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Vehicle Maintenance Management Practices of the University of Eastern Philippines

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Abstract — This study examined the vehicle maintenance management practices at the University of Eastern Philippines, focusing on staff profiles, practices, and challenges, to develop a comprehensive maintenance program for university vehicles. Conducted during the 2024–2025 school year across three campuses, the study employed a descriptive assessment method. A total of 120 respondents—comprising vehicle maintenance staff, key officials, faculty, and non-teaching personnel—participated through complete enumeration and random sampling methods. Data were collected using a validated three-part questionnaire assessing staff profiles, practices, and encountered challenges. Reliability testing via Cronbach's Alpha demonstrated excellent internal consistency across variables such as planning, staffing, budget allocation, procurement, and utilization.

Findings indicated that most maintenance staff held college degrees, possessed strong skills, and had extensive experience. Practices were generally rated as "very much practiced," with differences observed in perceptions of budget allocation among stakeholders. Educational qualification significantly influenced planning and budgeting perceptions. Challenges were rarely encountered, and utilization-related issues were absent. A proposed maintenance program emphasized budget transparency, staff development, and a competency-based approach. The study concluded that the university's vehicle maintenance protocols are adequate, with skilled staff and organized systems in place. Strategic recommendations included investing in education, training, and stakeholder participation to ensure sustainable practices.

Keywords — Vehicle Maintenance Management, Vehicle Maintenance Program, Vehicle Maintenance Staff, Perception Analysis, Strategic Program Development

I. Introduction

Vehicle maintenance is widely recognized as a critical component in ensuring the operational efficiency and longevity of transportation assets in any organization. Globally, effective vehicle maintenance practices have been shown to significantly influence organizational success by minimizing downtime, reducing costs, and maximizing vehicle lifespan. Maintenance management systems serve as vital tools for preserving equipment in optimal working condition or restoring them after failures. These systems encompass a comprehensive array of technical, administrative, and managerial actions aimed at sustaining the functionality of assets throughout their life cycle (Temesgem, 2016). These actions can be broadly categorized into preventive and

corrective maintenance strategies, both of which are essential for maintaining service reliability and safety.

Effective maintenance management, however, is not solely a technical concern—it requires strategic integration into an organization's overall operational model. Only when maintenance is embedded within institutional structures and linked to other organizational functions can it be truly effective and contribute meaningfully to institutional goals. In this context, universities are no exception. Institutions of higher learning rely heavily on transportation services to support their core functions: instruction, research, and extension. As such, the management of university vehicles is crucial to ensuring uninterrupted and efficient operations.

In the Eastern Visayas region, particularly in Northern Samar, there has been limited research addressing vehicle maintenance management within the context of state universities. The University of Eastern Philippines (UEP), like other state universities, must constantly improve its service delivery mechanisms to fulfill its mandate effectively. A critical, yet often overlooked, element of this effort is its transportation system. Significant operating costs are tied to vehicle use, and inefficiencies or failures in maintenance can directly hinder the university's capacity to meet its objectives. This study, therefore, seeks to examine UEP's current vehicle maintenance practices, identify key issues, and propose improvements aimed at enhancing performance and sustainability.

This study aimed to assess the vehicle maintenance management practices of the University of Eastern Philippines with the aim of formulating a vehicle maintenance management program. Specifically, the study aimed to determine the vehicle maintenance management practices of the University of Eastern Philippines as perceived by the key officials, faculty, non-teaching personnel, and vehicle maintenance staff in terms of planning, staffing, budget allocation, procurement, and utilization. This study also sought to find out if there a significant difference in the perception of the key officials, faculty, non-teaching personnel, and vehicle maintenance staff on the vehicle management practices of the University of Eastern Philippines. Lastly, the goal of this study is to identify the problems encountered by the respondents in the vehicle maintenance management practices.

