Evaluation of Educational Service Quality of Vocational High School (VHS) Based on Importance Performance Analysis (IPA) Quadrant*

Sukardi[1]*, Wildan[2], Muh. Fahrurrozi[3]

A R T I C L E I N F O	A B S T R A C T

Purpose: The level of educational service quality of the Vocational High School (hereafter VHS) is presumably still so low that it is urgent to conduct a comprehensive evaluation study. This evaluation study aimed at analyzing the level of quality of the vocational education service in VHS based on the Importance Performance Analysis (IPA). **Methodology:** This study is realized through the five-dimension service quality model: tangible, reliability, responsiveness, credibility, and empathy. The sample involved 576 VHS alumni drawn by using cluster random sampling from 6 (six) Districts/Municipalities in West Nusa Tenggara (NTB) Province, Indonesia. The instrument contains 22 questions in the form of a valid and reliable Likert scale. The overall data were analyzed comparatively to determine the suitability of using the IPA quadrant.

Findings: It shows that the quality of vocational services is still low. Of the five dimensions, tangible and reliability dimensions are the lowest aspect of customer satisfaction (alumni). Almost all aspects of the two dimensions are in Quadrant 1, such as: renewal of references, Web pages, practice-oriented subjects, extended experience teachers, and so on. **Implications for Research and Practice**: Based on the data analysis, it is concluded that it is important to restructure the management of the vocational education that meets service quality.

---

[1] *Corresponding Author, Faculty of Teachers Training and Education & Postgraduate, University of Mataram, Mataram, INDONESIA. e-mail: sukardi@unram.ac.id, ORCID: https://orcid.org/0000-0002-5772-3707
[2] Faculty of Teachers Training and Education & Postgraduate, University of Mataram, Mataram, INDONESIA. e-mail: wildanfkip@unram.ac.id
[3] University of Hamzanwadi, Selong, INDONESIA. e-mail: ozyalu@gamil.com

Introduction

Vocational high schools in Indonesia have been in the spotlight in recent decades due to the low quality and competitiveness of their graduates. The high unemployment rate of these graduates is one of the indications. In February 2019, the Central Bureau of Statistics (2019) noted that the open unemployment rate (OUR) of VHS graduates reached 8.63%, the highest compared to graduates from the other schools. The issue of output is inseparable from the extent of the effectiveness of inputs and the process of implementing the VHS education. It was pointed out that the implementation process reflected in the quality of education services is still low (Karwati et al., 2019). Low support for 8 National Education Standards as found by L. Sukardi (2016) or 5 (five) dimensions of service quality according to Berry et al. (1991) as found by Karwati et al. (2019).

The conduct of education in vocational high schools barely reflects practices or case studies but only classical theory (Ayaz & Karacan Özdemir, 2021). Several studies regarding issues in vocational high schools encompass the study of the low-quality administrative services and teaching materials which interfere with education and learning process (Zulu & Mutereko, 2020); a relatively small number of infrastructure, such as the non-existence of internet connection, lack of physical facilities and intensive educational programs (Ayaz & Karacan Özdemir, 2021; Kennedy et al., 2017; Toytok & Yıldırım, 2018); thus resulting in the low level of comfort and motivation in vocational high school students in learning (ÇAVUŞOĞLU & SAVAŞ, 2016). This is whereas Vocational High Schools should have focused on the experiences that the students get while taking their education, which is reflected in a great service from teachers, facilities, as well as administration (Girard et al., 2021).

According to Yusra et al. (2021), in its implementation, a Vocational High School must put forward the quality of its service, so that the graduates can be competitive and productive. A service of good quality can increase the students' beliefs in their self-efficacy, which in turns positively affect students' career planning (Ali & Marwan, 2019). Vocational schools are advised to review the curriculum that they implement so as to suit the industry demand (Binali et al., 2015). In addition, in improving the quality of education, vocational high schools are also required to develop the students' social skills, in order to facilitate the transition to work life by creating new networking systems through the school's independence and initiatives in managing and deploying available resources (Ayaz & Karacan Özdemir, 2021). Accordingly, studies related to the evaluation of the quality of education services are important as a source of reference for revitalizing vocational education in Indonesia (Antelm-Lanzat et al., 2020; Duke & Osim, 2020).

A number of studies have examined the quality of educational and business organization services based on the perspective of active users, such as school or university students and/or lecturers (Jayasundara et al., 2009; Mallya & Patwardhan, 2018; Nsamba & Makoe, 2017; Saleem & Ch, 2017; Sardar et al., 2016; Sharif & Kassim, 2012; Stodnick & Rogers, 2008). In educational institutions, school students or university students are service customers because they feel service (Bateson, 2002). Therefore, Sardar et al. (2016) argue that school students or university students are ideally treated as the main customers of education because they are direct recipients of the intended service.

However, the use of students or active students is more likely to perceive and expect as "learners" not as "customers" (Angell et al., 2008), whereas far before, V.A. Zeithaml et al. (1990) emphasize that only customers can assess service quality (academically and non-academically) objectively and the others are not related. Placement of students or active students as "learners", then their perceptions tend to be directed to the aspects of the quality of academic services and ignore the non-academic aspects, although the study of Sardar et al. (2016) still uses active students. Therefore, the graduates become an important part of the perception of the quality of education services because they can provide data objectively and not in a position as "learners." Only the graduates who feel objectively and are involved in the competitive markets after the graduation (Bikse et al., 2013). Therefore, the novelty of this research is the involvement of the graduates as the main customers and as the respondents of the present study.

In addition, the results of studies on the quality of services adopted many of the ServQual models (Valarie A Zeithaml et al., 1988). ServQual is one survey model that is widely used to measure service quality. The ServQual model is done by measuring service users' expectations and their perceptions of service performance based on the experience gained (Anantharanthan Parasuraman et al., 1985). In many research, studies using the ServQual model show inconsistent results. The Tosun and Basgoze (2015) found reliability dimensions as dimensions with the highest service quality and responsiveness as dimensions. with the lowest service quality, meanwhile, the study of Saleem and Ch (2017) and Dursun et al. (2014) show the opposite condition that the five dimensions have not been fulfilled. In addition, the study of Roszkowski et al. (2005) found a gap in service level scores which is not linear with the expectations of respondents, even the expectations of respondents tend to be change.

