Internal Client Satisfaction Improvement Plan Using a Performance Model*

PANSOO KIM & JIHYE LEE
School of Business
Kyungpook National University
80 Daehak-Ro Buk-Gu Daegu 702-701
REPUBLIC OF KOREA
pskim@knu.ac.kr

* This research was supported by Kyungpook National University Research Fund, 2010

Abstract: Education has been categorized as an intangible service industry based on the characteristics of its service activities by Christopher [3]. In order to enhance the service quality of education it is critical to attain a high degree of satisfaction of teachers, who are the internal customers, which will help to increase the degree of satisfaction of students, who are the external customers of education. As a result, it is expected that the general quality of education services will be enhanced. This study measures the degrees of satisfaction among teachers and evaluates the importance of various factors in the teaching environment that are critical to teachers' job satisfaction. The results of an analysis based on teachers' gender, career, and workplace indicate that the most critical factors are performance-based reward systems and welfare programs.

Key-words: Performance Model, Service Quality, Service Quality of Education, Internal Client

1 Introduction

Bell [1] suggested that an industrial society evaluates the standard of living according to the amount of wealth, whereas a post-industrial society is interested in the quality of life, which is measured by services in areas such as health care, education, and recreation. Therefore, any society wishing to operate properly and improve the quality of life needs to provide needed services. This is because services are at the center of economic activities in any society. Manufacturing is typically distinguished from services and extend to public institutions such as education, telecommunications, finance, health care, and security. In order to sustain the national economy and allow citizens to live peacefully, public education, medical services, road management, the supply of safe drinking water, clean air, and public safety play key roles. These service areas also play critical roles in the evolution towards a global economic system [5]. Among these areas, education is an important element that dictates the rise and fall of a country, and thus, countries worldwide place great emphasis on educational services [6].

Christopher [3] classifies education as a service based on its service-oriented characteristics, and the Korean Standard Industry Classification also classifies education as a service [8]. In all areas of service, internal-client satisfaction is more important in the service sector than in the manufacturing sector. This is because if an employee in the service sector shows a high level of job satisfaction, then he or she is likely to be customer-oriented [4]. Therefore, education, which is a service, should emphasize the importance of internal client satisfaction.

The quality of educational services reflects the level of satisfaction with the service provided by internal clients as perceived by external clients to whom the service is provided. In educational service, internal clients are teachers, and external clients are students and their parents. The level of satisfaction of teachers influences their mindset and attitudes toward their provision of educational service. This influences the satisfaction level of educational effect, which constitutes the service outcomes provided to students and their parents. Therefore, as in other service areas, the quality of educational services may vary according to the level of satisfaction among external clients, and the level of internal client satisfaction may be critical in that it is directly related to the level of satisfaction among external clients. This raises the urgent question of how internal client satisfaction can be increased to improve the quality of educational services.

This study measures the level of satisfaction as well as importance as perceived by the internal

clients, i.e., teachers, regarding the service items provided to improve educational service quality. For this, this study employs the performance model in Hung et al. [9]. In addition, based on the results, this study examines and prioritizes those items requiring improvements.

2 Theoretical Background

2.1 Internal Service Quality and Internal Client Satisfaction

According to Heskett et al.'s [7] service profit chain, if an organization's strategies for internal operations and service delivery systems are well designed and implemented, then the quality of internal services can increase productivity and reduce costs, thereby facilitating external client satisfaction and increased profits. Accordingly, firm performance starts with the quality of internal services, the improvement of which can lead to improvements in the level of satisfaction among employees, i.e., internal clients, which in turn can lead to improvements in the level of satisfaction among external clients and then to improvements in firm performance. Therefore, employee satisfaction is a necessary prerequisite for improvements in service quality.

Such a theory has been claimed also by Berry [2], who emphasized the importance of internal client satisfaction before Heskett et al., [7]. This involves considering employees as internal clients and tasks as internal products, and defining tasks that would fulfill the demands of the internal clients to achieve the objectives of the organization. In order to support such a claim, the following was suggested. First, the basic claim that employees should be treated as clients brings about changes in the attitudes of the employees. That is, employees will have a service mindset to provide quality services, which will appear as a competitive advantage in the market. Second, treating employees as clients means that tasks should be treated as product. That is, the needs and demands of the clients should be considered, and efforts should be expended to satisfy the clients with products. Third, to treat the individual tasks of employees as products, a new approach to human resource management is required, and to attract and maintain client-oriented employees, basically the application of marketing techniques is needed. Also, domestically, the task-satisfaction level is related to the will of the employee to satisfy the client's demand; so, it has been claimed that if the service employee is not satisfied with the tasks, the level of quality of the services provided by the employee will decline as well [13]. Similarly, the importance of the level of satisfaction of employees, who are the internal clients, to improve the internal service quality is gradually being expanded. Lee [4] claimed the necessity of improving the quality of internal services not only for for-profit organizations but also for all service-oriented organizations such as non-profit organizations and government institutions. Thus, previous studies have examined the ways to improve the quality of internal services not only for for-profit organizations but also for non-profit organizations.

However, most of the previous studies considering non-profit organizations in the education sector have typically focused on external client satisfaction. That is, few have focused on internal services to improve the quality of educational services. In this regard, the present study considers the strategies for improving the level of satisfaction based on individual characteristics of internal clients (i.e., teachers) to improve the quality of internal services in the education sector.

2.2 Educational Service Quality

Educational services reflect the general characteristics of services in terms of intangibility, variability, inseparability, and perishability [14]. Thus, educational services are pure services arising from human interactions and represent human-oriented services requiring substantial person-to-person interactions. Educational services are intangible, and they directly target individuals. Therefore, the trade relationships between the service suppliers (teachers) and consumers (students and their parents) can be regarded as persistent membership relationships. In addition, in providing the educational service, the suppliers (teachers) have considerable power over the demand of consumers (students and their parents), and the extent of variability among the consumers (students and their parents) is relatively low. Therefore, the educational services are a person-to-person service that is achieved by interaction between the suppliers (teachers) and the consumers (students) and thus show high labor intensity [14].

Previous studies of educational service quality have typically focused on strategies for increasing the level of satisfaction among students and their parents to improve service quality [8], [10], [11], [15]. However, the present study considers a strategy for increasing the level of satisfaction among teachers, which no study has considered, to improve educational service quality. In particular, this study examines and prioritizes those items requiring im-

provements by considering the individual characteristics of teachers.

2.3 Performance Model

A number of previous studies have employed the SERVQUAL model and the SERVPERF model to measure service quality [22]. The SERVQUAL model measures the gap between the perceived and the expected service from the perspective of the client in a service environment to suggest an improvement plan for service quality, whereas the SERVPERF model simply measures the service performance. However, SERVQUAL model, which is a service quality measurement tool, considers the level of satisfaction as well as importance but uses various, scores for calculating each area, which can lead to some reliability and validity issues. On the other hand, the SERVPERF model does not consider the level of importance, i.e., the service level expected by the client, and thus, it is not possible to accurately measure client satisfaction. In addition, it does not allow for the prediction of client behavior or perceived satisfaction.

On the other hand, Hung et al.'s [9] performance model can overcome the deficiencies of other tools, facilitating the measurement of the level of service quality. This performance model is different from other service quality measurement tools in terms of the selection of items for improving service quality. Existing tools suggest that the items with low service satisfaction are the items that are necessary for improving service quality. By contrast, the performance model suggests that choosing the items with low service satisfaction is not the best approach for service quality improvement because those items requiring improvements in service quality are likely to be those the clients regard as important. In addition, previous studies proposing various models for evaluating service quality performance have typically employed the level of importance and the level of satisfaction as two indices of service quality components.

Thus, for service items in the performance model, the level of satisfaction for those items perceived to be important by clients before and after their interaction with service providers is measured at the same time. This is because, unlike other tools for measuring service quality, the model includes items for the level of importance to predict clients' behavior or perceived satisfaction. In addition, when measuring the level of importance or satisfaction, the model employs the same scores to avoid reliability and validity issues. Therefore, the model avoids such issues associated with other measurement tools and prioritizes items requiring improvements in service quality.

In this regard, for improved educational service quality, this study employs this performance model to measure the level of satisfaction for each of the major characteristics of internal clients.

