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Design Computer Applications For Analyzin Community Education Foundation Teacher Performance In Langkat District

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Abstract

The Community Education Foundation is a philanthropic organization that focuses on the education sector, namely providing support to high schools and vocational institutions. In the context of vocational and high school education, there exists a daily exchange of knowledge and skills between teachers and students through the process of teaching and learning. One of the assets of a school is its ability to produce graduates who are capable of competing, either by pursuing further education or by utilizing the information they have acquired throughout their schooling. The primary determinant for producing high-quality graduates is the active participation of teachers in the learning process, together with other supplementary elements. Thus, in order to improve the caliber of educators, this organization has carried out evaluations and assessments at the schools it provides assistance to. The assessment procedure evaluates the efficacy of instructors in carrying out their responsibilities. However, prior deployments have shown that conducting assessments and evaluations necessitates a significant amount of time for data processing. This leads to decreased efficiency in these operations. To address this scenario, we developed an application with the aim of streamlining and enhancing the precision of computations. We developed a computer program, referred to as software, with the purpose of evaluating and assessing the effectiveness of teachers. We conduct data analysis on the questionnaire responses of teacher performance indicators by delivering an average exam. Out of the 32 teachers, 8 of them, which is 25% of the total, did better than the average. By analyzing the results of the average exam, you may make informed assessments of the teacher's performance, which can be valuable for future decision-making.

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Keywords: performance, teacher, t-test, computer application

INTRODUCTION

Every entrepreneur undoubtedly desires their firm to attain success. The success of a firm may be evaluated based on several factors, including its financial performance and the reputation it has established. The efficacy of one's own enterprise is significantly impacted by the manner in which it is administered. In addition, factors such as motivation, access to company financing, entrepreneurial knowledge, and business networks have been found to have a beneficial impact on business performance (Vavensy, 2023). Human resource (HR) management is another influential aspect in corporate growth. An HR management system that prioritizes employee well-being through work patterns, training and development, flexible work arrangements, work-life balance, involvement in decision making, health and safety measures, career development opportunities, and health and welfare programs will lead to positive organizational performance. An organizational environment characterized by a strong sense of empathy and consideration towards employees, which in turn fosters a deep commitment from employees towards the organization and a greater degree of active engagement (Saks, 2022). Similarly, if the business sector is involved in the field of education, such as privately-owned vocational schools and private high schools under the supervision of Yaspenmas. These two schools are educational institutions that operate at both the vocational and high school levels in Harapan Jaya, Kec. Sei Lepan, Langkat Regency, North Sumatra. Both of these institutions are under the jurisdiction of the Ministry of Education and Culture.

Teachers are highly skilled professionals that have the primary responsibility of instructing, educating, mentoring, supervising, training, appraising, and assessing pupils in the field of early childhood education, primary education, and secondary education (Eliza, 2022). Isnaini Kusuma Wardani et al. did a study and obtained these results. This study utilizes the Research and Development methodology along with the Sugiyono development research model, which consists of seven distinct research phases: identifying potential problems, collecting data, creating the product, validating the design, modifying the design, testing the product, and ultimately refining the product. The System Development Life Cycle Waterfall Model functions as a paradigm for the process of developing a product. Common data collecting methods including interviews, document analysis, and surveys (Wardani, 2021). The research was undertaken by Dwi Jaya Indah and colleagues. The objective of the study is to ascertain the direct impact of motivation

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and pay on the job productivity of instructors in state vocational schools in Depok City. The study examines the impact of motivation, remuneration, and job productivity on the performance of state vocational school instructors in Depok City.

The study conducted by (Harefa, 2022). examines the impact of motivation and remuneration on the performance of State Vocational School instructors in Depok City, specifically focusing on their work productivity. The research conducted by Nita Kanya and her colleagues produced these findings. The study utilized multiple regression for data analysis. The study included 385 instructors from Bandung State High School who were selected using proportionate stratified random selection methods. The research findings indicate that principle leadership factors, organizational culture, and teacher competency exert a substantial impact on teacher performance (Ulfathmi, 2022)(Kanya, 2021).