On this basis, it is recommended to adopt an additional matrix to complement the ServQual model to evaluate the quality of education services. Therefore, the renewability of these two researches is to adopt the Importance-Performance Analysis (IPA) to evaluate the quality of education services as suggested by Mallya and Patwardhan (2018); Roszkowski et al. (2005). Science proposed by Martilla and James (1977) is one of the matrices that are widely used for evaluating services and products. IPA identifies satisfaction as a function of two main components, namely the importance of a product or service to customers and the performance of a product or service. The combined rating of these two components provides an overall view of satisfaction with clear instructions for decision makers where to focus on further improvements (Mallya & Patwardhan, 2018). IPA is widely used in service industries such as travel and tourism (Chang, 2017; Enright & Newton, 2005; Mimbs et al., 2020; Simpson et al., 2019); E-Government Services (Wang & Fong, 2016); restaurants (Tzeng & Chang, 2011); telecommunications industry (Pezeshki et al., 2009), but have not been widely used in educational institutions, especially vocational education in the context of Indonesia.

In educational institutions, IPA is widely used in the field of courses (Cladera, 2021; Tóth et al., 2013); pedagogy and curriculum mapping (Fan, 2020; Siniscalchi et al., 2008); quality of education services (Kuo et al., 2011); as well as e-learning (Keong, 2017). In education, IPA is used to understand and map customer needs so that policy-making

strategies for the advancement of education and learning can be developed (Iacovidou et al., 2009; Irgin & Erten, 2020; Nazari-Shirkouhi et al., 2020; Padlee et al., 2020). McLeay et al. (2017) used IPA to determine the students' level of satisfaction for the curriculum, management, and facilities so that the quality of education can be improved. This demonstrates that IPA can be used in education-related studies that are related to administration and the implementation of curriculum (Fan, 2020). The results of study by Cladera (2021) suggests that it is important to use IPA to evaluate the quality of services provided by higher education institutions such as in identifying the strength of the course and areas of improvement, and in comprehending the factors that contribute to student satisfaction and, in regards to a lecturer, in assessing their teaching. In a study conducted by Chen (2018), it is stated that IPA is able to assist teachers, school managers, staff in measuring the quality of their performance or services for school residents, especially students, and it is also able to assist the students in evaluating themselves in receiving the service to develop their abilities and get suitable jobs.

Furthermore, the study of Siniscalchi et al. (2008) discovered that IPA serves as an evaluation tool used to evaluate the educators' performance and helps adjust the curriculum according to the students' needs. In the field of education, IPA is implemented to discover which of the strengths and the weaknesses of the service management should be improved (Dwyer et al., 2012; Favier & Fontana, 2020). The results of a study by Addas et al. (2021) stated that IPA helps make the decision that aims to increase the stakeholders' level of satisfaction, consider services (public open space) and good facilities and infrastructure so that they can contribute to education, recreation, and the environment at the campus' planning stage at King Abdulaziz University (KAU). IPA is a service quality evaluation tool in higher education sector that is used to develop good measures that are both psychometric and practical (O'Neill & Palmer, 2004), analyze importance and attribute ranks, as well as identify attributes that are most salient to the consumers of a service (Douglas et al., 2006).

Therefore, this model is used to measure the attributes of the quality of vocational education services in Indonesia. The main objective of this study is to evaluate the quality of vocational education services to identify the areas of improvement to improve the quality and competitiveness of graduates.

Method

Research design

This study employed the ServQual (service quality) method as developed by Ananthanarayanan Parasuraman et al. (1994). The ServQual method is a model that has been widely accepted and applied to measure service quality throughout the world. The measured service quality is the result of a comparison between customer expectations and perceived performance. There are five dimensions studied in this study adapted from Berry et al. (1991) and Dursun et al. (2014), namely: tangible, reliability, responsiveness, credibility and empathy. In the context of the quality of service in Vocational High Schools, physical/tangible features refer to the vocational high schools' ability to provide adequate infrastructure, supporting facilities, and various means of communication, such as the availability of buildings, practical equipment, cleanliness, etc. Reliability refers to the ability of Vocational Schools to provide educational

services that are as promised and are also reliable, accurate, and consistent, such as: practice-oriented learning processes, group learning, elective subjects, etc. Responsiveness refers to the willingness of Vocational High Schools to assist students in obtaining educational services quickly and meaningfully as well as their willingness to hear and resolve complaints submitted by students and stakeholders. This includes their willingness to help handling students' problems, and in providing swift administrative services, etc. Credibility refers to the ability of Vocational High Schools to provide confidence and trust for the promises that they made to students and other stakeholders, such as teachers who teach according to their respective field of study, fair assessment, etc. Finally, empathy refers to the Vocational High Schools' willingness to give attention to their students personally. One instance for this is the teachers and managers who place themselves as students, parents or other stakeholders.

Research Sample

This research was conducted in the Province of West Nusa Tenggara (NTB), Indonesia by taking Regency/Municipality territories using cluster random sampling based on the territorial issues. Based on the data from the NTB Regional Development Planning Agency (2016), the research area included: West Lombok District (center for food crop and horticulture-based industry development, tourism, pearl farming), Central Lombok Regency (fisheries, crafts, and tourism-based industrial center), North Lombok Regency (plantation and tourism industry development center), East Lombok Regency (center for plantation and agricultural commodity industries), and West Sumbawa Regency (center for development of the mining and energy industries), and Mataram Municipality (center for the development of trade and service industries). From each Regency/Miaplity, 3 (three) Vocational Schools were considered (urban, suburban, and remote areas). 32 subjects (alumni elements) were drawn from each school, so that the total sample was 576 students. However, of the total sample there were 18 respondents who did not return the questionnaire so that the real sample involved 558 students.

