

Strategies for Improving Teacher Service Quality Through the Effectiveness of ICT Implementation, Servant Leadership, Knowledge Management, Interpersonal Communication, and Job Satisfaction (Using Path Analysis and Sitorem on Civil Servant Teachers at Public Junior High Schools in Bogor Regency)

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Abstract

This study aims to assess the influence of several variables on the quality of teacher services, both directly and indirectly. These variables include the effectiveness of ICT implementation, servant leadership, knowledge management, interpersonal communication, and job satisfaction. The population consists of 1,490 civil servant teachers from public junior high schools in Bogor Regency. Using random sampling and the Taro Yamane formula, a sample of 211 teachers was selected. The results reveal several key findings: (1) ICT effectiveness, servant leadership, knowledge management, interpersonal communication, and job satisfaction all have a direct effect on teacher service quality; (2) each of these variables also directly affects job satisfaction; and (3) ICT effectiveness, servant leadership, knowledge management, and interpersonal communication indirectly impact teacher service quality through job satisfaction. The SITOREM analysis identifies 12 critical indicators across the six variables that require immediate attention, while 22 indicators should be maintained or developed. The study concludes that enhancing the effectiveness of ICT implementation, servant leadership, knowledge management, interpersonal communication, and job satisfaction.

Keywords: Service quality, effectiveness of ICT application, service leadership, *knowledge management*, interpersonal communication, job satisfaction.

INTRODUCTION

The digital era has brought significant changes in the world of education through the adoption of disruptive technologies such as Big Data, Artificial Intelligence (AI), and the Internet of Things (IoT). This change requires teachers to not only understand technology, but also to be able to effectively integrate information and communication technology (ICT) in the learning process. Teachers in this era are expected to be facilitators who are able to guide 21st century skills-based learning, such as critical thinking, collaboration, communication, and creativity.

Law of the Republic of Indonesia Number 20 of 2003 concerning the National Education System and Law Number 14 of 2005 concerning Teachers and Lecturers expressly emphasize the importance of the strategic role of teachers in achieving national education goals. In the regulation, teachers are positioned as professional educators who have responsibilities not only in terms of teaching, but also in educating, guiding, directing, training, assessing, and evaluating students as a whole (Lowy Institute, 2015). This shows that the role of teachers goes beyond just delivering material, but also as a companion to the growth and development of students' character and competencies (Nalapraya, 2023).

To carry out these tasks optimally, teachers are required to have qualified competencies in pedagogic, professional, personality, and social aspects (Maulana et al., 2023).. Qualified

teachers will be able to provide good educational services, build positive relationships with students, parents, and the community, and increase public trust in the educational institutions in which they serve. The quality of teacher competence is directly proportional to the public's perception of the credibility of the school, so teachers must carry out their role not only as teaching staff, but also as dignified and professional public servants (Nurhasanah, 2024).

The President's *Asta Cita*, which contains eight national priority programs, is a strategic foothold in realizing a more prosperous, fair, and competitive future for Indonesia. One of its top priorities is the development of Indonesia's superior human resources, which are highly dependent on the success of the education sector (OECD/ADB, 2015). Education in this framework is not only seen as a means of knowledge transfer, but as the main foundation in shaping the character, skills, and competitiveness of the nation's next generation (Rasmitadila et al., 2025). By placing education as a pillar of national development.

Asta Cita emphasized that investment in teacher quality, adaptive curriculum, and transformative learning ecosystem is the key to creating human resources who are intellectually competent, technically skilled, and have moral integrity. Therefore, the achievement of the nation's great ideals cannot be separated from systematic efforts to improve the quality and equitable access to education throughout Indonesia.

The education roadmap prepared by the government is in line with *Asta Cita*'s strategic direction, especially in an effort to improve the quality of learning at all levels of education. One of the main focuses in the roadmap is to encourage learning that is relevant to the needs of the times, oriented towards the development of 21st century competencies, and forming a profile of Pancasila students who excel in character and competence. To realize this vision, the government has launched various transformative policies such as strengthening the curriculum, transforming the assessment system, and utilizing digital technology in the learning process.

In this framework, the role of teachers is very crucial. Teachers are not only technical actors, but also the main actors in creating a transformative learning ecosystem. The government through the Ministry of Education, Culture, Research, and Technology continues to encourage the increase in teacher capacity and professionalism through various strategic programs, such as *Merdeka Belajar*, the *Merdeka Campus* platform, continuous training through *Teacher Learning and Sharing*, and the *Teacher Driving* program. All of these initiatives aim to make teachers as learning facilitators who are inspiring, reflective, and adaptive to the times.

With the direction of education policy that is in line with *Asta Cita*, it is hoped that the quality of educational services provided by teachers will increase significantly. This will have a direct impact on creating an inclusive, fun, and meaningful learning environment for students. Improving the quality of learning is no longer just a statistical target in formal documents, but is truly felt by students, teachers, and the community at large to realize a holistic, equitable, and sustainable educational transformation.

Data from the Programme for International Student Assessment (PISA) 2023 conducted by the Organisation for Economic Cooperation and Development (OECD) provides a critical picture of the state of education in Indonesia, especially in three main domains: reading skills, mathematics, and science. Based on the PISA secondary data, there was a significant decrease in Indonesia's average score in all three subjects compared to the previous edition, even becoming the sharpest decline in the last five editions (Ismawati, 2023). Indonesia's reading score only reached 359, mathematics 366, and science 383, all far below the OECD global average, which was above 470 each. This achievement indicates that the majority of Indonesian students have not been able to meet the minimum international competency standards (Level 2), especially in reading and numeracy skills (Sari, 2024).

This decline in score is a strong indication of fundamental problems in the national education system, one of which is related to the quality of teacher services in the classroom.

Teachers, as key actors in the learning process, have a strategic role in developing basic literacy and 21st century competencies in students (Maulana et al., 2023). The low achievement of PISA shows that the learning strategy in the classroom has not been fully able to optimize students' potential, both in terms of methods, technological mastery, and contextual and relevant pedagogic approaches.

