4.73	4.86	4.64
I_{22}	4.91[C]	4.64[L]	4.92	4.64	4.84	4.61	4.93	4.78*	4.80	4.50	4.92	4.69	5.00	4.72	4.79	4.71	5.00	4.73	5.00	4.64
I_{23}	4.83[C]	4.54[L]	4.89	4.44	4.59	4.31	4.85	4.73	4.90	4.50	4.77	4.62	4.92	4.72	4.95	4.59	4.87	4.87*	4.86	4.57
I_{24}	4.80[C]	4.46[M]	4.83	4.43	4.68	4.22	4.75	4.43	4.79	4.38	5.00	4.54	4.92	4.52	4.54	4.67	4.87	4.87*	4.86	4.64
I_{25}	4.81[C]	4.58[L]	4.85	4.66	4.66	4.45	4.83	4.63	4.89	4.47	4.92	4.58	4.80	4.88*	4.79	4.52	4.80	4.87	4.86	4.86
I_{26}	4.65[H]	4.51[M]	4.66	4.44	4.61	4.18	4.73	4.78	4.51	4.47	4.77	4.54	4.72	4.68	4.50	4.42	4.80	5.00*	4.71	4.57
I_{27}	4.57[M]	4.18[H]	4.43	3.90	4.65	4.37	4.93	4.55*	4.33	3.93	4.52	4.23	4.62	4.33	4.21	4.29	4.47	4.40	4.79	4.36
I_{28}	4.70[H]	4.27[H]	4.86	4.48	4.59	3.96	4.75	4.35	4.59	3.90	4.73	4.12	4.44	4.32	4.63	4.25	4.93	4.60	4.79	4.64*
I_{29}	4.75[C]	4.36[M]	4.82	4.48	4.64	4.08	4.90	4.55	4.63	3.90	4.76	4.32	4.72	4.21	4.53	4.47	4.93	4.67*	4.86	4.64

I_{30}	4.66[H]	4.38[M]	4.74	4.51	4.59	4.24	4.75	4.53	4.50	3.99	4.73	4.38	4.60	4.24	4.49	4.37	5.00	4.80*	4.71	4.64
I_{31}	3.94[L]	3.42[C]	3.76	3.41	3.77	3.07	4.10	3.47	3.86	3.27	4.18	3.49	4.16	3.27	4.04	3.61	3.67	3.93*	4.36	3.89
I_{32}	4.41[L]	3.81[C]	4.46	3.85	4.30	3.75	4.44	3.95	4.25	3.22	4.55	4.03	4.47	3.69	4.33	3.98	4.60	4.07*	4.57	3.64
I_{33}	4.35[L]	3.55[C]	4.42	3.75	4.12	3.10	4.29	3.56	4.26	3.20	4.51	3.79	4.42	3.57	4.19	3.62	4.80	4.00*	4.50	3.21

$\overline{\overline{P}}^{(a)}$	4.26(5)	4.12(8)	4.31(2)	3.90(9)	4.17(7)	4.28(3)	4.22(6)	4.40(1)	4.27(4)
WA[(b)]	4.30(4)	4.20(6)	4.35(2)	3.94(7)	4.23(5)	4.33(3)	4.30(4)	4.45(1)	4.33(3)

$\overline{I_{D1}} = 4.60; \quad \overline{I_{D2}} = 4.21; \quad \overline{I_{D3}} = 4.53; \quad \overline{I_{D4}} = 4.79; \quad \overline{I_{D5}} = 4.51; \quad \overline{I_{D6}} = 4.38$

*The best language school for each criterion

[(a)] The ranking order for the nonweighted SERVPERF scale

[(b)] The ranking order for the weighted average method (weighted SERVPERF scale)

Quartile analysis legend:	[C]Critical priority	[H]High priority	[M]Moderate priority	[L]Low priority

To conduct the AHP method, the average importance of the criteria in Table 3 was used to make pairwise comparisons among the quality dimensions concerning the overall objective. Table 4 shows the evaluations and the resulting priorities. Note that the Teacher dimension has the highest priority and the Infrastructure and Value dimensions have the lowest priority.