Research Instruments

The instrument used in this study was adapted from a questionnaire developed by Parasaruman et..al (1991) as also adapted by Dursun et al. (2014). This questionnaire consists of 22 statements representing 5 dimensions of service quality (tangible, reliability, responsiveness, credibility, and empathy). This questionnaire is formulated in the form of a Likert scale with 5 options: (1-Strongly disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree) and presented in two models, namely aspects of perception/reality and aspects of graduate or alumni expectation. The tangible dimension contains 4 item statements (for example "the latest reference must be accessible in an adequate number of libraries"); reliability consists of 5 items (for example "in general expertise subjects must be practice oriented (for example case studies)"); responsiveness consists of 4 items (eg "School ranks must help students deal with problems that need immediate treatment"); credibility covers 6 item statements (example "Learning must be given by teachers who are experts in their field"); and empathy dimensions involve 3 item statements (for example "the teacher must help and advice students about their career plans").

Data Analysis Techniques

The data were analyzed with comparative analysis using independent sample t-test and analysis of suitability of Importance Performance Analysis (IPA). Comparative analysis is done by comparing the expectations (graduates) of the five dimensions of service quality before receiving services with the quality of services provided. If the quality of service they receive meets their expectations, it can be concluded that the service is of high quality. Statistical analysis is accompanied by risk testing for homogeneity between groups. However, if the Levene test results are not homogeneous, non-parametric techniques are used. The second analysis uses IPA quadrant conformity analysis from Martilla and James (1977), including: concentrate these; quadrant II (keep up with the good work); quadrant III (low priority); and quadrant IV (possibly overkill). This formula is used to determine the level of service quality in every aspect of service quality including to determine the quality of services that need to be considered to improve the quality and power of graduates. The overall analysis uses computerized SPSS version 23 for Windows.

Results

Validity and Instrument Reliability

The result of the try-out test using Cronbach's α for all aspects of service quality (Table 1) exceeds the threshold value of 0.70 as recommended by Nunnally (1978). Thus, the fulfillment of internal validity and reliability has been fulfilled for all items of service quality examined. The results of this test indicate the consistency of the research instrument as tested also by Dursun et al. (2014).

Table 1.

Cronbach's Test Results a Quality Instruments for Educational Services

Dimensions	Number of items	Cronbach α	
		Expectation	Reality
Tangible (TA)	4	.779	.746
Reliability (RL)	5	.783	.745
Responsiveness (RS)	4	.718	.718
Credibility/ Assurance (CR)	6	.840	.825
Emphaty (EM)	3	.714	.736

Source: Primary Data Processing

Test Requirements Analysis

Test requirements analysis in this study is a homogeneity test using a test of homogeneity of variance. In the tangible aspect the statistical levene value is 3.298 with a probability value of 0.070> 0.05; reliability aspect obtained statistical leven value of 0.765 with a probability value of 0.382> 0.05; readiness/responsiveness aspects obtained statistical levene values of 3.071 with a probability value of 0.080>0.05; the trust/credibility aspect obtained a statistical leven value of 3.068 with a probability value of 0.081> 0.05; and the empathy aspect obtained a statistical levene value of, 300 with a probability value of 0.584> 0.05. With these results, it can be concluded that the variance of the five variables/aspects is homogeneous.

Quality of Vocational Education Services

The quality effectiveness of implementing vocational education is measured by the achievement of service quality levels according to Berry et al. (1991) and Dursun et al. (2014). The results of the analysis are summarized in Table 2 below.

Table 2.

Summary of Comparison of Quality of Vocational Education Services between Reality and Expectation

Service Quality Dimensions	N	Reality		Expectation		Average Difference	T	Sig.
		Mean	Sd.	Mean	Sd.	Expectation – Reality		
Tangible (TA)	558	9.04	1.767	10.72	1.353	1.681	2.004	0.045
Reliability (RL)	558	19.03	3.148	22.06	2.369	3.030	3.593	0.000
Responsiveness (RS)	558	11.74	2.108	14.33	1.695	2.593	2.111	0,034
Credibility (CR)	558	15.07	2.425	18.06	2.149	2.987	2.537	0.011
Empathy (EM)	558	12.06	2.170	13.88	1.626	2.625	2.301	0.020

Source: Primary Data Processing

Based on the summary as stated in Table 2, it indicates that the quality of vocational education services is not good based on the opinion of the respondents (Alumni). The quality of education services in the tangible aspect shows that there is no conformity with the expectations of alumni. Likewise, with the aspects of reliability, responsiveness, credibility, and empathy, it also shows that alumni are not satisfied with the quality of vocational education services. From these five dimensions, the dimensions of tangible and reliability are the lowest aspects of customer satisfaction (graduates/alumni). Regarding tangible aspect, the learning space is still limited, and the practice space is also not adequate. In addition, the equipment needed for practice is still minimum, the supporting equipment for learning is very limited, and the availability of references is also very inadequate. For reliability aspect, Vocational High Schools have not been able to provide the educational services promised. There aren't many lessons that are practice oriented. Group learning is conducted, but not based on cooperative learning principles. Elective subjects have not been properly developed based on vocational expertise and regional advantages. For responsiveness aspect, Vocational High Schools have not been really optimal in providing good and swift services. The results of the study found that extracurricular services were not optimal, the handling of students' problems were still responded slowly, and the internet network services were still limited. Likewise, it is the credibility aspect, in which Vocational High Schools have not been able to convince students and stakeholders about the quality of the learning activities and graduates. The result of the study finds that there are still some teachers who do not teach in accordance to their respective field of study. There were still teachers with a three-year diploma degree. The empathy aspect also exhibits the same result. The crucial problem found is the lack of consultation services related to the students' job prospects. The failure to achieve the quality of education services at the vocational level is allegedly caused by weak management competencies; lack of partnership and cooperation that is synergistic with the business world/work world, and the like.