Therefore, the results of PISA 2023 can be used as a barometer to evaluate and improve the quality of teacher services in Indonesia. Some strategic steps that can be taken to improve the quality of learning and improve PISA achievements include: (1) continuously improving teachers' pedagogic and professional competencies through training and career development (World Bank, 2015); (2) strengthening the role of school principals and education leaders in supporting academic services and supervision; (3) developing teachers' abilities in knowledge management to be more adaptive to educational changes and innovations (Rahmi & Rassanjani, 2025); (4) encourage mastery of technology by teachers to support effective, flexible, and digital-based learning (Bima et al., 2024); and (5) build a collaborative culture in schools, which allows teachers to work closely with peers, parents, and communities to create an inclusive, positive, and meaningful learning environment (Hamid et al., 2012, as cited in Maulana et al., 2023).

These efforts are also believed to increase teacher job satisfaction, strengthen commitment to the profession, and create a learning system that is able to answer the challenges of the times. In this context, PISA is not only a global evaluation tool, but also a mirror for governments and education stakeholders to design data-driven policies that can strengthen the quality of Indonesia's education in a holistic and sustainable manner. Education statistics data released by the Central Statistics Agency (BPS) reflect the achievements of the learning process that are still facing challenges at various levels of education (Goldhaber, 2015, as cited in Maulana et al., 2023). The percentage of students who repeat classes is an important indicator to assess the effectiveness of educational services, including the quality of learning provided by teachers in the classroom.

In 2020, the percentage of students who repeat at the elementary level/equivalent was recorded at 4.35%, junior high school/equivalent 3.31%, and high school/equivalent also 3.31%. This figure increased in 2021, to 4.38% in elementary school, 4.77% in junior high school, and 4.52% in high school. In 2022, it showed a decrease in elementary school to 3.88%, and junior high school to 3.79%, but in high school it actually increased sharply to 5.76%. Meanwhile, in 2023, the percentage of repeat students rose again in elementary school to 5.41%, but decreased in junior high school (3.58%) and high school (3.64%) (Ikhsanudin, 2025).

The fluctuation in this number shows that there is still an inequality in the effectiveness of the learning process at various levels. Notably, the surge in student repetition at the elementary and high school levels in 2023 needs to be of special concern. The high number of repeat students can be caused by many factors, such as low understanding of basic concepts, inappropriate learning methods, limited use of learning technology, and lack of learning assistance from teachers.

Therefore, this condition must be seriously addressed by teachers as the spearhead of learning. Teachers need to provide educational services that are more adaptive, responsive, and centered on student needs. This can be done through differentiated learning approaches, continuous formative assessments, and early intervention of students who exhibit learning difficulties. In addition, teachers also need to strengthen communication with parents and utilize technology to expand access to teaching materials and remedial learning.

Increasing teachers' capacity in understanding student character, managing classes, and designing contextual learning is the main key in reducing the number of repeat students. If this is done consistently and collaboratively, it is not impossible that the Indonesian education

system can show significant improvements in terms of the effectiveness and success of the teaching and learning process at all levels of education.

Continuous training for teachers in pedagogical aspects, classroom management, and the use of information technology is very important to improve the quality of learning services. Teachers who have competence in these three aspects are better able to adapt their teaching strategies to the characteristics of today's diverse students and are in a digitally changing environment (Surahman et al., 2025). Therefore, increasing teacher capacity is not only a matter of teaching techniques, but also how to build sensitivity to learning difficulties experienced by students early and systematically.

Based on these data and analysis, teachers are expected to be able to provide more adaptive educational services by increasing attention to students who show symptoms of learning difficulties. A personalized approach and intensive mentoring can significantly reduce the rate of repetition of classes. In addition, the development of inclusive learning strategies and the application of methods that are adaptive to the needs of students are important keys in encouraging improvement in academic achievement and reducing learning outcomes gaps between students.

The policy direction in the field of education in Bogor Regency is focused on improving and expanding access to quality primary and secondary education. This policy is in line with the Compulsory Learning of Basic Education (Wajar Dikdas) program and aims to reduce the dropout rate, pioneer and develop excellent schools (elementary and junior high schools), and preserve local language and culture as part of regional identity. This effort is expected to have a positive impact on increasing the Human Development Index (HDI) of Bogor Regency. By making equity and expansion of education services a priority, the Regional Government shows its commitment to strengthening the foundation of human resource-based development.

A number of other priority policies include: the provision of scholarships for students who are prone to dropping out of school, improving minimum education service standards, and developing quality secondary level learning. In addition, strengthening character education is also the main focus through various programs based on moral, ethical, and national values. The Bogor Regency Government emphasizes that improving the quality of education services must be carried out comprehensively, by ensuring that every teacher has access to adequate training and resources, in order to be able to carry out the role of an inspirational and meaningful learning facilitator.

The Bogor Regency Government, through the Bogor Regency Education Portal, has established a series of strategic policies to strengthen education services. These policies include: (1) the provision of education and training program assistance for educators and education personnel (PTK) to improve professional competence; (2) the provision of facilities and infrastructure to support the effective learning process; (3) the unification of operational assistance for teaching and learning activities (KBM) for State Junior High Schools; (4) the provision of scholarships for students at risk of dropping out (DO) to ensure the sustainability of education; and (5) quality improvement and addition of infrastructure to support the implementation of the active, creative, effective, and fun learning system (PAKEM) at the primary education level.

To strengthen the background of this research, the researcher distributed a preliminary survey questionnaire to measure the quality of teacher services to 30 respondents who were junior high school civil servant teachers in Bogor Regency by focusing questions on five indicators of service quality. The results of the survey show that the quality of service needs to be improved, so it is necessary to find strategies and ways to improve service quality. Given that service quality is the key to achieving educational goals, the quality of this service is interesting to research.