2.3.1 Importance-Satisfaction Model (the I-S model)

Clients (employees) generally consider several major quality properties to evaluate service quality [2], [21]. Thus, when developing strategies for improving service quality, organizations should avoid considering only those quality properties with low scores. That is, organizations should focus more on those items with a high level of importance but a low level of satisfaction than on those with a high level of satisfaction but a low level of importance.

Figure 2 shows the I-S model proposed by Yang [19]. This I-S model divides the matrix into four "areas" considering the level of importance and satisfaction. Each area has unique characteristics. Each measured service quality item is placed into one of four areas based on the level of importance and satisfaction. Therefore, the measured service quality items are assigned appropriate improvement strategies according to the characteristics of the areas that they belong to. Although the I-S model can facilitate the identification of items for service quality for corporate managers, it presents the following two issues:

The first issue arises from items in Area III (the "surplus" area), the area in which the level of satisfaction exceeds that of importance and there are excess resources. In reality, corporate managers generally pay little attention to those items that clients find satisfactory even if there are excess resources.

The second issue arises from the items X1 and X2 in Figure 2, which shows the items on the boundary between two areas: Area I (the "excellent" area) and Area II (the "need for further improvement" area). In such cases, issues arise when developing strategies for improving ser-vice quality because it is not possible to choose one area over the other area when making decisions on service quality improvements.

2.3.2 Constructing a Performance Model of Service Quality

The above issues concerning the I-S model was addressed by Hung et al. [9]. In addition, those items with excess resources are selected as the items requiring improvements to minimize the waste of

resources. In other words, strategies for improving service quality are planned such that the ratio of performance to investment remains balanced throughout resource deployment.

As such, the design of the performance model is based on Yang's [19] I-S model. Similarly, for a wider range of strategies for improving service quality, the performance matrix is divided into nine performance zone. Each performance zone is indicated by B_{ij} (i,j=1, 2, 3) where i means satisfaction; j means importance, and 1, 2, and 3 indicate the three levels. For example, B_{13} refers to a very low satisfaction level and a very high importance level, which indicates a need for improvements in service quality for items in this B_{13} zone.

These nine performance zones have unique characteristics, and thus, strategies for improving service quality vary according to the zone. When classifying by the index i that refers to the satisfaction level, the performance zone with i=3 (which include B_{31}, B_{32}, and B_{33}) the zone with the highest level of satisfaction; that with i=2 (B_{21}, B_{22}, and B_{23}) is the zone with a moderate level of satisfaction; and that with i=1 (B_{11}, B_{12}, and B_{13}) is the zone with the lowest level of satisfaction zone. On the other hand, in terms of classifying by the index j, which refers to the level of importance, the performance zone with j=3 (B_{13}, B_{23}, and B_{33}) is the zone with the highest level of importance; that with j=2 (B_{12}, B_{22}, and B_{32}) is the zone with a moderate level of importance; and that with j=1 (B_{11}, B_{21}, and B_{31}) is the zone with the lowest level of importance.

The performance zones B_{11}, B_{22}, and B_{33} are the zones where the importance and satisfaction levels are the same. Therefore, these three zones are called "appropriate performance zones" (APZ), that is, zones whose items do not require improvements. The performance zones B_{12}, B_{13}, and B_{23} are those zones where the level of importance exceeds the level of satisfaction, and thus, additional resources are needed to increase the level of satisfaction for items in these zones. The performance zones B_{21}, B_{31}, and B_{32} are those zones where the level of satisfaction exceeds the level of importance. Thus, strategies for these zones should focus on reducing excess resources to strike a balance between the level of satisfaction and that of importance. Thus, these methods can address the first issue associated with the I-S model.

As shown in Figure 3, the items Y_1 and Y_2 are located in a zone requiring improvements. However, these items are very close to the APZ, which requires no improvements. In such cases, it is not possible to arbitrarily choose one of the three performance zones. Therefore, there is some difficulty in developing strategies for improving service quality.

Thus, the performance model, Taguchi et al.'s [20] quality loss function (QLF), and Montgomery's [23] management level theory are employed to address the issues that may arise when items are located on the boundary between performance zones in the performance matrix. The QLF considers the quality characteristics of products when they are very different from the target value of the performance control limit (PCL). This is because there are high costs when each measured item is far from the limit. In addition, Shewhart [23] set the target value of the PCL in the control chart to 0 and employed heuristic techniques to determine that 0.27% of items required improvements when the index of items was ±3 away from the PCL in terms of the standard deviation (4.56% for ±2 and 31.74% for ±1).

Similarly, Hung et al. [9] applied the above Shewhart's theory to the performance model but could not find items requiring improvements for ±3 and ±2 standard deviations. Thus, to establish the performance upper control limit (PUCL) and the performance lower control limit (PLCL), they applied the criterion of ±1 standard deviation from the PCL. In this regard, this study sets the criterion to ±1 standard deviation from the PCL for the PUCL and the PLCL. In this way, this study addresses the second issue associated with the I-S model through the PUCL and the PLCL.

2.3.3 Calculation of the Coordinates of Items for Service

Each item for service is assigned to one of the nine performance zones in the performance model based on the level of importance/satisfaction. Here I represent the level of importance, and S, the level of satisfaction. To measure these levels for each item, we calculate the coordinates for these levels as follows:

$$\mathrm{P_I} = \frac{\mu_\mathrm{I} - \min}{\mathrm{R}}(\text{index of importance}),$$
$$\mathrm{P_S} = \frac{\mu_\mathrm{S} - \min}{\mathrm{R}}\ (\text{index of satisfaction}) \quad (1)$$

In Eq. (1), μ_I and μ_S are the average values of the importance and satisfaction levels, respectively. In this equation, R=K-1 indicates the range of the criterion used in the study, where K is the maximum criterion value. In addition, min=1 is the minimum value for each criterion. The reason for subtracting the minimum value of the criterion from the measured average value is as follows. If the median value is 3 for the service provision item measured a five-

point Likert-type scale, the coordinates of the measured item will be exactly in the middle according to the ratio of 4, which is the entire range. Therefore, regardless of the criteria, the two coordinate values measured for the service provision items will fall exactly between 0 and 1.

For example, according to Eq. (1), the use of a 5-point criterion results in K=5, and a range R of 5-1=4. Here, if the average value of either the importance or the satisfaction level has a median value of 3, the coordinates of each item will be at 0.5. Thus, the level of importance is equal to the level of satisfaction for these items, and no improvements are necessary. On the contrary, if the criteria for either the importance or the satisfaction level fall below or exceed the median value of 3, the value of the index for each item will be either below or over 0.5. In such cases, the level of importance is not the same as the level of satisfaction, and the items lean toward one or the other, thereby requiring improvements. Similarly, the coordinate values for items can be used to efficiently develop strategies for improving service quality and facilitate service quality management.

As seen in Figure 4, the entire area of the performance model is 1×1=1. PCL-located service provision items have exactly the same importance and satisfaction levels. This is represented as T=0, and can be divided into 2 isosceles triangles each with an area of 0.5 centering on the diagonal. From the coordinates C where the item is located according to the importance level index P_I and the satisfaction level index P_S, an extended line will be drawn from the central line T to form the triangle A. According to [20], if triangle A is located in Zone E outside PLCL, the importance level exceeds that of satisfaction level. Therefore, moving the coordinates of items closer to the PCL requires an improvement strategy based on additional resources. On the other hand, if triangle A is located in Zone F that is inside PUCL, the importance level is lower than the satisfaction level. Thus, moving the coordinates of items closer to the PCL requires an improvement strategy that reduces excess resources and eliminates waste.