Importance-Performance Analysis

To find out the aspects that need improvement, the results above are followed by IPA (Martilla & James, 1977). The results of the IPA analysis are summarized in Figure 1.
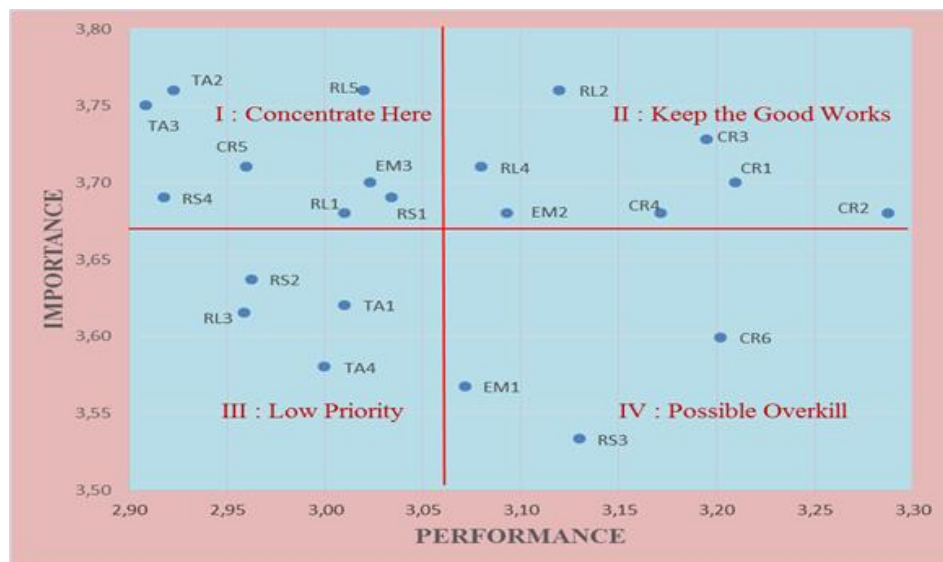

Figure 1. *Quadrant IPA Achieving Quality of Vocational Education Services (Source: Primary Data Processing)*

Based on Figure 1: (1) Quadrant I: important aspects must be improved because of low performance, namely: (a) Latest references (Books, journals, articles, electronic databases, etc.) must be accessible in a sufficient number of libraries (TA2); (b) Web pages must be prominent, clear, easy to understand and attractive (TA3); (c) the subjects provided must be practice oriented (for example case studies) (RL1); (d) elective subjects must be offered to meet students' personal needs related to their careers (RL5); (e) the school must assist students in handling problems that require immediate handling (RS1); (f) teachers must have extensive experience (CR 5); (g) library staff who meet student requests and needs quickly; (h) availability of consulting services related to job prospects that are in accordance with their diploma (EM3). Quadrant II, which is a dimension that already has good performance and continues to be optimized, namely: (a) students must be directed to group work in some practice-oriented subjects (RL2); (b) students must interact with the ranks of other schools and students (RL4); (c) learning must be given by teachers who are experts in their field (CR1); (d) subjects must be prepared according to schedule (CR2); (e) subjects must be prepared as well as possible and delivered by competent teachers (CR3); (f) the teacher must provide a fair assessment (CR4).

Quadrant III which is a dimension that is considered less important, but it determines the achievement of aspects in Quadrant I, so it needs to get attention. The aspects that enter the quadrant, namely: (a) the school portal must be accessible/used

(TA1); (b) the existence of the school must guarantee environmental security (TA4); (c) students must be given the opportunity to compete to get rewards such as titles, incentives and so on (RL3); (d) schools must always be available for each extra-curricular activity (RS2). The last is Quadrant IV, which is an aspect that is considered less important so that the school needs to lead resources in this Quadrant to handle problems in Quadrant I. These dimensions include: (a) administrative staff must take care of all student affairs, such as: registration procedures, subject selection, and others. (RS3); (b) subjects should be taught by teachers who have a bachelor's degree (CR6); (c) the teacher assists and advises students about their career plans (EM1).

Discussion

The quality of vocational education services is viewed from 5 aspects of service quality (Dursun et al., 2014), indicating a low level of support which impacts on low competitiveness (S. Sukardi, Wildan, et al., 2019). This is reflected in the dissatisfaction of customers (alumni) towards the five dimensions of the intended service. Perception or reality obtained is below the average expectations of customers (graduates/alumni). Of the five dimensions, the dimensions of tangible and reliability are the lowest aspects of the level of carrying capacity. The results of the IPA analysis show most aspects of the Tangible and Reliability dimension that enter Quadrant 1. Aspects of these two dimensions have a very important and highly expected position by the customer.

In Quadrant I the important factors and/or expected by alumni are placed, but the actual performance currently available is not satisfactory so the school is obliged to allocate all adequate resources to improve performance in this quadrant. The unrepresentativeness of references (such as books, journals, articles, electronic databases, etc.) and the completeness of infrastructure facilities that meet the minimum service standards and cleanliness and neatness are in the spotlight of Alumni. It seems that the condition observed at the VHS level be the same as that of the higher educations as reported by S. Sukardi, Rusdiawan, et al. (2019). The rationale is that if the appearance of physical facilities, the completeness and quality of equipment, communication materials, and the like are not sufficient, the convenience of learning becomes less conducive. Sharif and Kassim (2012) emphasize that physical facilities are adequate to be key in supporting learning activities. The findings of Tosun and Basgoze (2015) also confirm that the main dimensions that can increase customer satisfaction (graduates or alumni) are the dimensions of Tangibles. In line with this, the study of Ayaz and Karacan Özdemir (2021) explained that little infrastructure in Vocational High Schools, such as the absence of internet connection and physical facilities/personnel appearance is not adequate. Hence, students feel less comfortable when learning. Kassim and Abdullah (2010) emphasized that non-academic services such as adequate facilities are the key to supporting academic activities. This means that an improvement to the physical condition and software equipment can significantly increase the level of customer satisfaction. The results of Narang (2012) suggests that the tangible aspect is the aspect that must be considered because physical conditions and facilities are the main elements of management students's comfort when learning. The study of Mamun-ur-Rashid and Rhman (2017) explains that as for service dimension such as internet, library, non-academic administration, assessment systems, laboratories, and the environment, only a small number of students are satisfied with its quality. Hence, it needs to be developed. Furthermore, Sapri et al. (2009) found that the factor

that was most significantly improved after the quality of education was the management of the facilities, including libraries, laboratories, and the availability of journals.