The findings of this study will be of great relevance to the drivers, the head of the Machinery Office, researchers, and the stakeholders. The principal tasks and responsibilities of drivers are to transport officials, guests, and office staff from one place to another on assigned routes, to ensure the safety and custody of the passengers and vehicle, and to perform vehicle inspections to manage preventive maintenance. Thus, the findings would be helpful to them in performing the abovementioned tasks and responsibilities. Moreover, as head of the office in charge of the operation and management of UEP vehicles, the results of this study could be used to gain ideas on how to improve its mechanical engineering management system, particularly vehicle maintenance management strategies. It would help the office in charge improve the service quality of the machinery. In addition, this study would have served as a helpful reference to future

researchers who wished to conduct related studies on this. Finally, the application of the University Machinery Office of the determined vehicle maintenance management strategies in the study would have ensured the safety of the stakeholders.

Literature Review

Vehicle maintenance management plays a critical role in ensuring the operational efficiency and service continuity of organizations, particularly in institutional settings such as universities. The literature reviewed for this study encompasses both conceptual foundations and empirical findings, highlighting essential themes in staffing, planning, budgeting, procurement, and utilization within maintenance systems.

Conceptual Literature

Effective vehicle maintenance requires a qualified and skilled workforce, as the foundation of any robust system lies in its human capital. The automotive industry is rapidly evolving, driven by globalization, technology, and competitive pressures, which demand a workforce equipped with both technical and adaptive skills (ADR, 2013). Core competencies include mechanical understanding, documentation, selection of appropriate tools and procedures, and proficiency in diagnostics and repair.

The Technical Education and Skills Development Authority (TESDA) outlines the competencies under the Automotive Servicing NC III program, which includes inspecting, testing, replacing, and repairing critical vehicle systems. These foundational qualifications are essential for developing a competent maintenance workforce in public institutions such as universities.

Vehicle maintenance management is broadly categorized into preventive and corrective approaches (Gopalakrishnan & Banerji, 2017). Preventive maintenance aims to identify and resolve potential issues before failure occurs, while corrective maintenance addresses problems after equipment has failed. Scholars like Lindley and Higgins (2015) argue that a strategic focus on root causes, rather than symptoms, leads to more sustainable and cost-effective maintenance outcomes.

An effective maintenance system must be integrated into the overall organizational strategy. Márquez and de León (2013) emphasize that maintenance must align with business goals and be implemented efficiently through structured processes. The use of frameworks such as the Deming Plan-Do-Check-Act (PDCA) cycle and key performance indicators (Kaplan & Norton, n.d.) is vital for continuous improvement and operational alignment.

Other core areas include manpower management, cost control, procurement, and maintenance scheduling. Researchers note that fixed and variable workloads must be balanced, and labor deployment should consider fluctuations in staff availability and task urgency (Kelly, 2015; Herbaty, 2013). Budget constraints and improper procurement practices often exacerbate

maintenance inefficiencies, with many studies emphasizing proactive strategies, automation, and standardized procedures to optimize cost and performance (Tomlingson, 2014; U.S. Department of Transportation, 2016).

Research Literature

Empirical studies validate these conceptual underpinnings across diverse contexts. Temesgen (2016) investigated vehicle maintenance in the Wonji Shoa Sugar Factory and found that preventive training and proper system structuring significantly improved availability and reduced costs. Similarly, Donmez and Zemmouri (2016) analyzed maintenance from the perspectives of original equipment manufacturers and transport providers, highlighting that perceived value in maintenance is directly tied to cost avoidance and service quality.

Studies within educational institutions echo similar concerns. Gatbonton and Olarte (2019) developed a logistics system for vehicle tracking and maintenance at Bestlink College of the Philippines, identifying monitoring inefficiencies as a major challenge. Tadele (2013) and Onate (2013) both found that financial and staffing issues critically affected maintenance effectiveness in public and private institutions, respectively.