In addition, the larger the area of the triangle, the further that the coordinates of items from the PCL where the level of importance is equal to that of satisfaction. Thus, a larger area of the triangle indicates the greater the need for improvement is. Therefore, the area of the triangle can be used to prioritize service item improvements. As shown in Figure 4, the area of triangle A ($\triangle$cde) is calculated as follows:

$$\overline{\mathrm{ab}} = \overline{\mathrm{ae}} = y;\ \ \overline{\mathrm{ac}} = x;\ \ \overline{\mathrm{ad}} = \overline{\mathrm{ce}} = \overline{\mathrm{ae}} - \overline{\mathrm{ac}} = y - x;\ \ x, y = 0 \sim 1. \quad (2)$$

Hung et al. [9] assumes that coordinates n from the importance-level and satisfaction-level indices represent the result of triangle A. Moreover, the original formula for the triangular area of ((base x height) ÷ 2)) was partly modified to (base x height) for simplicity of calculation. Therefore, for example, coordinates $c(x,y)$ can be represented as Equation (3) through the substitution of the coordinates $c(x,y)$, $e(x_1,y)$, and $d(x,y_1)$ into the formula for the triangular area. Thus, Equation (4) can be obtained, which can be modified to Equation (5), and thus to Equation (6).

$$A_1 = \overline{cd} \times \overline{ce} = (y_1 - y) \times (x_1 - x) \quad (3)$$

$$A_i = (y_i - y) \times (x_i - x) \quad (4)$$

$$y_i - y = x_i - x \quad (5)$$

$$A_i = (y_i - x_i)^2 \quad (6)$$

In the above, $A_i = 0 \sim 1,\ \ i = 1 \sim n$.

PUCL and PLCL cannot be found until the average μ and standard deviation σ for all A_i are known. It is assumed that the average μ and the standard deviation σ can be found for each service provision item that is measured for investigating the client (employee) satisfaction level, under the condition that the item fits a normal distribution. Therefore, the average μ and the standard deviation σ can be determined using Equation (7) and the PUCL and the PLCL can be found from Equation (8) and (9).

$$\mu = \frac{\sum_{i=1}^{n}(y_i - x_i)^2}{n};\ \ \sigma = \sqrt{\frac{\sum_{i=1}^{n}(y_i - x_i)^4}{n} - \mu^2} \quad (7)$$

$$PUCL = T + \sigma;\ \ PCL = T = 0;\ \ PLCL = T - \sigma \quad (8)$$

$$\mathrm{PUCL} = \mathrm{T} + \sigma = \sqrt{\frac{\sum_{i=1}^{n}(y_i - x_i)^4}{n} - \mu^2};\ \ PCL = 0;\ \ PLCL = T - \sigma = -\sqrt{\frac{\sum_{i=1}^{n}(y_i - x_i)^4}{n} - \mu^2} \quad (9)$$

Likewise, the performance model can be used to distinguish superior service items from inferior ones based on service quality. In addition, various issues surrounding service quality can be addressed by managing items with coordinates located outside the PUCL and the PLCL, which can reduce the amount of time and money. This allows for an examination of the items requiring improvements in terms of the level of satisfaction among internal clients (i.e., teachers) and the ranking of the items in order of priority.

3. Research Design

3.1 Participants

Given the rapidly changing environment in today's knowledge- and information-oriented society, a number of studies have examined the importance of the relationship between teachers and students. Some studies have suggested that social support has considerable influence on the level of satisfaction among elementary school teachers and the level of self-efficacy among elementary school students and thus can facilitate academic performance. These results demonstrate the importance of social support for elementary school teachers [17]. In addition, in most OECD countries, elementary education (the most important step in education [14]) is compulsory. Thus, in this study, we considered a sample of elementary school teachers, who are the main agents and source in elementary education and for improving the quality of educational services.

3.2 Method

We employed by Hung et al.'s [9] performance model to measure the level of importance and the level of satisfaction for each service item as perceived by the participants. In addition, we examined the strategies for improving service quality by prioritizing those items requiring improvements. We classified services according to the school environment, the work environment, performance-based pay, budget compilation, and welfare, for which the level of importance and the level of satisfaction were measured simultaneously. In addition, we examined various improvement strategies based on the individual characteristics of teachers (i.e., internal clients) and determined the ways in which the overall level of satisfaction could be improved through differentiated custom support. For this, we classified the participants according to their gender (males vs. females), tenure (teachers with 15 years of experience or less vs. those with at least 16 years of experience), and work location (urban areas vs. rural/island/remote areas).

3.3 Operational Definition of Variables

To measure the services provided to the participants, we classified the services according to the school environment, the work environment, performance-based pay, budget compilation, and welfare. We determined this classification based on discussions with an expert group consisting of vice-principals, principals, researchers, and superintendents.

3.3.1 Educational Environment

The school environment is where teachers and students interact to systematically organize students' learning experience. Recent studies of the school environment have raised various issues such as aging and insufficient school facilities, the diversity of staff members, and school culture, among many others. Therefore, we considered 9 measurement variables from previous research in order to measure the level of importance/satisfaction [16], [11], [17], [12].

3.3.2 Work Environment

The work environment must be safe and organized in all areas related to learning. An effective school manages the work environment in an effective manner by involving staff members, students, and their parents; places great emphasis on academic performance [24]; uses most of the school hours for classroom learning; and regularly assigns a substantial amount of homework. In this regard, we considered 11 measurement variables from previous research to measure the extent to which a work environment was well established and whether there was a need for further improvement [16], [11], [17], [12].

3.3.3 Performance-Based Pay

In education, the teacher's pay is the reward acquired for task execution. Thus, it is important to secure good teachers by providing them with appropriate motivation in terms of the qualitative enhancement of education. Accordingly, it is necessary to consider performance-based pay to motivate teachers, allow stable task execution, and induce improvements in educational service quality. For this, we considered 15 measurement variables from previous research [16], [11], [17], [12].

3.3.4 Budget Compilation

In terms of budgeting, the principle of the distribution of education budget allows for substantial efficiency and equity. Efficiency can be seen as the effort to obtain the greatest effect with the minimum amount of effort/money. Equity is seen as fairness in the distribution of goods, services, or burdens. Equity in education budget means that it is considered reasonable to have some differences in the

amount and distribution of budget resources based on certain standards.

We considered the budgeting process at the Gyeongbuk Education Bureau, a local governing body for education finance. For this, we considered 8 measurement variables from previous research to measure efficiency and equity in budget compilation [16], [11], [17], [12].

3.3.5 Welfare

Teacher welfare is defined as some indirect compensation provided to teachers and their family members, that is, it is a type of compensation beyond the normal wage set by the government or the school. Teacher welfare stabilizes teachers' livelihood by providing them with financial security, health care, rest and satisfies their socio-psychological demand. This allows job security for teachers and enhances the reliability and expertise of the teaching profession. Thus, teacher welfare ultimately means the inclusion of all areas that contribute to improving the quality of education and the quality of life. For teacher welfare, we considered 12 measurement variables from previous research [16], [11], [17], [12].

All these 55 items were measured using a five-point Likert-type scale ranging from (1) to (5) (see Table 1).

3.4 Data Collection and Analytic Methods

We selected the measurement variables through a review of previous research, interviews and discussions with an expert group composed of vice principals, principals, researchers, superintendents, and managers from the Gyeongbuk Education Bureau. We conducted a pilot test (excluding those items for the demographic background) to identify inappropriate items. As a result, we obtained a total of 47 items for the analysis.

To facilitate survey investigation, 330 elementary school teachers belonging to Gyeongbuk Education Bureau were sufficiently informed about the purpose of the study. We conducted the survey online over 35 days from November 17 to December 21, 2008. A total of 303 teachers responded.

We employed SPSS 18.0 for the reliability (Cronbach's α) and validity (factor analysis) of data result. In addition, we calculated the index of importance and the index of satisfaction for each item and determined the area Ai of the triangle for each item by using EXCEL 2007 to show the coordinates of each service provision item in the performance zone of the performance model.

4. Empirical Analysis

4.1 Demographic Characteristics of the Sample

Table 2 shows the survey results. Among the 303 participants, 188 (62%) were female, which is consistent with the 2008 ratio (74%) of female teachers in Korea's elementary schools. In addition, 170 (56.1%) had at least 16 years of experience, and 133 (43.9%) had 15 years of experience or less. This indicates that some teachers did not engage in direct teaching because of tenure-based promotions or retirement. Further, 145 (47.9%) worked in urban areas, and the remaining 158 (52.2%) worked in rural/island/remote areas, indicating little difference. In terms of the overall level of satisfaction with the teaching profession, 197 (65.1%) were generally satisfied.

This study classified the participants according to their characteristics based on survey results and measured the level of importance/satisfaction with respect to services they received. In addition, based on the results, this paper determined those items requiring improvements and ranked them in order of priority

4.2 Reliability and Validity

Based on the data from the survey, we confirmed the reliability and validity of data.