Table 4 - Pairwise evaluations

Overall objective	Interpersonal relationships	Infrastructure	Classroom	Teacher	Teaching methods	Value	Priority
Interpersonal	1	4	1	1/2	1	3	0.18
Infrastructure	1/4	1	1/4	1/6	1/4	1/2	0.05
Classroom	1	4	1	1/3	1	2	0.16
Teacher	2	6	3	1	3	5	0.38
Teaching methods	1	4	1	1/3	1	2	0.16
Value	1/3	2	1/2	1/5	1/2	1	0.08

The same procedure was performed with the criteria in relation to the dimension to which they belong and among the language schools in relation to each item, as shown in Table 5. It is possible to identify the criteria that most influence the dimension to which they belong and to verify which language school stands out most for each item.

In this context, pleasant interactions among teachers, students and staff (I_3) and friendliness of staff (I_1) are the most important and least important criteria, respectively, for the Interpersonal relationships dimension. Accessibility for disabled people (I_{10}) and physical facilities (I_{11}) are the most relevant criteria for the Infrastructure dimension. Lighting of the classrooms (I_{14}) and cleanliness of the

classrooms (I_{18}) are the most important criteria for the Classroom dimension.

The most desirable characteristics for the Teachers dimension are teachers' politeness (I_{19}), attendance (I_{20}) and knowledge (I_{22}). The teaching material (I_{28}), teaching methodology (I_{29}) and content covered in language courses (I_{30}) have almost the same relevance in the Teaching methods dimension, as well as the value of teaching material (I_{32}) and the value of service (I_{33}) in the Value dimension.

Table 5 - Priorities and Consistency Ratios

			Alternatives & Priorities[c]									
Dimensions & Priorities[a]	Items & Priorities[b]	$Pr(I_j)$[d]	LS_1	LS_2	LS_3	LS_4	LS_5	LS_6	LS_7	LS_8	LS_9	CR
Interpersonal relationships (0.18)	I_1 (0.04)	0.0072	0.12	0.04	0.21	0.03	0.04	0.10	0.12	0.23*	0.12	0.01
	I_2 (0.11)	0.0198	0.14	0.05	0.24	0.02	0.05	0.05	0.08	0.28*	0.10	0.02
	I_3 (0.22)	0.0396	0.09	0.05	0.21*	0.03	0.03	0.17	0.09	0.17	0.17	0.03
	I_4 (0.12)	0.0216	0.14	0.05	0.14	0.02	0.04	0.18	0.12	0.24*	0.08	0.02
	I_5 (0.15)	0.0270	0.10	0.03	0.22*	0.03	0.06	0.10	0.08	0.20	0.18	0.01
	I_6 (0.05)	0.0090	0.09	0.04	0.30*	0.05	0.10	0.07	0.05	0.21	0.09	0.05
	I_7 (0.12)	0.0216	0.08	0.11	0.14	0.03	0.08	0.23	0.02	0.24*	0.07	0.08
	I_8 (0.19)	0.0342	0.08	0.06	0.24*	0.02	0.06	0.16	0.05	0.19	0.15	0.01
	CR = 0.02											
Infrastructure (0.05)	I_9 (0.12)	0.0060	0.14	0.34*	0.09	0.05	0.03	0.06	0.25	0.03	0.02	0.04
	I_{10} (0.42)	0.0210	0.21	0.08	0.02	0.02	0.13	0.08	0.39*	0.02	0.06	0.08
	I_{11} (0.42)	0.0210	0.09	0.21*	0.10	0.02	0.09	0.05	0.18	0.19	0.09	0.01
	I_{12} (0.04)	0.0020	0.08	0.02	0.45*	0.08	0.12	0.14	0.07	0.02	0.02	0.08
	CR = 0.10											
Classroom (0.16)	I_{13} (0.12)	0.0192	0.08	0.18	0.08	0.03	0.04	0.18	0.04	0.29*	0.09	0.01
	I_{14} (0.28)	0.0448	0.07	0.11	0.09	0.07	0.04	0.13	0.06	0.31*	0.14	0.03
	I_{15} (0.09)	0.0144	0.14	0.25*	0.07	0.02	0.03	0.13	0.02	0.22	0.13	0.03
	I_{16} (0.07)	0.0112	0.10	0.10	0.05	0.01	0.15	0.08	0.03	0.12	0.35*	0.07
	I_{17} (0.15)	0.0240	0.10	0.09	0.04	0.04	0.09	0.15	0.08	0.23*	0.19	0.01
	I_{18} (0.30)	0.0480	0.10	0.20*	0.17	0.02	0.09	0.19	0.10	0.09	0.05	0.01
	CR = 0.01											
Teacher (0.38)	I_{19} (0.15)	0.0570	0.12	0.03	0.19*	0.04	0.08	0.16	0.19*	0.10	0.10	0.01
	I_{20} (0.17)	0.0646	0.13	0.12	0.10	0.05	0.06	0.17*	0.06	0.16	0.16	0.01
	I_{21} (0.09)	0.0342	0.12	0.06	0.17	0.06	0.07	0.23*	0.07	0.14	0.10	0.01
	I_{22} (0.17)	0.0646	0.11	0.10	0.15*	0.05	0.11	0.13	0.13	0.11	0.11	0.02
	I_{23} (0.12)	0.0456	0.05	0.03	0.16	0.08	0.09	0.16	0.08	0.27*	0.08	0.02
	I_{24} (0.11)	0.0418	0.06	0.03	0.07	0.05	0.10	0.08	0.16	0.31*	0.16	0.02
	I_{25} (0.11)	0.0418	0.08	0.04	0.08	0.04	0.07	0.22*	0.05	0.21	0.21	0.01
	I_{26} (0.05)	0.0190	0.05	0.02	0.19	0.05	0.08	0.13	0.06	0.35*	0.07	0.03