The actuality of the research theme (state of the art) is marked by the fact that there are

still researchers who conduct research on the service theme, which indicates that the theme is not obsolete. This is shown through research conducted by (Triwijayanti et al., 2022) which conducted research with the aim of examining the direct and indirect impact of the Influence of Educational Service Quality, School Culture, and School Image on Parent Satisfaction. The conclusion of the study is that based on the results of the statistical test, it shows in the regression output that the Influence of Education Service Quality has an influence on Parental Satisfaction with a sig value of $0.001 < 0.05$. The School Culture aspect also has an influence on Parent Satisfaction with a sig value of $0.24 < 0.05$. While for School Image also has an effect on Parent Satisfaction with a sig value of $0.007 < 0.05$. The Influence of Educational Service Quality, School Culture, School Image Affects Parental Satisfaction. In addition, this study shows that the contribution of Educational Service Quality, School Culture, and School Image to Parent Satisfaction is 60.77%.

Previous research has shown that the quality of teacher services plays an important role in improving the performance of institutions, and is influenced by various factors grouped into organizational support factors. Some studies have found significant positive influences, but inconsistent results and the absence of an integrated model indicate the need for a new approach. This research answers this gap by developing a model for improving the quality of teacher services and SITOREM analysis, which offers systematic and applicative solutions according to the educational context.

Based on the background, survey results, and study of several previous research results, the researcher is interested in further researching several variables that are suspected to be able to improve the quality of teacher services effectively and efficiently with the research title: Improving the Quality of Teacher Services through the Effectiveness of ICT Implementation, Service Leadership, Knowledge Management, Interpersonal Communication, and Job Satisfaction (Using the Analysis Pathand SITOREM to Civil Servant Teachers of Bogor Regency State Junior High School)

RESEARCH METHOD

This study employed quantitative research using path analysis and SITOREM. The survey method revealed causal relationships between variables. It investigated these relationships based on observed effects, aiming to distinguish direct and indirect influences of causal (independent/exogenous) variables on consequent (dependent/endogenous) variables. The dependent variable was service quality (Y), with independent variables comprising ICT implementation effectiveness (X1), servant leadership (X2), knowledge management (X3), interpersonal communication (X4), and job satisfaction (X5).

Data collection involved distributing questionnaires to respondents. A questionnaire served as the instrument, prompting respondents to address questions or statements on their thoughts, feelings, attitudes, beliefs, values, perceptions, experiences, personalities, and behaviors related to the studied variables. Primary data came from questionnaires distributed to civil servant teachers at public junior high schools in Bogor Regency. Secondary data were sourced from the publicly accessible Dapodikdasmen website.

The population consisted of 1,490 civil servant teachers at public junior high schools in Bogor Regency, spanning five districts and 40 sub-districts. The sample comprised certified civil servant teachers from these schools, calculated via the Taro Yamane formula with a 5% error rate and 95% confidence level, yielding 211 respondents. Proportional sample sizes (np) were determined for each school.

Path analysis examined causal relationships in multiple regressions, accounting for both direct and indirect influences among independent variables. The study targeted civil servant teachers at public junior high schools in Bogor Regency, West Java Province. It spanned 10 months, from January to October 2024. Path analysis and SITOREM analysis combined to

strengthen results through this integrated method.

RESULTS AND DISCUSSION

a. Path Analysis

Table 1. Indirect influence test summary (Sobel test)

No.	Indirect influence	Path Analysis	Z-	Z- count table	Verdict	Conclusion
1.	The Effectiveness of ICT Implementation (X1) on the Quality of Teacher Services (Y) Through Job Satisfaction (X5)	0.055	6,41	1,97	H0 rejected H1 accepted	Proven to mediate
2.	Leadership Serves (X2) to the Quality of Teacher Service (Y) Through Job Satisfaction (X5)	0.041	3,85	1,97	H0 rejected H1 accepted	Proven to mediate
3.	Knowledge Management (X3) on Teacher Service Quality (Y) Through Job Satisfaction (X5)	0.047	6,61	1,97	H0 rejected H1 accepted	Proven to mediate
4.	Interpersonal Communication (X4) on Teacher Service Quality (Y) Through Job Satisfaction (X5)	0.028	3,86	1,97	H0 rejected H1 accepted	Proven to mediate

Table 1 shows a summary of the results of the indirect influence test using the Sobel test which tests the role of Job Satisfaction (X5) as a mediating variable between independent variables and Teacher Service Quality (Y). The results of the analysis showed that the Effectiveness of ICT Application (X1), Servant Leadership (X2), Knowledge Management (X3), and Interpersonal Communication (X4) each had a significant indirect influence on the Quality of Teacher Services through Job Satisfaction, which was evidenced by a greater Zcal value than Ztabel (1.97). The highest Zcal value was found in the influence of Knowledge Management (Z-count = 6.61), followed by the Effectiveness of ICT Application (Z-count = 6.41), Interpersonal Communication (Z-count = 3.86), and Service Leadership (Zcal = 3.85). Thus, all alternative hypotheses (H1) were accepted and the zero hypothesis (H0) was rejected, so it can be concluded that Job Satisfaction was proven to mediate the influence of these four variables on the Quality of Teacher Service.

SITOREM

Scientific Identification Theory to Conduct Operation Research in Education Management (sitorem), is a scientific method used to identify variables (theory) to carry out "Operation Research" in the field of Education Management (Hardhienata, 2017). SITOREM analysis is carried out by identifying and analyzing three things, namely: a) Identification of the strength of influence between the Free Variable and the Bound Variable; b) Analysis of the value of the research results for each indicator of the research variable, and c) Analysis of the weight of each indicator of each research variable based on the criteria "Cost, Benefit, Urgency and Importance. The results of cytorem analysis are as follows:

Table 2. Determination of SITOREM Analysis Results (Effectiveness of ICT Application)

EFFECTIVENESS OF ICT IMPLEMENTATION ($\beta_1 = 0.186$)(Rank.III)		
Indicators in Initial Conditions	Indicator after Expert weighting	Value Indicator (IV)
1Information collective activity	1st Information utilization activities (21.90%)	3.61
2Information Storage Activity	2ndInformation Processing Activities (20.43%)	4.01

3Information Processing Activities	3rdInformation collective activity (19.69%)	3.8
4Information utilization activities	4thInformation sharing activities (19.69%)	3.4
5Information sharing activities	5thInformation Storage Activity (18.28%)	3.38

The results of the SITOREM analysis show that the Effectiveness of ICT Implementation has a moderate contribution to improving the quality of teacher services, with the priority of improving indicators determined based on expert weighting. The main priority indicator is information utilization activities (21.90%) although the actual value is still moderate (3.61), so it needs to be improved. Furthermore, information processing activities (20.43%) and information collective activities (19.69%) are also important focuses because they play a role in supporting ICT-based decision-making and collaboration. The activities of information sharing and information storage are the next priority with a relatively lower value, which shows the need to optimize the system and culture of sharing and storing information in a more structured manner (Beatty et al., 2018).