4.2.1 Verification of Reliability

Reliability is a concept that refers to stability, consistency, predictability, and accuracy, and thus, it indicates whether measurement results are consistent and whether there exists any error [18]. For reliability, Cronbach's α is often used. Cronbach's α 0.7 or higher indicates a high level of reliability. In addition, if the factor loading is 0.4 or higher, then the data is considered significant. The results in this study indicate that Cronbach's α was at least 0.9 for all importance data, and the factor loadings ranged from 0.51 to 0.82, i.e., they exceeded the acceptable level. In addition, Cronbach's α exceeded 0.8 for all satisfaction data, and the factor loadings ranged from 0.50 to 0.82, i.e., they exceeded the acceptable level. These results indicate that the data met the established reliability standards.

4.2.2 Verification of Validity

Validity indicates how accurately the composition concepts were measured. Optional definitions tend

to have considerable influence on results, and thus, it is difficult to determine the extent to which concepts are accurately measured. In this regard, we employed the operational definitions in this study to evaluate the validity of measurement through the correlations between measured values. For this, we conducted a factor analysis for the level of importance/satisfaction. The KMO value for the level of importance was 0.978, and that for the level of satisfaction was 0.935, both of which were close to 1. This indicates that the data of this study fulfill the reliability standards.

Tables 3 and 4 show the reliability and validity results for the level of importance and the level of satisfaction, respectively.

4.3 Results of Empirical Analysis

We employed Hung et al.'s [9] performance model to analyze the data from the survey of 303 elementary school teachers from the Gyeongbuk Education Bureau. In addition, to improve the quality of educational services, we considered various strategies for improving the level of satisfaction among teachers, who are internal clients in the education sector, based on their characteristics. For this, we subdivided the participants' characteristics according to their gender, tenure, and work location. The results indicate that all the characteristics associated with their gender, tenure, and work location were in Zone E, indicating a need for further improvement. The level of importance was lower than that of satisfaction, indicating a need for further improvement through the deployment of additional resources. All the items requiring improvements were related to welfare and performance-based pay. In addition, those items requiring improvements and their order of priority showed clear differences across the characteristics.

In terms of the level of satisfaction for each of the participants' characteristics, male teachers indicated that improvements were needed for 23 items, whereas female teachers indicated the same for 19 items. Tables 5 and 6 prioritize these items for male and female teachers, respectively. Second, in terms of tenure, teachers with 15 years of experience or less indicated that improvements were needed for 32 items (Table 7), whereas those with at least 16 years of experience indicated the same for 16 items (Table 8). Finally, in terms of the work location, teachers in urban areas indicated that improvements were needed for 19 items (Table 9), whereas those in rural/island/remote areas indicated the same for 23 items (Table 10).

As shown in Figures 5 to 10, all the coordinates of items requiring improvements were located in Zone E (outside the PLCL). Thus, the level of importance exceeded that of satisfaction, indicating a need for improvement strategies based on the deployment of additional re-sources.

The results indicate that the items requiring improvements showed clear differences across the characteristics. Table 11 shows and compares the top three items.

5. Conclusion

5.1 Summary and Implications

Heskett el al.'s [7] service profit chain theory posits that improvements in the level of satisfaction among teachers, who are internal clients in the education sector, must precede improvements in the quality of educational services. Accordingly, we conducted an online survey of 303 elementary school teachers. These teachers belonged to the Gyeongbuk Education Bureau. We employed Hung et al.'s [9] performance model to analyze the survey data. We classified the services provided to the participants according to the school environment, the work environment, budget compilation, performance-based pay, and welfare and considered 47 items to determine which required improvements based on the characteristics of the participants. These items were classified according to the participants' gender (males vs. females), tenure (teachers with 15 years of experience or less vs. those with at least 16 years of experience), and work location (urban areas vs. rural/island/remote areas). The results indicate that the items for the school environment, the work environment, and budget compilation were generally satisfactory, whereas those for welfare, performance-related pay required improvements. The top three items requiring improvements for each of the participants' characteristics were as follows:

First, male teachers selected (a) welfare 8 (simplification and automation of task); (b) welfare 6 (pension plans); and (c) welfare 4 (private healthcare facilities), whereas female teachers chose (a) welfare 2 (financial assistance for children's college tuition); (b) welfare 11 (overseas training); and (c) welfare 8 (simplification and automation of task). These results indicate that male teachers were most likely to be concerned about retirement plans and health care because of their typical role as the family's breadwinner, whereas female teachers were

most likely to be concerned about their children's education because of their typical role as the mother.

Second, teachers with 15 years of experience of less selected (a) welfare 8 (simplification and automation of task); (b) welfare 6 (pension plans); and (c) welfare 3 (financial assistance for teachers' graduate tuition), whereas those with at least 16 years of experience chose (a) welfare 2 (financial assistance for children's college tuition); (b) welfare 4 (private health-care facilities); and (c) welfare 10 (recreational facilities). These results indicate that teachers with 15 years of experience or less tended to lack task experience, prepare for their future, and regard self-development as critical to pro-motions, whereas those with at least 16 years of experience tended to focus on college tuition for their children because most of their children were preparing for college or already college students.

Finally, teachers in urban areas selected (a) welfare 2 (financial assistance for children's college tuition); (b) welfare 5 (financial assistance for medical costs); and (c) welfare 4 (private healthcare facilities), whereas those in rural/island/remote areas chose (a) welfare 8 (simplification and automation of task); (b) welfare 6 (pension plans); and (c) welfare 2 (financial assistance for children's college tuition).These results may be due to differences in prices between the two areas, although their wages were the same. On the other hand, there are fewer teachers in rural/island/remote areas, and thus, the amount of workload per teacher in rural/island/remote areas should exceed that in urban areas, although the actual overall work-load should be the same.

Thus, the items requiring improvements showed clear differences in the level of importance as well as satisfaction across the participants' characteristics. Similarly, the items requiring improvements for each of the participants' characteristics were generally found in Zone E of the performance model. According to this model, the level of satisfaction is lower than that of importance for items in Zone E, that is, these items require improvements through the deployment of additional resources. The top three items requiring improvements for each of individual characteristics of teachers may require the following support.

First, it is necessary to provide teachers with adequate financial support, including tuition support for teachers and post-retirement living. This is because teachers are more likely to have difficulty preparing for their retirement than employees in medium-sized firms or other professionals (e.g., police officers, prosecutors, and military officers) because of their substantially lower pay. Thus, such financial support may address teachers' retirement concerns and thus motivate them to focus more on teaching. Second, teachers should be freed from tedious tasks such as processing official documents so that they can focus on teaching and guiding students, which are their core tasks. In this regard, administrative assistants can be employed to assist teachers, which can simplify and automate administrative tasks. Third, teachers' morale should be enhanced through the introduction a sabbatical program as a preferential treatment policy for those teachers with long tenure, and relevant welfare policies considering the mental health and welfare of teachers should be expanded. Such strategies should help induce teachers, who are internal clients in the education sector, to commit themselves more willingly to teaching students, who are external clients.

Thus, for improved educational service quality, the items requiring improvements should be allocated additional resources based on individual characteristics of teachers. Thus, improving the level of satisfaction among teachers and thus the quality of educational services requires the above improvements and support

5.2 Limitations and Future Research

In this study, we considered various strategies for improving the quality of educational services by using Hung et al.'s [9] performance model and by targeting a sample of elementary school teachers. However, the sample was limited to elementary school teachers belonging to the Gyeongbuk Education Bureau in South Korea, and items requiring improvements may vary across regions. Thus, the generalizability of this study's results to other regions or teachers (e.g., high school teachers) may be limited. Thus, future research should consider a wider range of regions/teachers to provide a more robust list of items requiring improvements. In addition, we selected the items based on a literature review and interviews/discussions with an expert group composed of vice-principals, principals, researchers, and superintendents. However, some of the items may not be appropriate for elementary school settings. Thus, further research should consider a wider range of items.

References:

[1] Bell, Daniel, *The Coming of Post-Industrial Society: A Venture in Social Forecasting*, New York: Basic Books, 1973.

[2] Berry, L. L., The Employee as Customer, *Journal of Retail Banking,* Vol.3, No.1, 1981, pp. 33-40.

[3] Christopher, Lovelock H., Classifying Services to Gain Strategic Marketing Insight, *Journal of Marketing,* Vol. 47, No.3, 1983, pp. 9-20.