Criterion	Item (b)	Real priority (d)										
	I_{27} (0.04)	0.0152	0.03	0.13	0.26*	0.03	0.08	0.12	0.10	0.14	0.13	0.01
	CR = 0.01											
Teaching methods (0.16)	I_{28} (0.32)	0.0512	0.16	0.03	0.12	0.02	0.04	0.09	0.07	0.22	0.26*	0.02
	I_{29} (0.33)	0.0528	0.13	0.03	0.15	0.02	0.07	0.05	0.12	0.24*	0.21	0.02
	I_{30} (0.32)	0.0512	0.12	0.04	0.12	0.02	0.07	0.04	0.07	0.31*	0.20	0.01
	I_{31} (0.04)	0.0064	0.06	0.02	0.08	0.04	0.08	0.04	0.12	0.30*	0.28	0.03
	CR = 0.00											
Value (0.08)	I_{32} (0.50)	0.0400	0.10	0.06	0.15	0.02	0.18	0.06	0.17	0.22*	0.05	0.02
	I_{33} (0.50)	0.0400	0.15	0.02	0.09	0.03	0.17	0.09	0.10	0.33*	0.03	0.02
	CR = 0.00											
Overall Priority			0.10[4]	0.07[6]	0.14[2]	0.04[7]	0.08[5]	0.13[3]	0.10[4]	0.21[1]	0.13[3]	

*The best language school for each criterion
[a] The relative priority of the criteria concerning the overall objective
[b] The relative priority of the items concerning the criterion which they belong
[c] The relative priority of the alternatives concerning each item
[d] The real priority of each item

Table 5 confirms the results of the WA method. More specifically, the overall priority values from the AHP confirm the WA ranking order. Furthermore, the best alternatives for each item are the same for both methods. As a result, LS$_8$ is the best language school and has the best performance for 15 of the 33 criteria. All matrixes of evaluations are consistent (CR<0.10).

Table 5 also shows the 'real priority', $P_{real}(I_j)$, for each item I_j (j = 1, 2, ..., 33). The real priority refers to the relative importance of each item when all criteria are considered. As reported by Freitas & Santos (2019), $P_{real}(I_j)$ is obtained by multiplying the priority value of the dimension (criteria) to which the item I_j belongs and the priority value (the relative importance) of such an item when it is compared to the criteria of the dimension that it belongs. For instance, when calculating the real priority of I_{20}, we consider classroom P(Teacher) = 0.38 and $P(I_{20})$ = 0.17. Thus, $P_{real}(I_{20})$ is 0.0646. These results show that teachers' attendance (I_{20}) and teachers' knowledge (I_{22}) are the most important criteria.