Table 3. Determination of SITOREM (Servant Leadership) Analysis Results
SERVING LEADERSHIP ($\beta_2 = 0.140$) (Rank.V)

Indicators in Initial Conditions	Indicator after Expert weighting	Value Indicator (IV)
1Willingness to listen	1st Showing Empathy (15.66%)	3.94
2Healing emotional turmoil (Healing)	2nd Openness in action (Organizational stewardship) (14.65%)	4.52
3Showing Empathy	3rd Wise Decision Making (Wisdom) (14.65%)	4.34
4Openness in action (Organizational stewardship)	4th Willingness to Listen (14.65%)	3.88
5Wise Decision Making (Wisdom)	5th Showing Humility (14.12%)	4.23
6Showing Humility	6th Healing emotional turmoil (Healing) (13.64%)	4.33
7Making positive changes (Altrusitic calling)	7th Making positive changes (Altrusitic calling) (12.63%)	4.39

SITOREM's analysis of the Servant Leadership variable shows that the indicator shows empathy (15.66%) to be the top priority in development, followed by openness in action and wise decision-making (14.65% each). Although most of the indicators have fairly good values, such as openness in acting (4.52) and altrusitic calling (4.39), the order of priority suggests that aspects of the leader's attitude in understanding, responding to and managing subordinate emotions still need to be strengthened. Indicators of healing emotional turmoil and humility are at medium to low priority, but remain important as the foundation of service-oriented leadership.

Table 4. Determination of SITOREM (Knowledge Management) Analysis Results

KNOWLEDGE MANAGEMENT ($\beta_3 = 0.257$) (Rangk.I)		
Indicators in Initial Conditions	Indicator after Expert weighting	Value Indicator (IV)
1Knowledge acquisition	1st Utilization/application of knowledge (18.91%)	4.2
2Knowledge gathering	2nd Processing knowledge into new knowledge (17.10%)	3.95
3Knowledge storage	3rd Knowledge acquisition (16.46%)	4.11
4Processing knowledge into knowledge new	4th Knowledge sharing and distribution (16.46%)	3.97
5Knowledge utilization/application	5th Knowledge accumulation (15.83%)	4.31
6Knowledge sharing and distribution	6th Knowledge retention (15.24%)	4.21

Knowledge Management ranks first as the most influential variable on the quality of

teacher services. The results of SITOREM show that the utilization or application of knowledge is the top priority (18.91%) with a fairly high value (4.20), indicating the importance of real use of knowledge in work practice (OECD, 2024). Furthermore, knowledge processing into new knowledge and knowledge acquisition is also a strategic focus because it supports innovation and competency renewal. Indicators of knowledge collection, storage, and sharing and distribution are the next priority, which shows that knowledge management systems need to run in an integrated manner from upstream to downstream to have an optimal impact on teacher services.

Table 5. Determination of SITOREM (Interpersonal Communication) Analysis Results

INTERPERSONAL COMMUNICATION ($\beta_4 = 0.150$) (Rank.IV)		
Indicators in Initial Conditions	Indicator after Expert weighting	Value Indicator (IV)
1.Openness to receive input from others	1st Being positive about yourself and others (17.47%)	4.33
2.Ability to understand others	2nd The ability to interpret every word, sentence, information and behavior of others. (17.47%)	3.98
3.Providing support to others	3rd Ability to understand others (16.89%)	4.20
4.Be positive about yourself and others	4th Openness to receive input from others (16.26%)	4.49
5.Provide insights, ideas, and ideas for Organizational Progress	5th Providing support to others (16.26%)	4.34
6.The ability to interpret every word, sentence, information and behavior of others.	6th Provide views, ideas, and ideas for organizational advancement (15.64%)	4.32

In the Interpersonal Communication variable, the results of SITOREM show that being positive towards oneself and others is the main priority indicator (17.47%) with a relatively high score (4.33). The ability to interpret the messages and behaviors of others and the ability to understand others also occupy an important position because they are directly related to the effectiveness of interactions between individuals. Indicators of self-openness, providing support, and contributing ideas and ideas are the next priority, even though they have good values. This indicates that strengthening positive attitudes and interpersonal understanding is the main key to improving the quality of communication in the work environment.

Table 6. Determination of SITOREM Analysis Results (Job Satisfaction)

JOB SATISFACTION ($\beta_5 = 0.191$) (Fig.II)		
Indicators in Initial condition	Indicator after Expert weighting	Value Indicator (IV)
1.Salary, Allowance, Honor	1st Salary, Allowance, Honor (21.59%)	3.98
2.Working conditions	2nd Employment conditions (20.15%)	4.43
3.Opportunity to obtain a position	3rd Opportunity to obtain a position (20.15%)	4.31
4.Relationship between superiors and subordinates	4th Superior-subordinate relations (19.42%)	4.27
5.Co-workers, teamwork	5th Co-workers, team work (18.68%)	4.48

The results of the SITOREM analysis show that Job Satisfaction has a great influence and is ranked second on the quality of teacher services. Salary, allowance, and honorarium indicators are the top priority (21.59%), although the value is still relatively moderate (3.98), so it requires special attention. Job conditions and opportunities to obtain positions occupy the next priority with a fairly high value, showing the importance of a conducive work environment and career development opportunities. Superior-subordinate relationships and cooperation with colleagues also contribute significantly, which confirms that financial and non-financial aspects together shape teacher job satisfaction.