[4] Donavan, D. Todd., Tom, J. Brown and Jhon, C. Mowen, Internal benefits of Service-Worker customer orientation: job satisfaction, commitment, and organization citizenship behaviors, *Journal of marketing,* Vol.68, No.1, 2004, pp. 128-146.

[5] Fitzsimmons, James A., The Use of Spectral Analysis to Validate Planning Model, *Socio-Economic Planning Sciences,* Vol.8, No.3, 2006, pp. 123-128.

[6] Han, Sang Doll, Service Quality Assessment with Structure Equation: Mainly on Education Quality, *Department of Business Administration The Graduate School, Catholic University of Daegu, Korea*, 2009.

[7] Heskett, J. L., Jones, T. O., Loveman, G. W., Sasser, Jr. W. E. and Schlesinger, L. A., Putting the Service-Profit Chain to Work, *Harvard Business Review,* Vol.72, No.2, 1944, pp. 164 - 170.

[8] Hong, Kum Sun, A Study on Each Level of Educational Service Quality on Customer's satisfaction and Loyalty: Focused on Quality of College Educational Service, *Department of Business Administration The Graduate School, Myongji University, Korea*, 2005.

[9] Hung, Y. Y., Huang, M. L. and Chen, K. S., Service Quality Evaluation by Service Quality Performance Matrix, *Total Quality Management,* Vol.14, No.1, 2003, pp. 79-89.

[10] Jang, Daesung, A Comparative Analysis on the Service Quality of National and Private Universities Business Education in Local Area of Korea, *Daehan Journal of Business*, Vol.22, No.3, 2009, pp. 1703-1727.

[11] Jung, Yu Ri and Cha, Suk Bin, The Impact of Service Quality in Higher Education on Students` Satisfaction and Loyalty: A Case Study of Tourism-related Graduate School, *Korea Academic Society of Tourism Management*, Vol. 23, No. 2, 2008, pp. 139-155.

[12] Kim, Yongchu, Lee, Hak-Joo and Jung, Bokhee, A Study of the Relationship between Job Satisfaction and Role Conflict among Female Elementary School Teachers, *Research Institute Student Life*, Vol. 26, 2000, pp. 65-83.

[13] Lee, Choong Seop and Nam, Woi Ja, The effect of Internal Marketing Activities on Financial performance of Hotel Corporations, *Journal of Accounting Information*, Vol. 26, No.1, 2008, pp. 349-375.

[14] Lee, Jihye, Kim, Taehoon And Kim, Pansoo, Improvement of Teaching Environment for Quality of Education Service, *Journal of Business Research*, Vol. 25, No. 1, 2010, pp. 1-26.

[15] Moon, Seung Jea and Jung, Han Kyung, The Effect of Educational Service Quality in Business Administration on Assurance and Satisfaction, *Business Education*, Vol. 23, No. 1, 2009 pp201-218.

[16] Ok, Jang-Heum, A Study of Job Satisfaction, Organizational Commitment and Turnover Intention influenced by Job Stress Factors, *The Journal of Korean Teacher Education*, Vol. 26, No. 2, 2009, pp. 175-200.

[17] Park, Eun-sil., Kim, Ui-Chol and Park, Young-Shin, Factors influencing job satisfaction and achievement of elementary school teachers, *Ewha Journal of Educational Research*, Vol.38, No. 3, 2007, pp. 29-52.

[18] Tabachnick, Barbara G. and Fidell, Linda S., *Using Multivariate Statistics. Fifth Edition*. Pearson Allyn and Bacon, 2007.

[19] Yang, C.C., Improvement action based on the customer's satisfaction survey, *TQM and business Excellence*, Vol.14, No.8, 2003, pp. 19-30.

[20] Taguchi, C.C., Elsayed, E.A. and Hsiang, T.C., *Quality Engineering in Production Systems*, McGraw-Hill, New York, 1989.

[21] Deming, J., *Out of crisis*, MIT Press, Cambridge, MA, 1986.

[22] Cronin, J. J. and Taylor, S. A., Measuring service quality: A reexamination and extension, *Journal of Marketing*, Vol.56, No.3, pp. 55-68, 1992.

[23] Montgomery, D.C., *Statistical Quality Control*, John Wiley & Sons, New York, 1991.

[24] Brophy, J. E., Teacher behavior and its effects, *Journal of Educational Psychology*, Vol.70, pp. 733-750, 1979.

APPENDIX A - TABLES

Table 1: Survey Items and Variables.

Survey item	Related variables described	Number of questions
Educational Environment	- School facilities and environment	9
Work Environment	- Organizational culture - Relationship with superiors and associate teachers	11
Performance-Based Pay	- Human resource management - Promotion and rewards	15
Budget Compilation	- Administrative behavior - Business by relevance	8
Welfare	- Pension systems - Retirement lives	12
	Total number of measured variables	55

Table 2: Results of Sample Frequency Analysis.

	Category	Frequency (persons)	Total frequency (persons)	%	Total %
Gender	Male	115	303	38	100
	Female	188		62	
Career	0~5 years	46	303	15.2	100
	6~10 years	43		14.2	
	11~15 years	44		14.5	
	16~20 years	58		19.1	
	More than 21 years	112		37.0	
Working area	Island/remote	22	303	7.3	100
	Urban	145		47.8	
	Rural	136		44.9	
Teaching profession	Very satisfied	22	303	7.3	100
	Mostly satisfied	175		57.8	
	Generally	92		30.4	
	Mostly dissatisfied	13		4.3	
	Very dissatisfied	1		0.2	

Table 3: Results Reliability and Validity Results for the Level of Importance.

Survey Item	*Question Number*	Factor Loading					Cronbach's α
		Educational Environment	Work Environment	Performance-Based Pay	Budget Compilation	Welfare	
Educational Environment	1. Maintenance and repair of educational facilities	.73					.929
	3. Educational support materials	.75					
	4. Reflection of the opinions of teachers	.78					
	8. Work score	.69					
	9. Professional development opportunities	.59					
Work Environment	1.1 Office supplies status		.55				.946
	1.3 Conference support		.63				
	1.4 Special events		.62				
	1.5 Community support		.62				
	2.1 Provision of information on job performance		.51				
	2.2 Working overtime		.63				
	2.3 Meeting times		.54				
	2.5 Recognition of good performance		.52				
Performance-Based Pay	1.1 Dedication to educational activities			.60			.980
	1.2 Adequate reflection of the burden of teaching			.61			
	1.3 Contribution to professional development			.63			
	1.4 Excellent contribution to manpower			.68			
	1.5 Comparability to other professionals and contemporaries			.71			
	1.6 Recognition of the uniqueness of the profession			.63			
	1.7 Comparability to private-sector workers in mid-sized businesses			.69			
	1.8 Comparability to public officials in other occupations			.64			
	2.2 Appropriateness for individual performance and the situation			.62			
	2.3 Appropriateness for collective outcomes and performance			.57			
	2.4 Appropriateness for multiple qualifications and higher degrees			.57			
	2.5 Appropriateness for training, performance and research results			.54			
	2.6 Appropriateness for the difficulty of the job			.64			
	2.7 Appropriateness of the amount of tasks			.60			
Budget Compilation	1. Adequate reflection of the changing environment				.63		.979
	2. Reflection of the vision and mission				.72		
	3. Appropriateness of the promotion of the business				.72		
	4. Promotion of projects for priority assignment				.73		
	5. Appropriate reflection of the needs of schools				.68		
	6. Reasonability of the adjustment process				.66		
	7. Flexibility to prevailing conditions				.68		
	8. Clarity of configuration guidelines				.66		
Welfare	1. Support for housing purchase					.56	.971
	2. Support for children's college tuition					.65	
	3. Support for the teacher's graduate tuition					.63	
	4. Private healthcare facilities					.80	
	5. Support for treatment costs					.80	
	6. Pension systems					.62	
	7. Support in terms of compliments and condolences					.78	
	8. Simplification and automation of business					.60	
	9. Retirement hobbies and retirement-life programs					.76	
	10. Resort facilities					.82	
	11. Training courses abroad					.73	
	12. Reflection of the results of training in the promotion and wage					.66	
Eigenvalue		9.876	6.265	9.502	7.352	10.082	
Rotation Sum of the Squared Loadings		17.956	29.347	46.624	59.992	78.323	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy							.978
Bartlett's Test of Sphericity	**Approx. Chi-Square**						22638.722
	Df						1485.000
	Sig.						.000

Table 4: Reliability and Validity Results for the Level of Satisfaction.