Teacher performance is the ability demonstrated by teachers in carrying out their duties or obligations. A performance can be said to be good if it can achieve the expected goals correctly. Mental Attitude (Work Motivation, Work Discipline and Work Ethic), skills, income level, social security and infrastructure. Teacher performance will be good if the teacher shows the following: high loyalty and commitment to teaching tasks, mastery and development of learning materials, discipline in teaching and other tasks, creativity in teaching, collaboration with all school members, ability to lead according to role, role model for students, good character, honest and objective in teaching students, and responsible for homework (Basuki, 2022). Meanwhile, teacher professional competence and work motivation are factors that influence teacher performance.

Contribution between teacher professional competence and teacher performance, contribution between work motivation and teacher performance, contribution between teacher professional competence and work motivation on teacher performance (Putra, 2021). Teacher performance influences the formation of student character (Pramono, 2023). The essential academic qualifications and teacher competencies include: (a) thorough understanding of the content, structure, concepts, and scientific principles underlying the subjects being taught; (b) mastery of the standards and fundamental skills required in the specific subject or developmental area being taught; (c) innovative creation of instructional materials; (d) ongoing professional development through reflective practices; and (e) effective utilization of information and communication technology for communication and personal growth (Sitompul, 2021)(Ilyas Yasin, 2022).

Teacher performance assessment is defined by Regulation 16 of 2009, issued by the Minister of State for Empowerment of State Apparatus and Bureaucratic Reform. This

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regulation specifies that teacher performance assessment evaluates each aspect of a teacher's primary job responsibilities, with the aim of determining career development, rank, and position. Assessment is connected to a teacher's execution of their primary responsibilities in acquiring information, using knowledge and abilities in accordance with the necessary competences (Khoiriyatun, 2022).

Teacher Competency Standards are developed based on four primary competencies: pedagogical, personality, social, and professional (Udin, 2021). Teacher performance encompasses the fourth competence (Suhartini, 2021). Teachers possess various indicators of teaching skills, including: a) adept questioning skills; b) effective reinforcement skills; c) proficiency in creating variations; d) strong explanation skills; e) skillful opening and closing of lessons (set induction and closure skills); f) adeptness in guiding small group discussions; g) efficient class management skills; and h) proficiency in facilitating individual learning (Aswaruddin, 2021)(Budianti, 2022).

The efficacy of instructors in fulfilling their responsibilities significantly impacts the attainment of high-quality education, rendering it a crucial prerequisite for educational success. High-quality education is typically considered a standard by which the effectiveness of teachers is measured (Munna, 2021). Another element to consider is the role of school principals in managing and improving teacher performance, which in turn enhances the quality of education and leads to the production of high-caliber graduates (Rostini, 2022). Statistical tests can be employed to evaluate the efficacy of teachers. The test conducted is a mean test utilizing the student t distribution table. The analysis is conducted by comparing the mean of the sample with the mean of the population. By comparing these two figures, it can be determined if the teacher's performance is equivalent to the population mean (indicating that the teacher's performance is either equal to the general average or above average).

Performing manual calculations for conducting average tests will be time-consuming. However, utilizing a certain programming language to construct an application will enhance the efficiency of data processing. The application is developed utilizing the Visual Basic programming language, specifically tailored to the circumstances of SMA/SMK schools overseen by the Community Education Foundation due to limited resources and inadequate infrastructure for establishing an internet facility. Once the application is constructed, the entry and processing of data will be enhanced and more efficient. In order to expedite and enhance the process of evaluating teacher effectiveness.