Awuah (2018) emphasized the importance of service quality in the vehicle repair industry, particularly in communication and consistency of service delivery. His findings align with this study's emphasis on user perception and satisfaction as integral to assessing vehicle maintenance practices. Meanwhile, Javani et al. (2022) underscored systemic issues such as workforce shortages, aging equipment, and morale as barriers to achieving optimal performance in utility organizations.

Collectively, these studies affirm that effective vehicle maintenance management hinges on skilled personnel, strategic planning, proactive budgeting, efficient procurement, and user-informed practices. Despite the global scope of existing research, there remains a notable gap in localized studies within the Philippine university context, justifying the need for the present study.

II. Methodology

Research Design

This study employed a descriptive assessment research design, which focuses on systematically describing current conditions or phenomena based on direct observation and data collection. Descriptive assessment, as noted by Castillo et al. (2018), allows for evaluating behaviors or practices within naturalistic settings, addressing limitations inherent in retrospective reporting. Calderon (2008), as cited by Palomar (2014), further emphasizes that descriptive methods serve as statistical tools to characterize populations or phenomena. This design was appropriate for determining the current vehicle maintenance management practices of the

University of Eastern Philippines (UEP) and identifying challenges as perceived by key stakeholders, including maintenance staff, key officials, faculty, and non-teaching personnel. Additionally, the study aimed to develop a comprehensive maintenance program for university vehicles based on the findings.

Study Locale

The study was conducted across three UEP campuses: the Main Campus (University Town, Northern Samar), UEP PRM Campus (Catubig, Northern Samar), and UEP Laoang Campus (Laoang, Northern Samar), covering both districts of the province.

Population and Sampling

A complete enumeration technique was used to include all vehicle maintenance staff in the three campuses. Simple random sampling, as outlined by Broto (2006), was applied to key officials, faculty, and non-teaching personnel. A total of 200 questionnaires were distributed, and 120 were retrieved, representing a 60% response rate.

Table 1 summarizes the frequency and percentage distribution of respondents. It reveals that this study's respondents were 12 (10%) vehicle maintenance staff, 10 (8.3%) key officials, 60 (50%) faculty, and 38 (31.7%) Non-teaching Personnel, for a total of 120 respondents.

Table 1. Frequency and Percentage Distribution of Respondents

Respondents	Frequency	Percentage
Vehicle Maintenance Staff	12	10%
Key Officials	10	8.3%
Faculty	60	50%
Non-Teaching Personnel	38	31.7%
Total	120	100%

Data Collection Instruments

The study utilized a researcher-developed questionnaire based on the research objectives. It was divided into three parts: Part I: Profile of vehicle maintenance staff. Part II: Vehicle Maintenance Management Practices. Part III: Problems encountered in Vehicle Maintenance Management

Two Likert scales were used. The Vehicle Maintenance Practices Scale measures how often maintenance is performed. A score between 4.20 and 5.00 means maintenance is "highly practiced", showing strong commitment to vehicle care. Scores from 3.40 to 4.19 indicate

"consistent practice", with regular upkeep but some flexibility. A range of 2.60 to 3.39 reflects "moderate practice", meaning basic maintenance is followed but not consistently. Scores from 1.80 to 2.59 show "low practice", suggesting irregular or insufficient attention to vehicle upkeep. Finally, a score of 1.79 or below means maintenance is "not practiced", indicating a lack of routine vehicle care.

The Problems Encountered Scale measures how often issues occur. A score of 4.20 to 5.00 means problems are "always encountered", while 3.40 to 4.19 indicates they are "often encountered". If the score falls between 2.60 and 3.39, problems are "sometimes encountered". A range of 1.80 to 2.59 suggests they are "rarely encountered", and a score of 1.79 or below means problems are "never encountered."

The questionnaire underwent expert review by the adviser and panel members for relevance and clarity. It was further assessed by instrumentation experts to ensure reliability and validity.