Survey Item	*Question Number*	Factor Loading					Cronbach's α
		Educational & Work Environment	Performance	Pay	Budget Compilation	Welfare	
Educational & Work Environment	1. Maintenance and repair of educational facilities	.56					.898
	3. Educational support materials	.55					
	4. Reflection of the opinions of teachers	.72					
	8. Work score	.60					
	9. Professional development opportunities	.50					
	1.1 Office supplies status	.56					
	1.3 Conference support	.55					
	1.4 Special events	.74					
	1.5 Community support	.65					
	2.1 Provision of information on job performance	.70					
	2.2 Working overtime	.57					
	2.3 Meeting times	.65					
	2.5 Recognition of good performance	.75					
Performance	1.1 Dedication to educational activities		.75				.934
	1.2 Adequate reflection of the burden of teaching		.76				
	1.3 Contribution to professional development		.76				
	1.4 Excellent contribution to manpower		.78				
	1.5 Comparability to other professionals and contemporaries		.72				
	1.6 Recognition of the uniqueness of the profession		.78				
	1.7 Comparability to private-sector workers in mid-sized businesses		.70				
	1.8 Comparability to public officials in other occupations		.64				
Pay	2.2 Appropriateness for individual performance and the situation			.61			.891
	2.3 Appropriateness for collective outcomes and performance			.67			
	2.4 Appropriateness for multiple qualifications and higher degrees			.66			
	2.5 Appropriateness for training performance and research results			.69			
	2.6 Appropriateness for the difficulty of the job			.69			
	2.7 Appropriateness of the amount of tasks			.65			
Budget Compilation	1. Adequate reflection of the changing environment				.75		.945
	2. Reflection of the vision and mission				.77		
	3. Appropriateness of the promotion of the business				.81		
	4. Promotion of projects for priority assignment				.75		
	5. Appropriate reflection of the needs of schools				.71		
	6. Reasonability of the adjustment process				.75		
	7. Flexibility to prevailing conditions				.76		
	8. Clarity of configuration guidelines				.68		
Welfare	1. Support for housing purchase					.60	.927
	2. Support for children's college tuition					.68	
	3. Support for the teacher's graduate tuition					.71	
	4. Private health-care facilities					.82	
	5. Support for treatment costs					.82	
	6. Pension systems					.51	
	7. Support in terms of compliments and condolences					.77	
	8. Simplification and automation of task					.57	
	9. Post-retirement hobbies and retirement-life programs					.78	
	10. Resort facilities					.80	
	11. Training courses abroad					.75	
	12. Reflection of the results of training in the promotion and wage					.62	
Eigenvalue		6.765	5.734	3.212	5.702	7.295	
Rotation Sum of the Squared Loadings		14.094	26.039	32.730	44.610	59.807	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy							.935
Bartlett's Test of Sphericity	**Approx. Chi-Square**						11412.714
	df						1485.000
	Sig.						.000

Table 5: Items that Require Improvements among Service Items and Their Priorities – Male.

Improvement Priority	*Question Number*	*Service Items Requiring Improvement*
1	43	Welfare 8. Simplification and automation of task
2	41	Welfare 6. Pension systems
3	39	Welfare 4. Private healthcare facilities
4	37	Welfare 2. Support for children's college tuition
5	44	Welfare 9. Retirement hobbies and retirement-life programs
6	17	Performance-Based Pay 1.4. Excellent contribution to manpower
7	18	Performance-Based Pay 1.5. Comparability to other professionals and contemporaries
8	40	Welfare 5. Support for treatment costs
9	46	Welfare 11. Training courses abroad
10	45	Welfare 10. Resort facilities
11	36	Welfare 1. Support for housing purchase
12	38	Welfare 3. Support for the teacher's graduate tuition
13	42	Welfare 7. Support in terms of compliments and condolences
14	20	Performance-Based Pay 1.7. Comparability to private-sector workers in mid-sized businesses
15	19	Performance-Based Pay 1.6. Recognition of the uniqueness of the profession
16	15	Performance-Based Pay 1.2. Adequate reflection of the burden of teaching
17	16	Performance-Based Pay 1.3. Contribution to professional development
18	47	Welfare 12. Reflection of the results of training in the promotion and wage
19	27	Performance-Based Pay 2.7. Appropriateness of the amount of tasks
20	4	Educational Environment 8. Work score
21	26	Performance-Based Pay 2.6. Appropriateness for the difficulty of the job
22	14	Performance-Based Pay 1.1. Dedication to educational activities
23	21	Performance-Based Pay 1.8. Comparability to public officials in other occupations

Table 6: Items that Require Improvements among Service Items and Their Priority – Female.

Improvement Priority	*Question Number*	*Service Items Requiring Improvement*
1	37	Welfare 2. Support for children's college tuition
2	46	Welfare 11. Training courses abroad
3	43	Welfare 8. Simplification and automation of task
4	40	Welfare 5. Support for treatment costs
5	44	Welfare 9. Retirement hobbies and retirement-life programs
6	39	Welfare 4. Private healthcare facilities
7	45	Welfare 10. Resort facilities
8	41	Welfare 6. Pension systems
9	38	Welfare 3. Support for the teacher's graduate tuition
10	18	Performance-Based Pay 1.5. Comparability to other professionals and contemporaries
11	27	Performance-Based Pay 2.7. Appropriateness of the amount of tasks
12	36	Welfare 1. Support for housing purchase
13	20	Performance-Based Pay 1.7. Comparability to private-sector workers in mid-sized businesses
14	42	Welfare 7. Support in terms of compliments and condolences
15	26	Performance-Based Pay 2.6. Appropriateness for the difficulty of the job
16	47	Welfare 12. Reflection of the results of training in the promotion and wage
17	19	Performance-Based Pay 1.6. Recognition of the uniqueness of the profession
18	17	Performance-Based Pay 1.4. Excellent contribution to manpower
19	16	Performance-Based Pay 1.3. Contribution to professional development

Table 7: Items that Require Improvements among Service Items and Their Priority – A Career of at most 15 Years.

Improvement Priority	*Question Number*	*Service Items Requiring Improvement*
1	43	Welfare 8. Simplification and automation of task
2	41	Welfare 6. Pension systems
3	38	Welfare 3. Support for the teacher's graduate tuition
4	46	Welfare 11. Training courses abroad
5	4	Educational Environment 8. Work score
6	40	Welfare 5. Support for treatment costs
7	44	Welfare 9. Retirement hobbies and retirement-life programs
8	37	Welfare 2. Support for children's college tuition
9	39	Welfare 4. Private healthcare facilities
10	18	Performance-Based Pay 1.5. Comparability to other professionals and contemporaries
11	17	Performance-Based Pay 1.4. Excellent contribution to manpower
12	36	Welfare 1. Support for housing purchase
13	27	Performance-Based Pay 2.7. Appropriateness of the amount of tasks
14	26	Performance-Based Pay 2.6. Appropriateness for the difficulty of the job
15	20	Performance-Based Pay 1.7. Comparability to private-sector workers in mid-sized businesses
16	45	Welfare 10. Resort facilities
17	16	Performance-Based Pay 1.3. Contribution to professional development
18	42	Welfare 7. Support in terms of compliments and condolences
19	47	Welfare 12. Reflection of the results of training in the promotion and wage
20	3	Educational Environment 4. Reflection of the opinions of teachers
21	19	Performance-Based Pay 1.6. Recognition of the uniqueness of the profession
22	15	Performance-Based Pay 1.2. Adequate reflection of the burden of teaching
23	22	Performance-Based Pay 2.2. Appropriateness for individual performance and the situation
24	32	Budget Compilation 5. Appropriate reflection of the needs of schools
25	2	Educational Environment 3. Educational support materials
26	34	Budget Compilation 7. Flexibility to prevailing conditions
27	28	Budget Compilation 1. Adequate reflection of the changing environment
28	13	Work Environment 2.5. Recognition of good performance
29	21	Performance-Based Pay 1.8. Comparability to public officials in other occupations
30	33	Budget Compilation 6. Reasonability of the adjustment process
31	24	Performance-Based Pay 2.4. Appropriateness for multiple qualifications and higher degrees
32	14	Performance-Based Pay 1.1. Dedication to educational activities

Table 8: Items that Require Improvements among Service Items and Their Priority – A Career of at least 16 Years.