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RESEARCH METHODS

Problem Analysis

In order to assess teacher performance in this study, it is necessary to identify the markers of teacher performance. We chose specific indications from the aforementioned list, customizing them to suit the circumstances of YASPENMAS. The following are the indicators:

1. Attendance is required to complete tasks

   Teachers have a crucial role in deciding the success of any educational activity. The physical presence of teachers during classes (Alhamuddin, 2021), is crucial for facilitating successful learning activities in the educational process. The absence of a teacher signifies a breach of discipline and a lack of achievement. Due to the absence of instructors fulfilling their responsibilities, there would be a deficiency in the provision of educational services to pupils.

2. Establish a congenial classroom ambiance

   An effective classroom management technique involves establishing a serene, conducive, and pleasurable learning environment. In addition, it is crucial to foster a sense of intimacy with pupils in order to promote a more dynamic and engaged classroom environment. An setting that is favorable to learning in the classroom will facilitate students' understanding and enable teachers to effectively present and communicate course information. An enjoyable class is characterized by constructive exchanges between educators and learners, together with engaging and practical course content (Habbah, 2023).

3. Utilizing supplementary media to enhance the learning process

   By utilizing appropriate media, we anticipate a boost in students' passion and drive for studying, while also facilitating their comprehension of the topic. Educational media serves as a means to elucidate instructional content during teachers' delivery of lessons to their pupils. In this instance, the instructor use media as an alternative to verbal explanations for teaching content (Husnidar, 2021).

4. Implement learning strategies

   Learning techniques may be seen as the tactics employed to execute pre-established plans through tangible and applicable actions in order to achieve learning

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goals. An educator's pedagogical techniques can proficiently impart their expertise to students, guaranteeing that they encounter no challenges in comprehending the offered content. Various learning methods include lecture methods, group discussions, cooperative learning, project-based learning, and technology-based learning (Husnidar, 2021).

5. Perform the ultimate assessment of the educational tasks

   Tests are utilized to assess the extent of growth or advancement that pupils have attained following their participation in the instructional and educational procedure for a specific duration. The objective of learning outcomes assessments is to gather data on student advancement, promote learning engagement, assess capabilities and challenges, stimulate learning drive, and facilitate the development of student conduct (Özdemir, 2015).

Data Collection

According to Sugiyono, a population refers to a broad region that encompasses things or persons with certain amounts and qualities that researchers establish for study and subsequent drawing of conclusions. Sudjana defines a sample as a subset of the population that is accessible and possesses identical attributes to the population it was derived from. According to the information provided, data collection was conducted via obtaining secondary data from YASPENMAS. This information is held by the charity. The gathered data consists of teacher data and teacher questionnaire data about teacher performance. There are a combined total of 32 educators that instruct at vocational and senior high schools. The data provided consists of teacher identifying information, including Identification Number, Name, Address, Position, Place of Birth, Date of Birth, Education, and Place of Teaching (SMA/SMK). Teacher performance data is derived from questionnaires completed by teachers in high school and vocational school settings, including school principals. Through this approach, each educator and administrator may evaluate their own performance as well as evaluate their colleagues. Evaluation of performance on a scale from 0 to 100.

Database Design

Application applications can utilize database architecture to store data for further input. Microsoft Access will save the entered data in a database file. The database was created via Microsoft Access and named dbKinerja. It includes the following table:

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Table 1. Teacher Table

Teacher's Table		
Field Name	**Data Type**	**Description**
NIK	Text	Teacher's Parent No
Name	Text	Name of teacher
Position	Text	Position held in high school or vocational school
Division	Text	Placed in high school or vocational school

Table 2. Performance Table

Performance Table		
Field Name	**Data Type**	**Description**
Code	Text	Respondent number
NIK	Text	Teacher's No
Attendance Value	Number	Presence to carry out duties
Class situation	Number	The Value of Building a Class Atmosphere
Additional media	Number	The value of using additional media
Learning methods	Number	The value of using learning methods
Carrying out tests	Number	The value of taking the exam

Application Interface Design

The Visual Basic programming language provides the fundamental basis for the application. The initial phase of developing this application include designing the intended user interface. The interface is demonstrated using the form.