In addition, many subjects have not been directed to practice (in the form of cases or problem solving) and have not met the personal needs of students related to career development. The low level of satisfaction in the tangibility dimension confirms Sardar's findings in Pakistan (2016), even considered to have no relationship to service quality. If the services presented are not in accordance with the promised, less accurate and even less reliable, then it can be predicted that the trust of customers (alumni/graduates) towards the institution can even fade. However, in reality, the tangible dimension is the most important dimension in reducing the satisfaction gap for the service in the field of higher education (Yousapronpaiboon, 2014). The results of this study are similar to previous studies which discovered that the tangible dimension had the highest gap (not as expected) (Rajabipoor, 2012), and that the tangible dimension had the greatest impact on the quality of service in engineering schools in Morocco (Goumairi et al., 2020).

It is different from Dursun et al. (2014) and Saleem and Ch (2017) findings which precisely put the responsiveness dimension at the lowest level of satisfaction, followed by the dimensions of reliability, credibility/assurance, empathy, and finally the tangible dimension. Tosun and Basgoze (2015) also place responsiveness as the lowest quality service dimension. Similarly, Palli and Mamilla (2012) also show that the responsiveness dimension is still weak in India. Furthermore, the reliability dimension is still relatively low with regard to vocational education. This is because the learning process is rarely directed at case studies, especially since Vocational High Schools' students have to practice a lot and work together, be it with their fellow students but especially, with teachers (Ozdemir et al., 2020). The study of Rezaei et al. (2017) illustrated the existence of quality gap between reliability and responsiveness dimension in dental schools. A study by Mason et al. (2018) states that students in vocational education receive poor service, which is caused by a lack of training for administrative staff, demotivated staff, and an inadequate system. Nevertheless, overall, the five dimensions of service quality have not yet reached the optimal level of satisfaction.

The low level of support in the tangible and reliability dimension is due to the low-quality assurance of other aspects (such as responsiveness, assurance/ credibility and empathy). In whatever educational world, people provide positive perceptions of the tangible aspects when educational institutions can fulfill other aspects. Schools must have a high capacity in providing accurate services on the aspects of tangibility so that they do not have implications for the achievement of other quality aspects.

These results were identified by implementing IPA. This is because IPA is an evaluation tool used to measure the difference between the perceived quality of the performance of each attribute (Cladera, 2021). IPA helps determining which of the attributes' importance and ranks are the lowest or the most salient for improvement based on the opinion of the customers of a service (Douglas et al., 2006), and also helps identifying and improving priority areas (Iacovidou et al., 2009). In teaching and learning process, IPA helps students assess the teaching, helps guiding course programs, and it can also provide feedback that can be used to improve training (Chen, 2018). The results are displayed in each quadrant, allowing school managers to discover and interpret the data easily, and then make decisions as each zone is associated with certain strategies for resource allocation, as well as for the development of policies and practices that will lead to an improvement in quality

(Charaf & Rahmouni, 2014). Evaluation of various aspects that is related to environment, such as secure and comfortable classrooms, laboratories, and internet access ought to be considered (Iacovidou et al., 2009). The findings of Iacovidou et al. (2009) suggest that the implementation of IPA can help detect students' lack of satisfaction regarding the quality of the service, facilities, and the teacher/lecturer's teaching.

Conclusions and Implications

By referring to the dimensions of education service quality, the results of this study discovered that the quality of education services in Vocational High Schools is still low-quality, be it for the dimension of tangible, reliability, responsiveness, credibility, and empathy. From these five dimensions, the dimensions of tangible and reliability are the lowest aspects of the level of carrying capacity. This finding shows that the quality of education services in Vocational High Schools requires strong energy and support to produce competitive graduates. In fact, the five dimensions mentioned above represent all aspects of the service quality of an educational institution. Hence, if they are not fulfilled, the trust and satisfaction of the 'customers' of vocational education can be negatively impacted. The results of the IPA show that most aspects of the Tangible and Reliability dimension are included in Quadrant 1, which is a dimension that is considered important but shows a low performance. Sufficient recent references; up-to-date, attractive, and communicative web pages; practice-oriented subjects; elective subjects that fulfil the students' personal needs for future careers; student problem handling; experienced and linear (regarding field of study) teachers; job prospect-related consultation services are some aspects that are still low-quality, and thus must be prioritized for improvement. The purpose of establishing Vocational High Schools in Indonesia is to prepare graduates who are ready to work. Hence, ideally, the learning should also be directed towards practice and the availability of subjects that support the students' personal needs. Practical learning inside world of work/industrial world will provide a good experience for students when they graduate from Vocational High School.

Based on these findings, the practical implication is that it is necessary to restructure and revitalize the management of vocational education by improving all aspects of service quality, especially the aspects included in Quadrant 1 based on IPA to support the acceleration of graduate competitiveness. Theoretically, relevant IPA is used in educational institutions as a model of evaluation of the quality of education services. Further research is required to confirm these findings, such as: the scope that is limited to the quality of certain learning services (entrepreneurship, science, social humanities), expansion of samples which does not only encompass active students but also graduates and stakeholders, different methods of study, development research by including service quality components, etc.

References

Addas, A., Maghrabi, A., & Goldblatt, R. (2021). Public open spaces evaluation using importance-performance analysis (IPA) in Saudi Universities: the case of King Abdulaziz University, Jeddah. *Sustainability, 13*(2), 915. https://doi.org/10.3390/su13020915

Ali, A., & Marwan, H. (2019). Exploring career management competencies in work based learning (WBL) implementation. *Journal of Technical Education and Training, 11*(1), 159-166. https://doi.org/10.30880/jtet.2019.11.01.020

Angell, R., Heffernan, T., & Megicks, P. (2008). Service quality in postgraduate education. *Quality Assurance in Education, 16*(3), 236-254. https://doi.org/10.1108/09684880810886259

Antelm-Lanzat, A. M., Gil, A. J., Cacheiro-González, M. L., Pérez-Navío, E., & Fonseca-Pedrero, E. (2020). Learning styles and vocational guidance in secondary education. *Educational Sciences: Theory & Practice, 20*(3), 1-15. https://doi.org/10.12738/jestp.2020.3.001