Improvement Priority	*Question Number*	*Service Items Requiring Improvement*
1	37	Welfare 2. Support for children's college tuition
2	39	Welfare 4. Private healthcare facilities
3	45	Welfare 10. Resort facilities
4	44	Welfare 9. Retirement hobbies and retirement-life programs
5	40	Welfare 5. Support for treatment costs
6	46	Welfare 11. Training courses abroad
7	43	Welfare 8. Simplification and automation of task
8	41	Welfare 6. Pension systems
9	38	Welfare 3. Support for the teacher's graduate tuition
10	42	Welfare 7. Support in terms of compliments and condolences
11	18	Performance-Based Pay 1.5. Comparability to other professionals and contemporaries
12	20	Performance-Based Pay 1.7. Comparability to private-sector workers in mid-sized businesses
13	47	Welfare 12. Reflection of the results of training in the promotion and wage
14	19	Performance-Based Pay 1.6. Recognition of the uniqueness of the profession
15	36	Welfare 1. Support for housing purchase
16	27	Performance-Based Pay 2.7. Appropriateness of the amount of tasks

Table 9: Items that Require Improvements among Service Items and Their Priority – Urban Areas.

Improvement Priority	*Question Number*	*Service Items Requiring Improvement*
1	37	Welfare 2. Support for children's college tuition
2	40	Welfare 5. Support for treatment costs
3	39	Welfare 4. Private healthcare facilities
4	44	Welfare 9. Retirement hobbies and retirement-life programs
5	46	Welfare 11. Training courses abroad
6	43	Welfare 8. Simplification and automation of task
7	38	Welfare 3. Support for the teacher's graduate tuition
8	41	Welfare 6. Pension systems
9	45	Welfare 10. Resort facilities
10	36	Welfare 1. Support for housing purchase
11	42	Welfare 7. Support in terms of compliments and condolences
12	20	Performance-Based Pay 1.7. Comparability to private-sector workers in mid-sized businesses
13	18	Performance-Based Pay 1.5. Comparability to other professionals and contemporaries
14	27	Performance-Based Pay 2.7. Appropriateness of the amount of tasks
15	47	Welfare 12. Reflection of the results of training in the promotion and wage
16	19	Performance-Based Pay 1.6. Recognition of the uniqueness of the profession
17	26	Performance-Based Pay 2.6. Appropriateness for the difficulty of the job
18	17	Performance-Based Pay 1.4. Excellent contribution to manpower
19	16	Performance-Based Pay 1.3. Contribution to professional development

Table 10: Items that Require Improvements among Service Items and Their Priority – Rural/Island/Remote Areas.

Improvement Priority	*Question Number*	*Service Items Requiring Improvement*
1	43	Welfare 8. Simplification and automation of task
2	41	Welfare 6. Pension systems
3	37	Welfare 2. Support for children's college tuition
4	46	Welfare 11. Training courses abroad
5	44	Welfare 9. Retirement hobbies and retirement-life programs
6	45	Welfare 10. Resort facilities
7	39	Welfare 4. Private healthcare facilities
8	40	Welfare 5. Support for treatment costs
9	18	Performance-Based Pay 1.5. Comparability to other professionals and contemporaries
10	38	Welfare 3. Support for the teacher's graduate tuition
11	17	Performance-Based Pay 1.4. Excellent contribution to manpower
12	27	Performance-Based Pay 2.7. Appropriateness of the amount of tasks
13	20	Performance-Based Pay 1.7. Comparability to private-sector workers in mid-sized businesses
14	36	Welfare 1. Support for housing purchase
15	47	Welfare 12. Reflection of the results of training in the promotion and wage
16	42	Welfare 7. Support in terms of compliments and condolences
17	19	Performance-Based Pay 1.6. Recognition of the uniqueness of the profession
18	26	Performance-Based Pay 2.6. Appropriateness for the difficulty of the job
19	16	Performance-Based Pay 1.3. Contribution to professional development
20	15	Performance-Based Pay 1.2. Adequate reflection of the burden of teaching
21	4	Educational Environment 8. Work score
22	14	Performance-Based Pay 1.1. Dedication to educational activities
23	22	Performance-Based Pay 2.2. Appropriateness for individual performance and the situation

Table 11: Comparison of Service Items in Need of Improvement per Characteristic.

Characteristic (Number of Items Requiring Improvement)	*Ranking*	*Question Number*	*Service Items Requiring Improvement*
Male (23)	1	43	Welfare 8. Simplification and automation of task
	2	41	Welfare 6. Pension systems
	3	39	Welfare 4. Private healthcare facilities
Female (19)	1	37	Welfare 2. Support for children's college tuition
	2	46	Welfare 11. Training courses abroad
	3	43	Welfare 8. Simplification and automation of task
At most 15 years (32)	1	43	Welfare 8. Simplification and automation of task
	2	41	Welfare 6. Pension systems
	3	38	Welfare 3. Support for the teacher's graduate tuition
At least 16 years (16)	1	37	Welfare 2. Support for children's college tuition
	2	39	Welfare 4. Private healthcare facilities
	3	45	Welfare 10. Resort facilities
Urban Areas (19)	1	37	Welfare 2. Support for children's college tuition
	2	40	Welfare 5. Support for treatment costs
	3	39	Welfare 4. Private healthcare facilities
Rural/Island/Remote Areas (23)	1	43	Welfare 8. Simplification and automation of task
	2	41	Welfare 6. Pension systems
	3	37	Welfare 2. Support for children's college tuition

APPENDIX B - FIGURES

Fig. 1: Service Profit Chain [7].

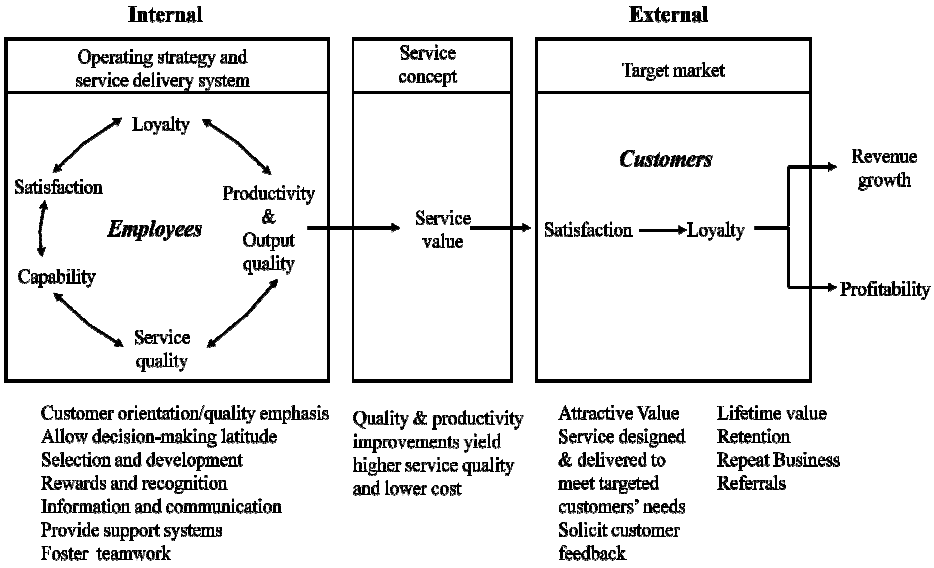

Fig. 2: Importance-Satisfaction model.

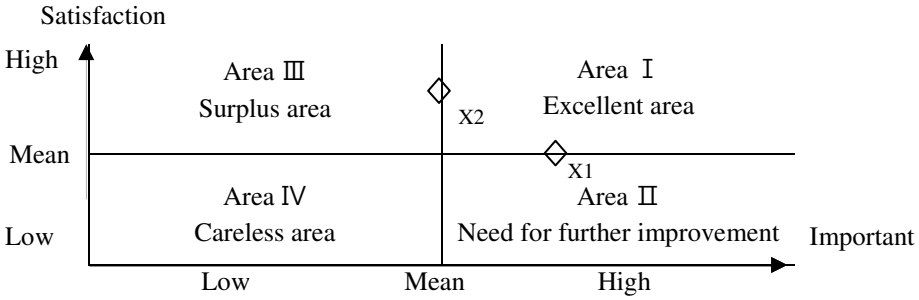

Fig. 3: The Service Quality Performance Matrix.