1. The main form, which is used to accommodate other forms



Figure 2. Layout of the main interface

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RESULTS AND DISCUSSION

Application Implementation

Application implementation is the process of executing and putting into operation programs that have been developed. This program manages both the input and output of data. Here are the outcomes of program execution:

1. Main layout of the Application

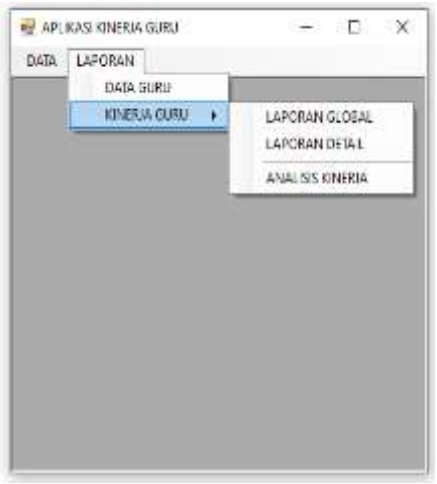


Figure 3. Application Layout

2. Input Questionnaire Data

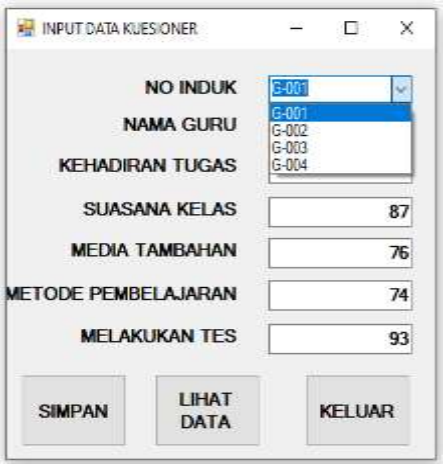


Figure 4. Performance Value Input Layout

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1. Analysis of Teacher Performance
    a. Total of 1020 replies were received for the questionnaire pertaining to the evaluation of teacher performance. This is a comprehensive evaluation of the indicators that measure the performance of teachers.
    b. The average teaching attendance is 82.50, however it has a large standard deviation, indicating a broad range of values. This indicates that the assessment of attendance performance for each instructor varies greatly from one another, suggesting a lack of consistency.
    c. The classroom environment, with an average of 80.55, has a significant variation in terms of standard deviation. From this, it can be concluded that the evaluation of each teacher's performance in a classroom setting varies considerably, suggesting that certain instructors are able to establish a pleasant classroom environment while others are unable.
    d. The indicator for extra Learning Media, with an average score of 76.26, is the lowest among the other indicators. This suggests that the use of extra media in learning does not make use of engaging tools.
    e. Pedagogical Approaches: With an average score of 80.60 and a diverse range of data, it can be inferred that the use of learning techniques by each instructor is below standard.
    f. The test has a maximum average score of 89.58, and its data range is rather narrow compared to other indicators. Teachers administer assessments to gauge the extent to which students have absorbed the material.

For more details, see the results below.

REKAPITULASI KINERJA GURU

NIK	Kehadiran Mengajar	Suasana Kelas	Media Tambahan	Metode Pembelajaran	Melakukan Tes
Rata-rata	82,50	80,55	76,26	80,60	89,58
Banyak Data	1020	1020	1020	1020	1020
Data Terbesar	95,00	90,00	89,00	90,00	95,00
Data Terkecil	70,00	70,00	70,00	70,00	80,00
Std Deviasi	7,1653	5,9155	4,5791	5,9430	3,3891

Figure 5. Layout of teacher performance recapitulation

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2. Performance Assessment Chart