Table 7. Determination of the Results of SITOREM Analysis (Quality of Teacher

Service)

QUALITY OF TEACHER SERVICE		
Indicators in Initial Conditions	Indicator after Expert weighting	Value Indicator (IV)
1Accuracy and consistency in service (Reliability)	1st Accuracy and consistency in service (Reliability) (21.29%)	3.97
2Willingness and speed of service (Responsiveness)	2ndDetermination, self-confidence and skills in melayani (Assurance) (20.56%)	4.22
3Sincerity, self-confidence and skills in service (Assurance)	3rdQuality of facilities, infrastructure and service facilities (Tangibles) (19.87%)	4.27
4In-depth attention to customer needs/problems (Empathy)	4thResponsiveness and speed of service (19.14%)	4.17
5Quality of facilities, infrastructure and service facilities (Tangibles)	5thDeep attention to needs/problems Empathy (19.14%)	3.95

SITOREM's analysis of the Teacher Service Quality variable shows that accuracy and reliability are the top priorities (21.29%), although the value is still in the medium category (3.97). Furthermore, the assurance and tangibles aspects are an important focus because they are related to competence, teacher confidence, and support for service facilities and infrastructure. Responsiveness and empathy are the next priority, which confirms that speed, willingness to serve, and attention to the needs of students remain important elements in improving service quality. Overall, these results show that improving the quality of teacher services needs to be carried out in a balanced manner between aspects of professionalism, facilities, and concern for service users.

Table 8. Summary of the Determination of SITOREM Analysis Results

Priority Order of Indicators to be strengthened	Maintained indicators
1stProcessing knowledge into new knowledge	1 Knowledge utilization/application
2ndKnowledge sharing and distribution	2 Knowledge acquisition
3rdSalary, Allowance, Honor	3 Knowledge gathering
4thInformation utilization activities	4 Knowledge storage
5thInformation collective activity	5 Working conditions
6thInformation sharing activities	6 Opportunity to obtain a position
7thInformation Storage Activity	7 Relationship between superiors and subordinates
8thAbility to interpret every word, sentence, information and behavior of others	8 Co-workers, teamwork
9thShowing Empathy	9 Information Processing Activities
10thWillingness to listen	10Be positive about yourself and others
11thAccuracy and consistency in service (Reliability)	11Ability to understand others
12thDeep attention to needs/problems customer (Empathy)	12Openness to receive input from people Other
	13Providing support to others
	14Provide views, ideas, and ideas for organizational advancement
	15Openness in action (Organizational stewardship)
	16Wise Decision Making (Wisdom)
	17Showing Humility
	18Healing emotional turmoil (Healing)
	19Making positive changes (Altrusitic calling)
	20Seriousness, self-confidence and service skills (Insurance)
	21Quality of facilities, infrastructure and service facilities (Tangibles)
	22Willingness and speed of service (Responsiveness)

The results of the SITOREM analysis show that the main indicators to be strengthened are the processing of knowledge into new knowledge and the sharing and distribution of knowledge, which emphasizes the importance of strengthening knowledge management as the

main lever for improving performance and service quality. In addition, aspects of teacher welfare in the form of salaries, allowances, and honorariums as well as optimizing the use and management of ICT-based information are also included in the next strengthening priority. Other indicators that need to be strengthened include collective activities and information sharing, interpersonal communication skills in interpreting messages, empathy, and willingness to listen, to aspects of reliability and empathy in service.

Meanwhile, indicators that have been in good condition and need to be maintained include the utilization and acquisition of knowledge, the collection and storage of knowledge, work conditions, opportunities to obtain positions, relationships between superiors and subordinates, teamwork, as well as various aspects of positive attitudes, support, service leadership, and service quality dimensions such as assurance, tangible, and responsiveness. Overall, these findings suggest that performance improvement strategies should be focused on strengthening the process of knowledge creation and distribution, as well as well-being and communication, while maintaining indicators that have shown optimal performance.

The positive relationship between the free variable and the bound variable when viewed from the path analysis, the relationship is a functional relationship where the quality of teacher service (Y) is formed as a result of the work of the effective function of ICT application (X1), Servant leadership (X2), Knowledge management (X3), Interpersonal communication (X4), and job satisfaction (X5). The discussion of the results of the research can be described as follows.

The direct positive effect between the variable of the effectiveness of ICT implementation (X1) and the variable of teacher service quality (Y)

Based on the results of the first hypothesis test, it can be concluded that the effectiveness of ICT application has a direct positive effect on the quality of teacher services. This is shown by the results of the path analysis with the value of the coefficient $\beta_{y1} = 0.186$ and the tcount (2.680) greater than the ttable (1.652), so that H0 is rejected and H1 is accepted. The simple regression model formed is $\hat{y} = 65.43 + 0.54X1$ with a contribution of 43% shows that increasing the effectiveness of ICT implementation can significantly improve the quality of services for civil servant teachers of State Junior High School in Bogor Regency. In addition, the pattern of relationship between the effectiveness of ICT implementation and the quality of teacher services is linear, which confirms the consistency of the positive influence of ICT variables on improving service quality.

Furthermore, the results of the SITOREM analysis show that improving the quality of teacher services needs to be focused on improving indicators that are still relatively weak, especially accuracy and consistency in service (reliability) and attention to customer needs and problems (empathy). On the other hand, indicators that are already in good condition such as responsiveness, assurance, tangibles, and some aspects of empathy need to be maintained and continuously developed.

Strengthening the effectiveness of ICT implementation is also directed at improving collective activities, storage, utilization, and sharing of information, while information processing activities that have shown good performance need to be maintained. Thus, the findings of this study confirm that improving the quality of teacher services can be achieved optimally through strengthening the effectiveness of ICT implementation systematically and sustainably (UNICEF Indonesia, 2024).

The direct positive influence between the variable of Leadership serving (X2) on the variable of teacher service quality (Y)

Based on the results of the second hypothesis test, it can be concluded that Serving Leadership has a direct positive influence on the quality of teacher services. This is proven by

the results of path analysis with a coefficient value $\beta_{y2} = 0.140$ and a t count (2.409) which is greater than t table (1.652), so that H_0 is rejected and H_1 is accepted. The simple regression model formed, namely $\hat{y} = 63.26 + 0.51X_2$ with a contribution of 32%, shows that improving service leadership is significantly able to improve the quality of service for civil servant teachers in Bogor Regency. In addition, the relationship between servant leadership and teacher service quality is linear, which emphasizes that the better the service leadership practice, the higher the quality of service provided by teachers.