Tables 2 and 3 show the Cronbach's Alpha reliability test results conducted with a pilot group of 30 respondents. All variables scored above 0.90, indicating excellent internal consistency.

Table 2. Reliability Test for Vehicle Maintenance Practices

Variable	No. of Items	Cronbach's Alpha	Interpretation
Planning	10	0.948	Excellent
Staffing	10	0.961	Excellent
Budget Allocation	10	0.957	Excellent
Procurement	9	0.958	Excellent
Utilization	11	0.979	Excellent

Table 3. Reliability Test for Problems Encountered

Variable	No. of Items	Cronbach's Alpha	Interpretation
Planning	8	0.950	Excellent
Staffing	10	0.927	Excellent
Budget Allocation	7	0.904	Excellent
Procurement	10	0.941	Excellent
Utilization	11	0.943	Excellent

Data Collection Procedures

Upon approval from the adviser and university administration, the researcher personally distributed the questionnaires to the selected respondents, along with instructions and clarifications to ensure accurate and honest responses. Completed questionnaires were retrieved, and responses were collated for analysis.

Data Processing and Analysis

The study utilized several statistical tools to analyze the data effectively. Frequency and Percentage were employed to describe the respondents' profiles, providing a clear summary of demographic distributions. To assess perceptions of maintenance practices and problems encountered, the Mean and Standard Deviation were used, offering insights into trends and variability in responses. Additionally, One-Way ANOVA was conducted to identify significant differences in perceptions among key officials, faculty, non-teaching personnel, and vehicle maintenance staff, ensuring a comparative analysis across different groups.

Ethical Considerations

The researcher strictly adhered to ethical guidelines in conducting this study. Participation was voluntary, with full disclosure of the research purpose and procedures. Respondents were treated with respect, and their identities and responses were kept strictly confidential. Data were stored securely, accessible only to the researcher, adviser, and designated evaluators. The researcher also ensured proper citation of all sources to avoid plagiarism and upheld integrity throughout the research process.

III. Results and Discussion

Results

Perceived Vehicle Maintenance Management Practices.

To determine the vehicle maintenance management practices of the University of Eastern Philippines as perceived by the key officials, faculty, non-teaching personnel, and vehicle maintenance staff in terms of planning, staffing, budget allocation, procurement, and utilization, the mean and standard deviation were used.

Table 4 shows the vehicle maintenance management practices of the University of Eastern Philippines as perceived by the key officials, faculty, non-teaching personnel, and vehicle maintenance staff. Among the perceptions, the grand mean of 4.28 and standard deviation of 0.16 were interpreted as "very much practiced." This means that in terms of utilization, best practices were applied, especially checking the tire pressure before and after the trip, ensuring that there is

an approved trip ticket before using the vehicle. Marquez and De Leon similarly opine that the best practices should be incorporated in the maintenance model of an organization based on the service providers' perspectives, for it would generally contribute to achieving the institution's goals.

Table 4. Mean and Standard Deviation of the Vehicle Management Practices of the University of Eastern Philippines

Perception	Overall Mean	Standard Deviation	Description
Planning	4.12	0.14	Much Practiced
Staffing	4.17	0.20	Much Practiced
Budget Allocation	4.17	0.20	Much Practiced
Procurement	4.31	0.19	Very Much Practiced
Utilization	4.65	0.08	Very Much Practiced
Grand Mean	4.28	0.16	Very Much Practiced

Perception of the key officials, faculty, non-teaching personnel, and vehicle maintenance staff on the vehicle management practices of the University of Eastern Philippines.