Ayaz, A., & Karacan Özdemir, N. (2021). A case study of a Turkish vocational high school, and the challenges for teachers. *Journal of Vocational Education & Training*, 1-20. https://doi.org/10.1080/13636820.2021.1895873

Bateson, J. (2002). Consumer performance and quality in services. *Managing Service Quality, 12*(4), 206-209. https://doi.org/10.1108/09604520210434811

Berry, L. L., Parasuraman, A., & A, P. (1991). *Marketing Services: Competing Through Quality*. Free Press. https://books.google.com.pk/books?id=e_u7AAAAIAAJ

Bikse, V., Rivža, B., & Latvian, I. B. (2013). Competitiveness and quality of higher education: graduates' evaluation. *Journal of Teacher Education for Sustainability, 15*(2), 52-66. http://dx.doi.org/10.2478/jtes-2013-0011

Binali, T., YILDIZ, S., & DOĞAN, A. (2015). Discipline Problems in Vocational High School, Causes and Solutions A Case Study. *Abant İzzet Baysal Üniversitesi Eğitim Fakültesi Dergisi, 15*(2), 384-403. https://doi.org/10.17240/aibuefd.2015.15.2-5000161330

Cavusoglu, D., & Savas, A. C. (2016). Meslek liselerinde çalışan kültür dersi öğretmenlerinin karşılaştıkları sorunlar ve çözüm önerileri (Pazarcık ilçesi örneği). *Çağdaş Yönetim Bilimleri Dergisi, 3*(1), 1-13. https://dergipark.org.tr/en/download/article-file/408085

Central Bureau of Statistics. (2019). February 2019: Open Unemployment Rate (TPT) of 5.01 percent. https://www.bps.go.id/pressrelease/2019/05/06/1564/februari-2019--tingkat-pengangguran-terbuka--tpt--sebesar-5-01-persen.html

Chang, P. (2017). The importance performance analysis of Taiwan tourism mobile marketing. *Journal of Tourism Management Research, 4*(1), 12-16. https://doi.org/10.18488/journal.31.2017.41.12.16

Charaf, K., & Rahmouni, A. F.-A. (2014). Using importance performance analysis to evaluate the satisfaction of Activity-Based Costing adopters. *Accounting & Management Information Systems/Contabilitate Si Informatica De Gestiune, 13*(4), 665–685. http://online-cig.ase.ro/jcig/art/13_4_4.pdf

Chen, Y. C. (2018). Applying importance-performance analysis to assess student employability in Taiwan. *Journal of Applied Research in Higher Education, 10*(1), 76-86. https://doi.org/10.1108/JARHE-10-2017-0118

Cladera, M. (2021). An application of importance-performance analysis to students' evaluation of teaching. *Educational Assessment, Evaluation and Accountability, 33*(4), 701-715. https://doi.org/10.1007/s11092-020-09338-4

Douglas, J., Douglas, A., & Barnes, B. (2006). Measuring Student Satisfaction at a UK University. *Quality Assurance in Education: An International Perspective, 14*(3), 251-267. https://doi.org/10.1108/09684880610678568

Duke, E. O., & Osim, S. (2020). From festival to social communion: a Nigerian experience. *Przestrzen Spoleczna (Social Space Scientific Journal), 19*(1), 53-69. http://socialspacejournal.eu/Social%20Space%20Journal%2012020(19).pdf#page=53

Dursun, T., Oskaybas, K., & Gokmen, C. (2014). Perceived quality of distance education from the user perspective. *Contemporary educational technology, 5*(2), 121-145. https://dergipark.org.tr/en/download/article-file/252224

Dwyer, L., Cvelbar, L. K., Edwards, D., & Mihalic, T. (2012). Fashioning a destination tourism future: The case of Slovenia. *Tourism Management, 33*(2), 305-316. https://doi.org/10.1016/j.tourman.2011.03.010

Enright, M. J., & Newton, J. (2005). Determinants of tourism destination competitiveness in Asia Pacific: Comprehensiveness and universality. *Journal of travel research, 43*(4), 339-350. https://doi.org/10.1177%2F0047287505274647

Fan, S.-C. (2020). An importance–performance analysis (IPA) of teachers' core competencies for implementing maker education in primary and secondary schools. *International Journal of Technology and Design Education*, 1-27. https://doi.org/10.1007/s10798-020-09633-7

Favier, J., & Fontana, É. (2020). La blockchain, au service de la sécurité. *Res Militaris, 10*(1), 1-36. https://resmilitaris.net/index.php/2020/01/01/id1031540/

Girard, A., Gal-Petitfaux, N., & Vors, O. (2021). The student's experience of teacher support in French vocational high-school classes with difficulties in school engagement in physical education: interest of mixed methods research. *Physical Education and Sport Pedagogy*, 1-16. https://doi.org/10.1080/17408989.2021.1999918

Goumairi, O., Aoula, E.-S., & Ben Souda, S. (2020). Application of the SERVQUAL Model for the Evaluation of the Service Quality in Moroccan Higher Education: Public Engineering School as a Case Study. *International Journal of Higher Education, 9*(5), 223-229. https://doi.org/10.5430/ijhe.v9n5p223

Iacovidou, M., Gibbs, P., & Zopiatis, A. (2009). An exploratory use of the stakeholder approach to defining and measuring quality: The case of a Cypriot higher education institution. *Quality in higher education, 15*(2), 147-165. https://doi.org/10.1080/13538320902995774

Irgin, P., & Erten, I. H. (2020). Exploring the role of strategy instruction: Young learners' listening performance and strategy use. *Eurasian Journal of Applied Linguistics, 6*(3), 415-441. https://ejal.info/exploring-the-role-of-strategy-instruction-young-learners-listening-performance-and-strategy-use/

Jayasundara, C., Ngulube, P., & Minishi-Majanja, M. K. (2009). A theoretical model to predict customer satisfaction in relation to service quality in selected university libraries in Sri Lanka. *South African Journal of Libraries and Information Science, 75*(2), 179-194. https://hdl.handle.net/10520/EJC61321

Karwati, S., Sukardi, S., & Syafruddin, S. (2019). The Study of Quality Service of Education in Public Vocational Schools in Using ServQual Model. *Proceedings of the 3rd Asian Education Symposium (AES 2018). 253* (pp. 385-387). Atlantis Press. https://dx.doi.org/10.2991/aes-18.2019.87

Kassim, N., & Abdullah, N. A. (2010). The effect of perceived service quality dimensions on customer satisfaction, trust, and loyalty in e-commerce settings. *Asia Pacific Journal of Marketing and Logistics, 22*(3), 351-371. https://doi.org/10.1108/13555851011062269

Kennedy, G. W., Udoetuk, U. S., & Ufot, S. I. (2017). Challenges of technical vocational teacher education and teaching in Nigeria: The need for intervention. *International Journal of Education and Evaluation, 3*(7), 71-82.