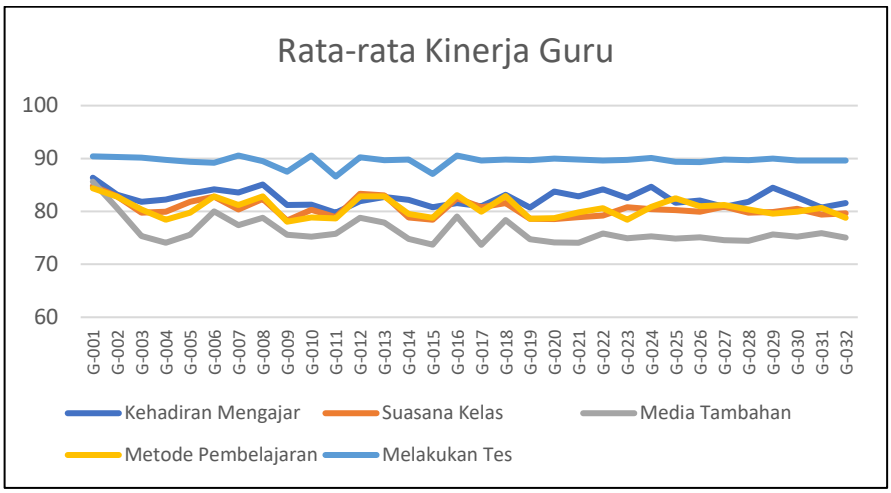


Figure 6. Performance graph

3. Average Test Report

REKAPITULASI UJI RATA-RATA

NIK	Kehadiran Mengajar	Suasana Kelas	Media Tambahan	Metode Pembelajaran	Melakukan Tes	Rata-rata	t hit	Simpulan
G-001	86,38	84,81	85,63	84,38	90,44	86,3250	5,4978	Signifikan
G-002	83,16	82,88	80,59	82,78	90,31	83,9438	2,6301	Signifikan
G-003	81,84	79,75	75,38	80,34	90,16	81,4938	-0,3205	-
G-004	82,25	79,97	74,06	78,41	89,72	80,8813	-1,0581	-
G-005	83,34	81,84	75,56	79,75	89,41	81,9813	0,2666	-
G-006	84,16	82,81	80,00	82,84	89,22	83,8063	2,4645	Signifikan
G-007	83,56	80,38	77,41	81,22	90,56	82,6250	1,0419	-
G-008	85,09	82,34	78,78	82,84	89,50	83,7125	2,3516	Signifikan
G-009	81,19	78,28	75,59	78,06	87,53	80,1313	-1,9613	-
G-010	81,28	80,31	75,22	78,84	90,56	81,2438	-0,6215	-
G-011	79,75	78,91	75,78	78,66	86,59	79,9375	-2,1946	-
G-012	81,97	83,31	78,78	82,88	90,25	83,4375	2,0204	Signifikan
G-013	82,72	83,00	77,91	82,84	89,66	83,2250	1,7645	Signifikan
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
G-032	81,58	79,65	75,03	78,81	89,61	80,9355	-0,6645	-
					Total Rata-rata populasi	81,6958		
					Std Deviasi Populasi	4,6972		

Figure 7. Average test layout

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Analysis of average test results using the t test

The calculations, particularly in the data testing report, reveal that each teacher has a unique calculated t value. For example, consider teacher data with NIK = G-001.We obtain the average() using the formula.And the population average is the average value of all the data= 81.6958We use the formula to find the standard deviation (s).Statistics tHypothesis(The average performance is less than or equal to 81.6958).

Test criteriaAccept if you calculate the table.With a real levelWhen we set the degrees of freedom (n-1) to 31, we obtain a t table value of 1.3095.Reject H0 indicates that the performance of teachers with NIK = G-001 exceeds the average performance of all teachers because the calculated t is greater than the t table.The average test data processing revealed that 8 (25%) teachers performed above average, while 24 (75%) teachers performed below average.

CONCLUSION

The investigation yielded the following conclusions:

1. In order to enhance teacher effectiveness, it is necessary to review and assess their job activities.
2. Enhancing teacher performance will result in greater advancements for schools in enhancing the caliber of graduates.
3. *Teacher performance evaluation apps may be developed utilizing Visual Basic* programming and a Microsoft Access database.

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