Table 5 presents the Test of Significant Differences in the Perception of the Key Officials, Faculty, Non-Teaching Personnel, and Vehicle Maintenance Staff on the Vehicle Management Practices of the University of Eastern Philippines. It presents an analysis of variance (ANOVA) results for five key variables—Planning, Staffing, Budget Allocation, Procurement, and Utilization—examining differences between groups. The F-values indicate the ratio of variance between groups to variance within groups, while the Significance (Sig.) values determine statistical significance. For Planning (F = 0.835, p = 0.477), Staffing (F = 1.564, p = 0.202), Procurement (F = 1.207, p = 0.310), and Utilization (F = 2.207, p = 0.091), the p-values exceed 0.05, indicating that differences between groups are not statistically significant (ns). This suggests that variations in these variables across groups may be due to random chance rather than meaningful differences. However, for Budget Allocation (F = 2.732, p = 0.047), the p-value is below 0.05, indicating a statistically significant (S) difference between groups. This suggests that there is a meaningful variance in Budget Allocation among the groups analyzed. Overall, the results imply that most variables do not show significant group differences, except for Budget Allocation, which exhibits notable variation across groups**.**

Based on the findings, it may be contended that budget allocation is perceived differently among the groups, which may suggest that there is a need for a more equitable or transparent budgeting process to ensure all stakeholders feel adequately supported. These findings highlight the importance of addressing specific areas within vehicle management practices to enhance overall efficiency and satisfaction among university personnel. This is supported by the study of Davis which claimed that inefficient and ineffective budgeting processes may lead to poor vehicle maintenance management. He further postulated that some of the most significant impacts of the absence of a transparent and equitable budgeting process faced by top maintenance are out-of-

control maintenance and repair costs, disappearing skilled workforce for the maintenance department, and declining revenue for the overall organization.

Table 5. Test of Significant Difference in the Perception of the Key Officials, Faculty, Non-Teaching Personnel, and Vehicle Maintenance Staff on the Vehicle Management Practices of the University of Eastern Philippines

Item		Sum of Square	df	Mean Square	F	Sig.	Interpretation
Planning	Between Groups	1.474	3	0.491	0.835^{ns}	0.477	
	Within Groups	68.273	116	0.589			Not Significant
	Total	69.747	119				
Staffing	Between Groups	2.205	3	0.735	1.564^{ns}	0.202	
	Within Groups	54.521	116	0.470			Not Significant
	Total	56.726	119				
Budget Allocation	Between Groups	3.215	3	1.072	2.732^{S}	0.047	
	Within Groups	45.509	116	0.392			Significant
	Total	48.724	119				
Procurement	Between Groups	1.548	3	0.516	1.207^{ns}	0.310	
	Within Groups	49.599	116	0.428			Not Significant
	Total	51.147	119				
Utilization	Between Groups	2.651	3	0.884	2.207^{ns}	0.091	
	Within Groups	46.456	116	0.400			Not Significant
	Total	49.107	119				

Problems Encountered by the Respondents in the Vehicle Management Practices.

To determine the problems encountered by the respondents in the vehicle maintenance management practices as to planning, staffing, budget allocation, procurement and utilization.

Planning. Problems encountered in the vehicle maintenance management practices in terms of planning are reflected in Table 6. The data reveal that the respondents "rarely encountered" issues with regard to planning, as evidenced by the grand mean of 2.19. From among the indicators, it was found that the most "rarely" encountered problem was concentrating only on controllable variables with a mean of 2.28. It was followed by no long-term plan for activities and improvement of the maintenance functions, no laid-out short-term plan for periodic inspection, general repairs, daily job, shutdown, analysis, and the likes and absence of weekly, monthly, quarterly, and yearly scheduling for various maintenance actions and task, with the mean of 2.28, 2.2 and 2.21, respectively. However, the lowest was the manager's ability to plan, with a mean of 2.11.

It may be inferred from the findings that, generally, staffing problems were seldom faced by the respondents. However, among them, it was perceived that the manager's inability to plan was the top problem encountered, which further denotes that the university's vehicle maintenance unit head was incapable of determining all necessary elements required to perform a task in advance. This finding is supported by Marais, who asserted that one of the most commonly encountered problems in this context is good planning, which is the heart of practical inspection and preventive maintenance.