Keong, W. E. Y. (2017). Importance-performance analysis of e-learning technologies in Malaysian higher education. *2017 International Symposium on Educational Technology (ISET)* (pp. 24-28). IEEE. https://doi.org/10.1109/ISET.2017.14

Kuo, N.-T., Chang, K.-C., & Lai, C.-H. (2011). Identifying critical service quality attributes for higher education in hospitality and tourism: Applications of the Kano model and importance-performance analysis (IPA). *African Journal of Business Management, 5*(30), 12016-12024. https://doi.org/10.5897/AJBM11.1078

Mallya, J., & Patwardhan, V. (2018). Hospitality Students' Perception of College Library Service Quality: Importance-Performance Analysis. *DESIDOC Journal of Library & Information Technology, 38*(2), 125-131. https://doi.org/10.14429/djlit.38.2.11449

Mamun-ur-Rashid, M., & Rhman, M. Z. (2017). Quality of higher education in Bangladesh: Application of a modified SERVQUAL model. *Problems of Education in the 21st Century, 75*(1), 72-91. http://www.scientiasocialis.lt/pec/files/pdf/vol75/72-91.Mamun-ur-Rashid_Vol.75-1_PEC.pdf

Martilla, J. A., & James, J. C. (1977). Importance-performance analysis. *Journal of marketing, 41*(1), 77-79. https://doi.org/10.1177%2F002224297704100112

Mason, R. B., Mbambo, S. N., & Pillay, M. A. (2018). Service quality at technical and vocational education and training colleges: Perception according to demographic factors. *Journal of Technical Education and Training, 10*(1), 15-29. https://10.30880/jtet.2018.10.01.002

McLeay, F., Robson, A., & Yusoff, M. (2017). New Applications for Importance-Performance Analysis (IPA) in Higher Education: Understanding Student Satisfaction. *Journal of Management Development, 36*(6), 780-800. https://doi.org/10.1108/JMD-10-2016-0187

Mimbs, B. P., Boley, B. B., Bowker, J., Woosnam, K. M., & Green, G. T. (2020). Importance-performance analysis of residents' and tourists' preferences for water-based recreation in the Southeastern United States. *Journal of Outdoor Recreation and Tourism, 31*, 100324. https://doi.org/10.1016/j.jort.2020.100324

Narang, R. (2012). How Do Management Students Perceive the Quality of Education in Public Institutions? *Quality Assurance in Education: An International Perspective, 20*(4), 357-371. https://doi.org/10.1108/09684881211263993

Nazari-Shirkouhi, S., Mousakhani, S., Tavakoli, M., Dalvand, M. R., Šaparauskas, J., & Antuchevičienė, J. (2020). Importance-performance analysis based balanced scorecard for performance evaluation in higher education institutions: an integrated fuzzy approach. *Journal of Business Economics and Management, 21*(3), 647-678. https://doi.org/10.3846/jbem.2020.11940

Nsamba, A., & Makoe, M. (2017). Evaluating quality of students' support services in open distance learning. *Turkish Online Journal of Distance Education, 18*(4), 91-103. https://doi.org/10.17718/tojde.340391

NTB Regional Development Planning Agency. (2016). *Regional regulation of West Nusa Tenggara Province 2009-2019 Regional Spatial Planning (RTRW)*. Bappeda NTB.

Nunnally, J. C. (1978). *Psychometric theory* (2nd ed.). McGraw-Hill. http://www.worldcat.org/oclc/3167590

O'Neill, M. A., & Palmer, A. (2004). Importance-Performance Analysis: A Useful Tool for Directing Continuous Quality Improvement in Higher Education. *Quality Assurance in Education: An International Perspective, 12*(1), 39-52. https://doi.org/10.1108/09684880410517423

Ozdemir, Y., Kaya, S. K., & Turhan, E. (2020). A scale to measure sustainable campus services in higher education:"Sustainable Service Quality". *Journal of Cleaner Production, 245*, 118839. https://doi.org/10.1016/j.jclepro.2019.118839

Padlee, S. F., Reimers, V., Mokhlis, S., Anuar, M. M., & Ahmad, A. (2020). Keep up the good work in research universities: An importance-performance analysis. *Australasian Marketing Journal (AMJ), 28*(2), 128-138. https://doi.org/10.1016/j.ausmj.2019.10.002

Palli, J. G., & Mamilla, R. (2012). Students' opinions of service quality in the field of higher education. *Creative Education, 3*(04), 430-438. http://dx.doi.org/10.4236/ce.2012.34067

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1985). A conceptual model of service quality and its implications for future research. *Journal of marketing, 49*(4), 41-50. https://doi.org/10.1177%2F002224298504900403

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1994). Reassessment of expectations as a comparison standard in measuring service quality: implications for further research. *Journal of marketing, 58*(1), 111-124. https://doi.org/10.1177%2F002224299405800109

Pezeshki, V., Mousavi, A., & Grant, S. (2009). Importance-performance analysis of service attributes and its impact on decision making in the mobile telecommunication industry. *Measuring Business Excellence, 13*(1), 82-92. https://doi.org/10.1108/13683040910943072

Rajabipoor, A. (2012). Measuring service quality using SERVQUAL model: a case study of brokerage offices in Iran. *International journal for quality research, 6*(1), 55-61. https://www.academia.edu/download/47135783/MEASURING_SERVICE_QUALITY_USING.pdf