4.1 Theoretical contributions

This work contributes to existing theory by proposing a multicriteria approach to assess the quality of services in language schools. Although the problem in question is not a typical decision-making problem since the evaluators (students) are not experts on the subject, the AHP and WA methods appear to be suitable for assessing the service quality of language schools concerning a set of predefined

criteria.

The AHP is a more scientifically grounded method and allows the analysis of the consistency of judgments, which is a benefit over other methods. However, the use of such a method can become exhausting in problems with many alternatives and criteria. In this study, even with the values of the importance of the criteria and the performance of the language schools, the decision maker had to make 345 pairwise comparisons. Importantly, the graphical representation of the hierarchical structure evidences the relationship among the elements involved (the overall objective, alternatives, dimensions and criteria/items), contributing to facilitating the understanding of the decision problem and its modeling.

The WA method was simpler to apply because only the average importance of the criteria and the average performance of the schools on each item are considered (the evaluations are provided by the students of each language school). The results of the use of this method were very similar to the results obtained from AHP. As used with Quartile Analysis, the WA method can be useful for managers and decision makers to identify the most critical criteria that require corrective and preventive actions to improve the quality of services.

Finally, the choice of one of the methods depends on the relevance of the decision problem (for instance, whether experts are involved) and on the willingness and interest of the decision maker to carry out the AHP pairwise comparisons. More specifically, when a study involves a large number of pairwise evaluations, substantial cognitive effort from the decision maker is required. Further, more time to conduct the analysis is necessary. Such issues generally can lead to the use of the WA method being favored.

Another contribution of this work is the set of criteria to assess the quality of services in language schools. Despite the advances already made in the assessment of service quality in several service sectors, a consensus still has not been reached in the scientific literature about which criteria and dimensions are best suited for the measurement of service quality in language schools. The proposed set of criteria resulted from the integration of the following relevant concepts: moments of truth, servicescapes and the school climate.

4.2 Theoretical contributions

The results show that there is not an optimal solution, i.e., there is no language school that is the best alternative on all criteria. Both methods indicate to the decision maker the most "satisfactory" solution, and he/she can decide whether to make a decision based on it or not. First, the multicriteria approach can help consumers choose a language school. For example, companies may be interested in choosing a language school to improve the professional qualifications of employees in the context of a human resource management program.

The proposed multicriteria approach may aid a language school in identifying the most important criteria and the criteria for which its performance needs to be improved because all evaluations were made based on the perceptions of its own students. In the context of the self-assessment process, management actions can be conducted to increase the quality of services provided for the most critical criteria (the most important items and the items for which the language school had the worst performance) as a strategy for student retention.

On the other hand, by conducting research with students of other schools, a language school can also compare its own performance with the performance of its competitors. To attract new students, management and marketing actions can be taken to explore the weaknesses of each competitor for the criteria for which its competitors have the worst performance. Obvioulsy, the social isolation required to avoid the spread of the COVID-19 pandemic has made the online courses the only safe study option all over the world. However, post-pandemic management and marketing actions can also be performed to highlight the advantages of studying personally at language schools from studying by on line courses.

4.3 Limitations and suggestions

This work has some limitations. First, the study was conducted based on the self-reported perceptions of a group of young students from Brazilian high schools and technical schools. It is possible that the perceptions of other groups of language school students, such as older students or students of other nationality, would reveal

different results. Second, the study did not clearly reveal the aspects that most influence students to stop studying at a language school or to choose to move to another language school; however, it is suggested that the most important criteria and the criteria for which language schools perform worst can strongly contribute to those situations. Third, both the AHP and WA methods are 'compensatory', that is, regarding a solution, a very low score of a language school on one item can be compensated by a high score on another item (Certa et al., 2013; Khalili & Duecker, 2013).

Thus, without an exhaustive analysis of the assessment of the service quality of language schools, further work should address the following areas: assess the service quality of language schools based on the perceptions of older people, conduct a specific study to identify the aspects that most influence students to stop studying at a language school or to choose to move to another language school and continue the analysis using a noncompensatory MCDA method.

Acknowledgements

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