The results of the SITOREM analysis show that improving the quality of teacher services needs to be focused on improving indicators that are still relatively weak, namely accuracy and consistency in service (reliability) and deep attention to customer needs and problems (empathy). Meanwhile, indicators of good service quality such as responsiveness, assurance, tangibles, and some aspects of empathy need to be maintained and continuously developed. Strengthening service leadership is directed at increasing willingness to listen and the ability to show empathy, while other indicators such as healing, organizational stewardship, wisdom, humility, and altruistic calling that have been in the good category need to be maintained and optimized. Thus, the findings of this study prove that effective servant leadership is an important factor in improving the quality of teacher services in a sustainable manner.

The direct positive effect between the Knowledge management variable (X3) on the variable of teacher service quality (Y)

Based on the results of the third hypothesis test, it can be concluded that Knowledge Management has a direct positive influence on the quality of teacher services. This is evidenced by the value of the band coefficient $\beta_{y3} = 0.257$ with a t count (3.342) that is greater than the t table (1.652), so H_0 is subtracted and H_1 is accepted. The simple regression model formed is $\hat{y} = 27.98 + 0.71X_3$ with a contribution of 51% showing that Knowledge Management is the variable that has the greatest contribution in improving the quality of services for civil servant teachers of State Junior High School in Bogor Regency. The relationship between Knowledge Management and the quality of teacher services is also linear, which emphasizes that the more effective the knowledge management, the higher the quality of the services produced.

The results of the SITOREM analysis show that improving the quality of teacher services needs to be focused on improving indicators that are still relatively weak, especially accuracy and consistency in service (reliability) and deep attention to customer needs and problems (empathy). Service quality indicators that have been in good condition such as responsiveness, assurance, tangibles, and some aspects of empathy need to be maintained and developed on an ongoing basis. Strengthening Knowledge Management is directed at increasing the ability to process knowledge into new knowledge and strengthening the sharing and distribution of knowledge, while other indicators such as acquisition, collection, storage, and utilization of knowledge that are already in the good category need to be maintained. Thus, the findings of this study empirically prove that Knowledge Management plays a significant role as a key factor in improving the quality of teacher services.

Direct positive influence between interpersonal communication variables (X4) and teacher service quality variables (Y)

Based on the results of the fourth hypothesis test, it can be concluded that interpersonal communication has a direct positive influence on the quality of teacher services. This is proven by the value of the path coefficient $\beta_{y4} = 0.150$ with a t count (2.324) that is larger than t table (1.652), so that H_0 is rejected and H_1 is accepted. The simple regression model formed, namely $\hat{y} = 17.44 + 0.83X_4$ with a contribution of 40%, shows that interpersonal communication makes a considerable contribution in improving the quality of services for civil servant teachers of State Junior High Schools in Bogor Regency. The relationship between interpersonal

communication and teacher service quality is also linear, which confirms that the more effective the teacher's interpersonal communication, the higher the quality of the services provided.

The results of the SITOREM analysis show that improving the quality of teacher services needs to be focused on improving indicators that are still relatively weak, especially accuracy and consistency in service (reliability) as well as deep attention to customer needs and problems (empathy). Service quality indicators that have been in the good category such as responsiveness, assurance, tangibles, and some aspects of empathy need to be maintained and developed on an ongoing basis. Strengthening interpersonal communication is directed mainly at improving the ability to interpret every word, sentence, information, and behavior of others, while other indicators such as self-openness, the ability to understand others, positive attitudes, providing support, and the contribution of ideas and ideas that are already in good condition need to be maintained and optimized. Thus, the findings of this study empirically prove that interpersonal communication is an important factor in improving the quality of teacher services.

The direct positive effect between the variable of job satisfaction (X5) on the variable of teacher service quality (Y)

Based on the results of the fifth hypothesis test, it can be concluded that job satisfaction has a direct positive influence on the quality of teacher services. This is evidenced by the value of the path coefficient $\beta_{y5} = 0.191$ with a *t*-count (2.645) that is greater than *t*-table (1.652), so *H*₀ is rejected and *H*₁ is accepted. The simple regression model formed is $\hat{y} = 23.76 + 0.73X5$ with a contribution of 47% showing that the increase in job satisfaction is significantly able to improve the quality of service for civil servant teachers of State Junior High School in Bogor Regency. In addition, the relationship between job satisfaction and teacher service quality is linear in pattern, which confirms that the higher the level of teacher job satisfaction, the better the quality of services provided.

The results of the SITOREM analysis show that improving the quality of teacher services needs to be focused on improving indicators that are still relatively weak, especially accuracy and consistency in service (reliability) and deep attention to customer needs and problems (empathy). Service quality indicators that have been in good condition such as responsiveness, assurance, tangibles, and some aspects of empathy need to be maintained and continue to be developed. Strengthening job satisfaction is directed at improving the aspects of salary, benefits, and honorariums that are still relatively weak, while other indicators such as work conditions, opportunities to obtain positions, relationships between superiors and subordinates, and cooperation with colleagues who are already in the good category need to be maintained and optimized. Thus, the findings of this study empirically prove that job satisfaction is an important and significant factor in improving the quality of teacher services.

The direct positive effect between the variable of the effectiveness of ICT application (X1) on the variable of job satisfaction (X5)

Based on the results of the sixth hypothesis test, it can be concluded that the effectiveness of ICT application has a direct positive influence on teacher job satisfaction. This is evidenced by the value of the path coefficient $\beta_{X1X5} = 0.296$ with a *t*-count (4.644) that is greater than the *t*-table (1.652), so that *H*₀ is rejected and *H*₁ is accepted. The simple regression model formed, namely $\hat{y} = 80.877 + 0.52X1$ with a contribution of 46%, shows that the increase in the effectiveness of ICT implementation is significantly able to increase the job satisfaction of civil servant teachers of State Junior High Schools in Bogor Regency. The relationship between the effectiveness of ICT implementation and job satisfaction is also linear, which confirms the consistency of the positive influence of ICT variables on teachers' job satisfaction levels.