Rezaei, S., Karami Matin, B., Hajizadeh, M., Soroush, A., Mohammadi, Z., Babakhany, M., & Jamshidi, K. (2017). Evaluating service quality in the higher education sector in Iran: an examination of students' perspective. *International Journal of Human Rights in Healthcare, 10*(2), 146-155. https://doi.org/10.1108/IJHRH-12-2016-0024

Roszkowski, M. J., Baky, J. S., & Jones, D. B. (2005). So which score on the LibQual+™ tells me if library users are satisfied? *Library & information science research, 27*(4), 424-439. https://doi.org/10.1016/j.lisr.2005.08.002

Saleem, M., & Ch, H. (2017). Identification of Gaps in Service Quality in Higher Education. *Bulletin of Education and Research, 39*(2), 171-182. http://pu.edu.pk/images/journal/ier/PDF-FILES/13_39_2_17.pdf

Sapri, M., Kaka, A., & Finch, E. (2009). Factors that influence student's level of satisfaction with regards to higher educational facilities services. *Malaysian Journal of Real Estate, 4*(1), 34-51. http://eprints.utm.my/id/eprint/21939/1/MaimunahSapri2009_FactorsthatInfluenceStudent%E2%80%99sLevel.pdf

Sardar, A., Amjad, S., & Ali, U. (2016). An empirical analysis of the service quality gap in business education: Evidence from higher education in Pakistan. *Journal of Education for Business, 91*(3), 148-158. https://doi.org/10.1080/08832323.2016.1145623

Sharif, K., & Kassim, N. M. (2012). Non-academic service quality: comparative analysis of students and faculty as users. *Journal of Marketing for Higher Education, 22*(1), 35-54. https://doi.org/10.1080/08841241.2012.705793

Simpson, G. D., Patroni, J., Teo, A. C., Chan, J. K., & Newsome, D. (2019). Importance-performance analysis to inform visitor management at marine wildlife tourism destinations. *Journal of Tourism Futures, 6*(2), 165-180. https://doi.org/10.1108/JTF-11-2018-0067

Siniscalchi, J. M., Beale, E. K., & Fortuna, A. (2008). Using importance-performance analysis to evaluate training. *Performance Improvement, 47*(10), 30-35. https://doi.org/10.1002/pfi.20037

Stodnick, M., & Rogers, P. (2008). Using SERVQUAL to measure the quality of the classroom experience. *Decision Sciences Journal of Innovative Education, 6*(1), 115-133. https://doi.org/10.1111/j.1540-4609.2007.00162.x

Sukardi, Wardana, L. A. (2016). The Study of Service Quality and Competitiveness of Secondary Education in West Sumbawa. *1st UPI International Conference on Sociology Education (UPI ICSE 2015)* (pp. 400-404). Atlantis Press. https://doi.org/10.2991/icse-15.2016.86

Sukardi, S., Rusdiawan, R., & Wardana, L. (2019). The Competitiveness of Master of Education Graduates: Porter's Diamond Analysis. *International Journal of Emerging Technologies in Learning (iJET), 14*(19), 179-187. https://doi.org/10.3991/ijet.v14i19.10767

Sukardi, S., Wildan, W., & Fahrurrozi, M. (2019). Vocational education: A missing link for the competitive graduates. *International Education Studies, 12*(11), 26-35. https://doi.org/10.5539/ies.v12n11p26

Tosun, M. U., & Basgoze, P. (2015). The service quality perception in student affairs: A single institutional experience. *Hacettepe Universitesi Egitim Fakultesi Dergisi-Hacettepe University Journal of Education, 30*(3), 131-146. http://www.efdergi.hacettepe.edu.tr/yonetim/icerik/makaleler/1628-published.pdf

Tóth, Z. E., Jónás, T., Bérces, R., & Bedzsula, B. (2013). Course evaluation by importance-performance analysis and improving actions at the Budapest University of Technology and Economics. *International Journal of Quality and Service Sciences, 5*(1), 66-85. https://doi.org/10.1108/17566691311316257

Toytok, E., & Yıldırım, M. (2018). Disciplinary problems and causes of vocational high school. *Journal of Abant İzzet Baysal University Faculty of Education, 18*(3), 1759-1778. http://doi.org/10.17240/aibuefd.2018.18.39790-439030

Tzeng, G.-H., & Chang, H.-F. (2011). Applying importance-performance analysis as a service quality measure in food service industry. *Journal of technology management & innovation, 6*(3), 106-115. http://dx.doi.org/10.4067/S0718-27242011000300008

Wang, C.-H., & Fong, H.-Y. (2016). Integrating fuzzy Kano model with importance-performance analysis to identify the key determinants of customer retention for airline services. *Journal of Industrial and Production Engineering, 33*(7), 450-458. https://doi.org/10.1080/21681015.2016.1155668

Yousapronpaiboon, K. (2014). SERVQUAL: Measuring higher education service quality in Thailand. *Procedia-Social and Behavioral Sciences, 116*, 1088-1095. https://doi.org/10.1016/j.sbspro.2014.01.350

Yusra, K., Lestari, Y. B., & Hamid, M. O. (2021). Teacher agency and the implementation of CEFR-like policies for English for tourism and hospitality: insights from local vocational high schools in Indonesia. *Current Issues in Language Planning*, 1-21. https://doi.org/10.1080/14664208.2021.1965739

Zeithaml, V. A., Berry, L. L., & Parasuraman, A. (1988). SERVQUAL: a multiple-item scale for measuring consumer perceptions of service quality. *Journal of retailing, 64*(1), 12-40. https://psycnet.apa.org/record/1989-10632-001

Zeithaml, V. A., Parasuraman, A., Berry, L. L., & Berry, L. L. (1990). *Delivering Quality Service: Balancing Customer Perceptions and Expectations*. Free Press. https://books.google.com.pk/books?id=RWPMYP7-sN8C

Zulu, W. V., & Mutereko, S. (2020). Exploring the Causes of Student Attrition in South African TVET Colleges: A Case of One KwaZulu-Natal Technical and Vocational Education and Training College. *Interchange, 51*(4), 385-407. https://doi.org/10.1007/s10780-019-09384-y