Table 6. Problems Encountered in Vehicle Maintenance Management Planning Practices

Statement Indicator	Mean	Standard Deviation (SD)	Description
Does not follow a well-planned and systematic plan.	2.18	1.20	Rarely Encountered
No detailed plan and schedule during the year for major overhauls, major preventive maintenance tasks, and vacations of the maintenance workforce.	2.14	1.21	Rarely Encountered
No laid-out short-term plan for periodic inspection, general repairs, daily job, shutdown, analysis, and the like.	2.23	1.12	Rarely Encountered
No long-term plan for activities and improvements to the maintenance function to keep the maintenance objectives, policies, and procedures aligned with the objectives of the university.	2.24	1.12	Rarely Encountered
Absence of weekly, monthly, quarterly, and yearly scheduling for various maintenance actions and tasks	2.21	1.13	Rarely Encountered
Manager's inability to plan	2.11	1.16	Rarely Encountered
Lack of commitment to the planning process	2.16	1.18	Rarely Encountered
Concentrating on only the controllable variables	2.28	1.28	Rarely Encountered
Grand Mean (S.D.)/Description	2.19	0.06	Rarely Encountered

Staffing. Table 7 exhibits the data on the problems encountered in vehicle maintenance management practices as to staffing. The data suggest that the respondents "rarely encountered" issues in terms of staffing, as evidenced by the mean of 2.34. As reflected in the tabular presentation, while most of the respondents adhered that all problem indicators were rarely encountered, with no permanent assignment of personnel to manage a vehicle being the highest with a mean of 2.53, they still believed that lack well-defined managerial chain on deciding on hiring and assigning staff was "sometimes encountered" as supported by the mean of 2.63.

For this, it may be deduced that the university's vehicle maintenance management unit had not faced significant challenges in terms of work delegation particularly as regards assigning staff to drive and manage a specific vehicle. This additionally signifies that the unit employed an effective manpower distribution system. A similar contention was forwarded in the study of Kelly, which stated that in managing the manpower capital, the least commonly faced problem for it is always prioritized by any company is the proper assigning and scheduling of maintenance work staff to operate a vehicle.

Table 7. Problems Encountered in Vehicle Maintenance Management Staffing Practices

Statement Indicator	Mean	Standard Deviation (SD)	Description
Lacks a well-defined managerial chain for deciding on hiring and assigning staff.	2.63	1.32	Sometimes Encountered
No permanent assignment of personnel to manage a vehicle.	2.53	1.35	Rarely Encountered
Absence of routine assignments for each staff.	2.19	1.19	Rarely Encountered

No close monitoring of labor capacity, resulting in an imbalance of work and capacity.	2.39	1.32	Rarely Encountered
Lacks maintenance labor division, causing absences, overtired employees, sick leaves, etc.	2.27	1.19	Rarely Encountered
Lack of training, skills, and knowledge to perform a particular job.	2.29	1.37	Rarely Encountered
Lack of orientation and necessary information about his duties and responsibilities.	2.20	1.31	Rarely Encountered
No training program for the employees.	2.30	1.36	Rarely Encountered
Awareness and sensitivity to behavioural patterns of oneself and others are not developed.	2.23	1.17	Rarely Encountered
Deserving employees are overlooked.	2.38	1.37	Rarely Encountered
Grand Mean (S.D.)/Description	2.34	0.14	Rarely Encountered

Budget Allocation. Table 8 lays out the data on the problems encountered in vehicle maintenance management practices in terms of budget allocation. The data reveal that the respondents found the issues on budget allocation "rarely encountered," as signified by the mean of 2.23. Specifically, it indicates that among the problem indicators, no budget allocation separated from other allocations was the most rarely encountered, with a mean of 2.33. Subsequent to it were budget transaction transparency with 2.32 mean, fuel availability is not regularly and closely monitored with 2.24, maintenance program is not managed to be cost-effective relative to staff time, service vendors and parts and supplies costs with 2.23 mean, budgetary allotment for the maintenance and other operating expenses with 2.22, does not conduct regular inventory of spare parts, tires, lubricants, fuels and other materials needed with 2.14 mean, and the total amount of maintenance cost is not taken into consideration with 2.10 mean.