Furthermore, the results of the SITOREM analysis show that strengthening job satisfaction needs to be focused on improving indicators that are still relatively weak, especially salaries, allowances, and honorariums which are still in the medium category. Meanwhile, other indicators such as work conditions, opportunities to obtain positions, relationships between superiors and subordinates, and cooperation with colleagues who have shown good values need to be maintained and continued to be developed. These findings indicate that the increase in job satisfaction is not only dependent on financial aspects, but is also strongly influenced by a conducive work environment and harmonious working relationships.

On the other hand, strengthening the effectiveness of ICT implementation needs to be directed at improving information collective activities, information storage, information utilization, and information sharing that is still relatively weak. Information processing activities that are already in the good category need to be maintained and optimized. Thus, the findings of this study empirically prove that the effectiveness of the implementation of ICT that is managed optimally and sustainably plays a significant role in increasing teacher job satisfaction, thereby supporting the improvement of performance and quality of educational services.

Direct positive influence between the Leadership serving variable (X2) on the work satisfaction variable (X5)

Based on the results of the seventh hypothesis test, it can be concluded that servant leadership has a direct positive influence on teacher job satisfaction. This is evidenced by the value of the path coefficient $\beta_{X2X5} = 0.295$ with a tcount (5.642) that is greater than the ttable (1.652), so that H_0 is rejected and H_1 is accepted. The simple regression model formed is $\hat{y} = 74.37 + 0.53X_2$ with a contribution of 39% showing that improving service leadership is significantly able to increase the job satisfaction of civil servant teachers of State Junior High School in Bogor Regency. The relationship between servant leadership and job satisfaction is also linear in pattern, which confirms the consistency of the positive influence of leadership on teachers' job satisfaction levels.

Furthermore, the results of the SITOREM analysis show that strengthening job satisfaction needs to be focused on improving indicators that are still relatively weak, especially the aspects of salary, benefits, and honorariums. Meanwhile, other indicators such as work conditions, opportunities to obtain positions, relationships between superiors and subordinates, and cooperation with colleagues who have been in the good category need to be maintained and continued to be developed. These findings indicate that teachers' job satisfaction is not only determined by leadership, but also by the support of a conducive work system and environment.

On the other hand, strengthening servant leadership needs to be directed at increasing the willingness to listen and the ability to show empathy, which is still in the medium category. Other indicators such as the ability to heal emotional turmoil, openness in action, wisdom in decision-making, humility, and the ability to make positive changes that have shown good value need to be maintained and optimized. Thus, the findings of this study empirically prove that effective and service-oriented service leadership plays a significant role in increasing teacher job satisfaction in a sustainable manner.

Direct positive effect between the Knowledge management variable (X3) and the work satisfaction variable (X5)

This study shows that knowledge management (X3) has a direct positive effect on job satisfaction (X5). The results of the hypothesis test and simple regression analysis resulted in an equation $\hat{y} = 48.87 + 0.65X_3$ with a contribution of 49% and a linear relationship pattern. The value of the path coefficient of 0.185 with a calculation (2.492) is greater than the ttable (1.652) at a significance level of 0.05, so an alternative hypothesis is accepted. This means that

the better the implementation of knowledge management, the higher the level of job satisfaction of State Junior High School Civil Servant Teachers in Bogor Regency.

Based on SITOREM's analysis, increasing job satisfaction needs to be focused on improving indicators that are still weak, namely salary, benefits, and honorarium, while other indicators such as work conditions, job opportunities, superior-subordinate relationships, and co-worker cooperation need to be maintained and developed. In the aspect of knowledge management, indicators that need to be improved include the processing of knowledge into new knowledge and the division and distribution of knowledge, while the acquisition, collection, storage, and utilization of knowledge need to be maintained. Overall, the findings of this study prove that strengthening knowledge management in a sustainable manner can significantly increase job satisfaction.

Direct positive influence between the variables of interpersonal communication (X4) on the variable of job satisfaction (X5)

This study concludes that interpersonal communication (X4) has a direct positive effect on job satisfaction (X5). The results of the hypothesis test showed a linear relationship with the regression model $\hat{y} = 36.26 + 0.78X4$ and a contribution of 42%. The value of the path coefficient of 0.189 with a *t*cal (3.106) is greater than the *t*table (1.652) at a significance level of 0.05, so *H*₀ is rejected and *H*₁ is accepted. This means that the better the interpersonal communication that is established, the more job satisfaction of State Junior High School civil servant teachers in Bogor Regency will increase.

Based on SITOREM's analysis, increasing job satisfaction needs to be focused on improving indicators that are still weak, namely salary, allowances, and honorariums, while other indicators such as work conditions, opportunities to obtain positions, relationships between superiors and subordinates, and co-worker cooperation need to be maintained and developed. In the aspect of interpersonal communication, indicators that need to be improved are the ability to interpret other people's words, sentences, information, and behavior. The indicators that need to be maintained and developed include openness to receiving input, the ability to understand and support others, a positive attitude, and the ability to provide ideas and ideas for the progress of the organization. Overall, these findings prove that strengthening interpersonal communication can effectively improve job satisfaction.

Indirect positive influence between the variables of the effectiveness of ICT implementation (X1) on the variable of teacher service quality (Y) through job satisfaction (X5)

This study shows that the effectiveness of ICT application (X1) has an indirect positive effect on the quality of teacher services (Y) through job satisfaction (X5). This is evidenced by the value of the indirect influence path coefficient of 0.055, the value of *Z*count (6.41) which is greater than *Z*table (1.97), and the significance value of $0.00 < 0.05$, so that *H*₀ is rejected and *H*₁ is accepted. Thus, job satisfaction has been proven to be able to mediate the relationship between the effectiveness of ICT implementation and the quality of teacher services. This means that the more effective the implementation of ICT supported by a high level of job satisfaction, the quality of service for civil servant teachers of State Junior High Schools in Bogor Regency will increase.