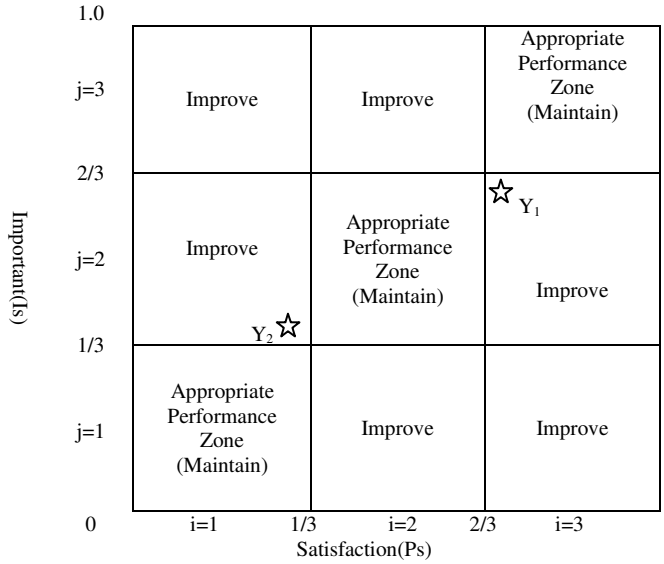

Fig. 4: Performance Model for Service Quality.

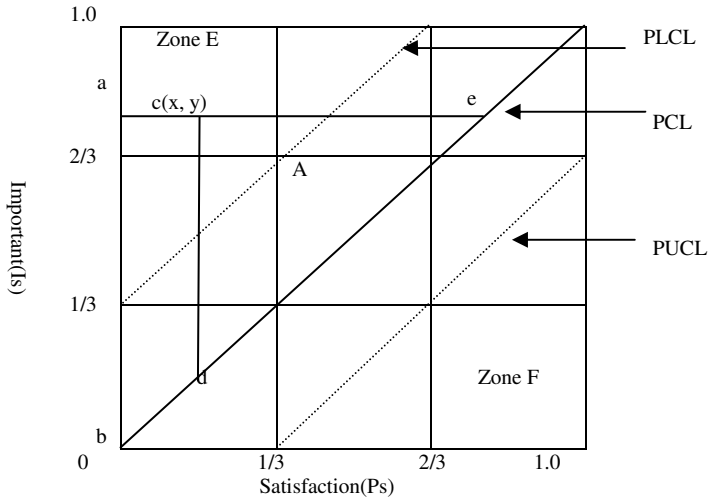

Fig. 5: Satisfaction Level of Services Provided to Teachers – Male.

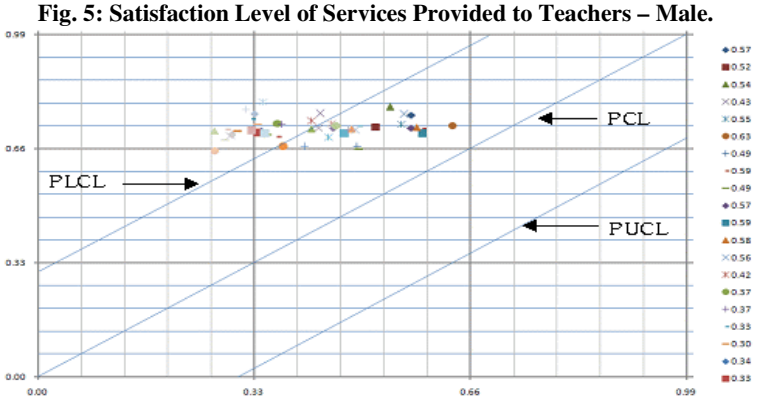

Fig. 6: Satisfaction Level of Services Provided to Teachers - Female

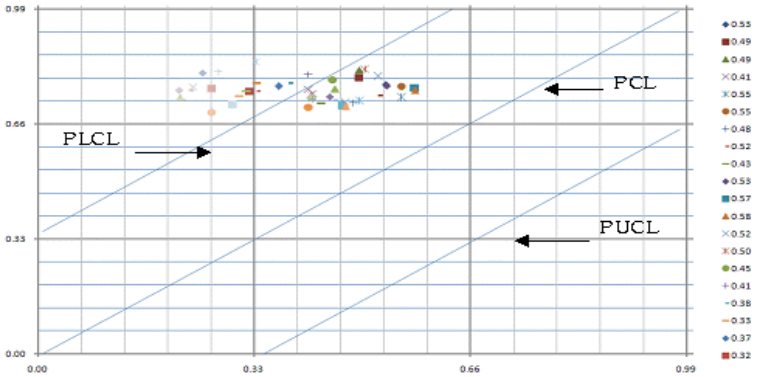

Fig. 7: Satisfaction Level of Services Provided to Teachers - A Career of at most 15 Years.

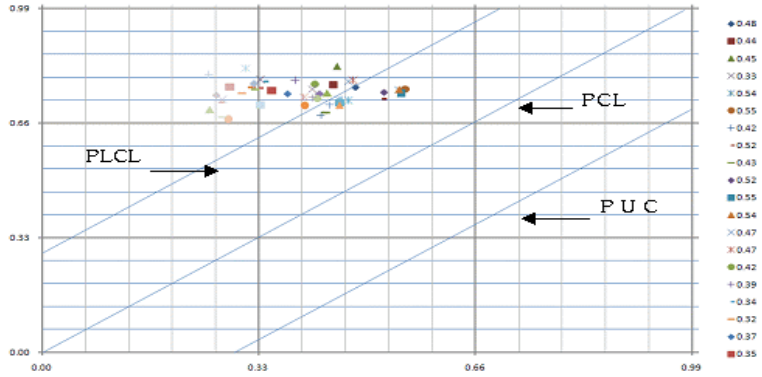

Fig. 8: Satisfaction Level of Services Provided to Teachers - A Career of at least 16 Years.

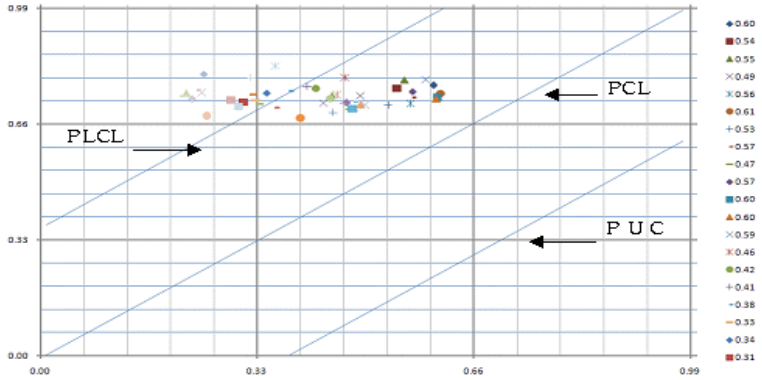

Fig. 9: Satisfaction Level of Services Provided to Teachers - Urban Areas.

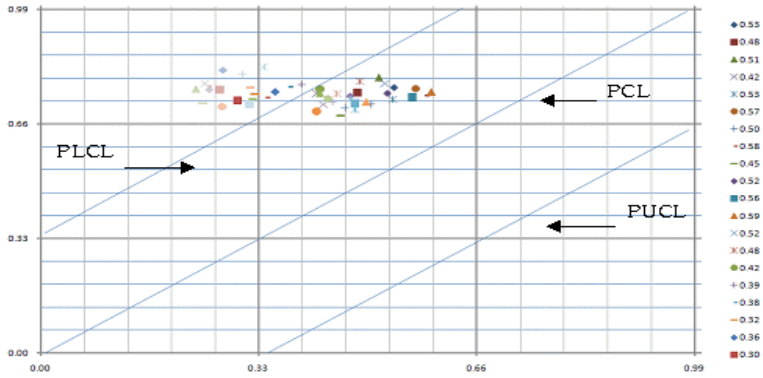

Fig. 10: Satisfaction Level of Services Provided to Teachers - Rural/Island/Remote Areas.