The data show that though problems in budget allocation were infrequently met, the respondents deemed that the total amount of maintenance cost not being taken into consideration was a challenge. This result is comparable to that of Onate's study, which declared that the problem encountered in auto repair and maintenance is mainly associated with finances, such as the lack of a specific breakdown of the total cost.

Table 8. Problems Encountered in Vehicle Maintenance Management Budget Allocation Practices

Statement Indicator	Mean	Standard Deviation (SD)	Description
Fuel availability is not regularly and closely monitored.	2.24	1.30	Rarely Encountered
Does not conduct a regular inventory of spare parts, tires, lubricants, fuels, and other materials needed.	2.14	1.19	Rarely Encountered
The maintenance program is not managed to be cost-effective relative to staff time, service vendors, and parts and supplies costs.	2.23	1.16	Rarely Encountered
The total amount of maintenance cost is not taken into consideration.	2.10	1.02	Rarely Encountered

No budget allocation is separated from other allocations.	2.33	1.15	Rarely Encountered
Budgetary allotment for the maintenance and other operating expenses.	2.22	1.20	Rarely Encountered
Budget transaction transparency.	2.32	1.08	Rarely Encountered
Grand Mean (S.D.)/Description	2.23	0.08	Rarely Encountered

Procurement. Table 9 shows the data on the problems encountered by the respondents in vehicle maintenance management practices regarding procurement. As shown in the table, the respondents "rarely encountered" problems related to procurement. Specifically, failure to adopt technology, inaccurate internal needs analysis, and supplier-related issues were identified with 2.21, 2.08, and 2.06, respectively.

The findings suggest that the vehicle maintenance staff demonstrated openness to and proficiency in using technology, highlighting that the university's procurement process was facilitated through technological means. This approach positively influences the budget by ensuring product reliability, thereby reducing the likelihood of incurring unnecessary repair costs. However, this finding is in contrast to the study of Javani which claimed that the challenges facing maintenance teams in executing maintenance activities include not only staff shortage and low employee morale but primarily the lack of staff's technological knowledge and skill.

Table 9. Problems Encountered in Vehicle Maintenance Management Procurement Practices

Statement Indicator	Mean	Standard Deviation (SD)	Description
Does not check the market value and quality of the equipment or supplies before purchase.	1.91	1.10	Rarely Encountered
Fails to follow the rules, policies, and procedures of the university in procuring supplies and services.	1.96	1.13	Rarely Encountered
No balance and check system to ensure that the office is correctly procuring supplies and services.	1.92	1.05	Rarely Encountered
Does not present and submit a detailed justification report when an emergency fund is used.	1.85	0.94	Rarely Encountered
Does not follow the university's formal procurement process for bidding and award.	1.92	1.10	Rarely Encountered
Failure to adopt technology.	2.21	1.28	Rarely Encountered
Supplier-related issues.	2.06	1.13	Rarely Encountered
Inaccurate internal needs analysis.	2.08	1.10	Rarely Encountered
Non-compliance and crude contract management processes.	1.92	1.04	Rarely Encountered
Error-prone, manual internal processing.	1.90	1.05	Rarely Encountered
Grand Mean (S.D.)/Description	1.97	0.11	Rarely Encountered

Utilization. Table 10 presents the data on the problems encountered by the respondents in the vehicle maintenance management practices as to utilization. The table indicates that the respondents found utilization problems as "never encountered," with a grand mean of 1.75 to support it. Notably, the most never-encountered problem was flat tires, with a mean of 1.95. This is followed by shaking of the steering wheel with 1.77 means, the car consuming too much oil, the alternator failing, both have 1.71 means, and the radiator leaking with 1.70 means. The lowest was the tires are wearing unevenly, with a mean of 1.58.