Based on SITOREM's analysis, improving the quality of teacher services needs to be focused on improving indicators that are still weak, namely reliability and empathy, while responsiveness, assurance, and tangibles indicators need to be maintained and developed. In the variable of the effectiveness of ICT implementation, indicators that need to be improved include collective activities, storage, utilization, and sharing of information, while information processing activities need to be maintained.

Meanwhile, strengthening job satisfaction is focused on improving salaries, benefits, and honorariums, while maintaining work conditions, job opportunities, superior-subordinate relationships, and co-worker cooperation. Overall, these findings confirm that job satisfaction plays an important role as an important intervening variable in improving the quality of teacher services through the effectiveness of ICT implementation, in line with the Integrative Model of Organizational Behavior (Colquitt et al., 2019).

Indirect positive influence between the variable of servant leadership (X2) on the variable of teacher service quality (Y) through job satisfaction (X5)

This study concludes that service leadership (X2) has an indirect positive effect on the quality of teacher service (Y) through job satisfaction (X5). This is evidenced by the value of the indirect influence path coefficient of 0.041, the value of Z_{cal} (3.85) which is greater than Z_{table} (1.97), and the significance value of $0.00 < 0.05$, so that H_0 is rejected and H_1 is accepted. Thus, job satisfaction has been proven to be able to mediate the relationship between servant leadership and teacher service quality. This means that the stronger the implementation of service leadership felt by teachers, the job satisfaction will increase and ultimately have an impact on improving the quality of service for civil servant teachers of State Junior High Schools in Bogor Regency.

Based on SITOREM's analysis, improving the quality of teacher services needs to be focused on improving reliability and empathy indicators, while responsiveness, assurance, and tangibles indicators need to be maintained and developed. In the variable of service leadership, indicators that are still weak and need to be improved include willingness to listen and empathy, while indicators of healing, openness in action, wisdom in decision-making, humility, and the ability to create positive change need to be maintained. Meanwhile, strengthening job satisfaction is focused on improving salaries, benefits, and honorariums, while maintaining work conditions, position opportunities, superior-subordinate relationships, and teamwork. Overall, these findings confirm that servant leadership plays an important role in improving teacher service quality through job satisfaction, in line with Colquitt et al.'s (2019) Integrative Model of Organizational Behavior.

Indirect positive influence between the Knowledge Management variable (X3) on the variable of teacher service quality (Y) through job satisfaction (X5)

This study concludes that knowledge management (X3) has a positive indirect effect on the quality of teacher services (Y) through job satisfaction (X5). This is evidenced by the value of the indirect influence path coefficient of 0.047, the value of Z_{cal} (6.61) which is greater than Z_{table} (1.97), and the significance value of $0.00 < 0.05$, so that H_0 is rejected and H_1 is accepted. Thus, job satisfaction has been proven to be able to mediate the relationship between knowledge management and the quality of teacher services. This means that the stronger the implementation of knowledge management felt by teachers, the more job satisfaction will increase and subsequently have an impact on improving the quality of service for State Junior High School civil servant teachers in Bogor Regency.

Based on SITOREM's analysis, improving the quality of teacher services needs to be focused on improving reliability and empathy indicators, while responsiveness, assurance, and tangibles indicators need to be maintained and developed. In the knowledge management variable, indicators that are still weak and need to be improved include the processing of knowledge into new knowledge and the sharing and distribution of knowledge, while the acquisition, collection, storage, and utilization of knowledge need to be maintained.

Meanwhile, strengthening job satisfaction is focused on improving salaries, benefits, and honorariums while maintaining work conditions, position opportunities, superior-subordinate relationships, and teamwork. Overall, these findings confirm that knowledge management

plays an important role in improving the quality of teacher services through job satisfaction, in line with the Integrative Model of Organizational Behavior of Colquitt et al. (2019).

Indirect positive influence between Interpersonal Communication variables (X4) on teacher service quality variables (Y) through job satisfaction (X5)

This study concludes that interpersonal communication (X4) has an indirect positive effect on the quality of teacher service (Y) through job satisfaction (X5). This is evidenced by the value of the indirect influence path coefficient of 0.028, the value of Zcount (3.86) which is greater than Z-table (1.97), and the significance value of $0.00 < 0.05$, so that H0 is rejected and H1 is accepted. Thus, job satisfaction has been shown to be able to mediate the relationship between interpersonal communication and the quality of teacher service. This means that the more effective the interpersonal communication that is established, the job satisfaction of teachers will increase and ultimately have a positive impact on the quality of service for civil servant teachers of State Junior High Schools in Bogor Regency.

Based on SITOREM's analysis, improving the quality of teacher services needs to be focused on improving reliability and empathy indicators, while responsiveness, assurance, and tangibles indicators need to be maintained and developed. In the interpersonal communication variable, indicators that are still weak and need to be improved are the ability to interpret other people's words, sentences, information, and behavior, while openness to receiving input, the ability to understand and support others, positive attitudes, and the ability to provide ideas and organizational ideas need to be maintained.

Meanwhile, strengthening job satisfaction is focused on improving salaries, benefits, and honorariums while maintaining work conditions, position opportunities, superior-subordinate relationships, and teamwork. Overall, these findings confirm that interpersonal communication plays an important role in improving the quality of teacher services through job satisfaction, in line with the Integrative Model of Organizational Behavior Colquitt et al. (2019).

CONCLUSION

The study revealed direct positive effects on teacher service quality (Y) from ICT implementation effectiveness (X1), servant leadership (X2), knowledge management (X3), interpersonal communication (X4), and job satisfaction (X5); additionally, X1–X4 each directly influenced job satisfaction (X5), while X1–X4 exerted indirect effects on Y mediated through X5. SITOREM analysis identified 12 indicators across six variables requiring immediate improvement and 22 to maintain or develop. Overall, enhancing ICT effectiveness, servant leadership, knowledge management, interpersonal communication, and job satisfaction improves teacher service quality. For future research, longitudinal studies could explore these relationships over time or incorporate moderating variables like school culture or policy changes in diverse Indonesian regions.

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