This infers that problems associated with utilization were indeed not encountered which strongly suggests that the university's vehicle management in this context is at par with the fundamental national and international vehicle maintenance standards. However, this disconfirms the assertion of Gatbonton and Olarte et al., who found out that issues in logistics are common in vehicle maintenance, such as monitoring, maintaining, checking, and viewing the details.

Table 10. Problems Encountered in Vehicle Maintenance Management Utilization Practices

Statement Indicator	Mean	Standard Deviation (SD)	Description
The engine is sputtering.	1.83	1.06	Rarely Encountered
The shaking of the steering wheel.	1.77	1.03	Never Encountered
Flat tires	1.95	1.08	Rarely Encountered
Squeaking or grinding of the brakes	1.88	1.04	Rarely Encountered
The car is consuming too much oil	1.71	0.93	Never Encountered
The alternator is failing	1.71	0.90	Never Encountered
The radiator is leaking	1.70	0.90	Never Encountered
The car gives out excessive emissions	1.65	0.88	Never Encountered
Late registration of the vehicle	1.61	0.90	Never Encountered
Brake pads are worn	1.82	1.12	Never Encountered
The tires are wearing unevenly	1.58	0.94	Never Encountered
Grand Mean (S.D.)/Description	1.75	0.11	Never Encountered

Discussion

As to the perceived vehicle maintenance management practices, the data disclosed that the planning practices were viewed as "much practiced" by the key officials, faculty, and non-teaching personnel. While the vehicle maintenance staff considered them "very much practiced." In terms of staffing practices, key officials and vehicle maintenance staff's perception was "very much practiced." On the other hand, the faculty and non-teaching personnel's standpoint was "much practiced." With regard to budget allocation practices, they were perceived by key officials and non-teaching personnel as "much practiced." At the same time, the faculty and vehicle maintenance staff believed that they were "very much practiced." Furthermore, only the non-teaching personnel had seen procurement practices as "much practiced." Conversely, the rest of the respondents perceived them as "very much practiced." As to utilization practices, all sets of respondents considered them as "very much practiced."

The study's results indicated that there were no significant differences in the perceptions of key officials, faculty, non-teaching personnel, and vehicle maintenance staff concerning planning, staffing, procurement, and utilization. However, a significant difference was found in the perception of budget allocation.

Regarding problems encountered by the respondents in vehicle maintenance management practices, problems related to planning, staffing, budget allocation, and procurement were "rarely encountered," whereas utilization-related issues were "never encountered."

IV. Conclusion

Overall, the respondents perceived vehicle maintenance practices—including planning, staffing, budgeting, procurement, and utilization—as consistently and effectively implemented. Preventive maintenance was prioritized, and staffing systems were found to be well-managed, contributing to both service reliability and road safety. Budget allocation and procurement processes were deemed adequate and efficient, ensuring that necessary resources and tools were available without compromising quality or safety. Utilization practices, in particular, were regarded as highly efficient, suggesting that the university maximizes its resources and minimizes operational downtime.

The study also found that perceptions of maintenance practices did not significantly differ across stakeholder groups, except in the area of budget allocation, where variations were linked to differences in job roles and responsibilities. This indicates that while overall practices are aligned, financial perspectives may diverge depending on one's institutional position. Moreover, educational attainment was found to influence perceptions of planning and budgeting, reinforcing the importance of continued training and professional development for maintenance staff.

Finally, challenges in vehicle maintenance were rarely encountered, with utilization-related issues being virtually non-existent. This suggests that the university has well-functioning systems in place, bolstered by effective planning, monitoring, and evaluation mechanisms. Taken together, these findings underscore a strong institutional foundation for vehicle maintenance management at UEP, though continuous improvement through targeted training and responsive budgeting remains essential to sustain and enhance current practices.

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