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Article

Navigating Change: A Phenomenological Exploration of E-Vehicle Use Among Commuters in Central Philippines

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Abstract

This study explored the lived experiences of daily commuters in Bustos, Bulacan regarding their transition to electric vehicle (e-vehicle) use, with the goal of examining the perceived benefits, challenges, and the broader social, environmental, and economic meanings attributed to this shift. Employing a qualitative phenomenological design, the study engaged 15 participants through purposive sampling. In-depth, semi-structured interviews were conducted and analyzed using Colaizzi's method to extract significant statements, formulate meanings, and generate thematic insights. Findings revealed three major themes: practicality and convenience in local travel, environmental awareness and emerging eco-consciousness, and adaptive challenges due to infrastructure limitations. Participants highlighted the economic relief gained from reducing fare and fuel expenses, and the convenience of short-distance mobility. E-vehicle use was perceived not only as a practical solution but also as a personal contribution to environmental sustainability and community well-being. However, commuters faced persistent barriers, including limited charging infrastructure and lingering social misconceptions about the reliability of e-vehicles. The study also uncovered a shift in commuter behavior—from passive reliance on traditional transport to a more active, mindful engagement in personal mobility. This transformation extended beyond behavior, as participants internalized roles as responsible, future-oriented citizens. The discussion aligned these findings with existing literature on sustainable mobility, highlighting both grassroots innovation and systemic gaps. The study concludes that the transition to e-vehicles in Bustos is a multi-dimensional phenomenon that reflects localized sustainability practices, economic adaptation, and the emergence of a socially engaged commuter identity.

Keywords: *Bustos Bulacan, commuter experience, electric mobility, e-vehicles, phenomenology, social meaning, sustainable transport*

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Introduction

The global shift toward sustainable mobility, driven by the urgent need to combat climate change and reduce environmental degradation, has propelled the widespread adoption of electric vehicles (e-vehicles), particularly in urban and semi-urban areas. This transition is increasingly supported by green technologies such as renewable energy integration, energy-efficient batteries and electric systems, and efficient smart charging infrastructure. In the Philippines, the government's enactment of the Electric Vehicle Industry Development Act (Republic Act No. 11697) reflects a strategic commitment to decarbonize the transport sector in the central part and reduce dependence on fossil fuels. While major metropolitan centers lead in e-vehicle adoption, smaller municipalities like Bustos and Bulacan, are beginning to explore e-vehicles as viable, eco-friendly alternatives to traditional modes of transport. Nevertheless, the broader success of this green transition relies not only on technological advancements and infrastructure, but also on the commuting public's experiences, perceptions, and willingness to adapt to cleaner, more sustainable mobility solutions. Moura, YU, Mohammadi et al (2020) demonstrate how building-to-vehicle and vehicle-to-building systems can use EVs that absorb the grid fluctuations from renewable sources, boosting self-consumption and lowering costs in microgrid settings. Sharifi, Banerjee, Feizollahi et al. (2019) propose optimal scheduling algorithms to align EV charging with variable renewable generation, addressing cost and grid stability challenges.

Understanding how commuters in Bustos navigate the changes brought about by e-vehicle usage requires an in-depth examination of their lived experiences. A phenomenological approach is particularly suited for this purpose, as it captures the essence of personal and collective meaning-making processes in response to a social or technological shift. This study aims to explore these nuanced experiences and generate insights into the social, environmental, and behavioral implications of e-vehicle use in a local commuting context. Cabarrubias D.C. et al. (2023) will explore the Metro Manila vehicle customers, drivers, and inhibitors of electric vehicle adoption, noting the critical roles of home charging availability, perceived reliability, and consumer awareness. Fanchao Liao et al. (2023) capture the user preferences and their behavioral adaptation to shared e-mobility services and the different commuter groups, public transport users, and car drivers, which show a distinct meaning of making and adaptation processes.

Saflor et al. (2024) used structural equation modeling and artificial neural networks to study barriers to EV adoption among Filipinos, highlighting concerns like charging infrastructure, vehicle cost, and range anxiety (Lincoln& Guba,1985).

Similarly, an MDPI study identified perceived environmental concern and institutional support as strong predictors of behavioral intention toward e-jeepney adoption (Nazari et al. 2023). These studies provide empirical evidence of key challenges and drivers influencing the uptake of e-vehicles in the Philippine context.

Research in Metro Manila and the National Capital Region shows that perceived usefulness, ease of use, social influence, and public awareness significantly affect e-bike adoption, based on TAM and DOI frameworks (Trinidad, E., et al., 2024). Additionally, in General Santos City, studies suggest that e-tricycles are seen as sustainable alternatives, with benefits related to cost savings, reliability, and environmental impact (Balaria, 2017). Buenavista et al (2024) strongly suggest that prioritizing consumers' pleasure and enjoyment is crucial for assessing their intention to use electric public transportation. It advocates for integrating sustainability theory and the unified theory of acceptance and use of technology. Nuri C.O. & Murat K. et. al (2022) note that electric mobility is emerging globally to minimize environmental impacts, reduce dependency on petroleum, and diversify energy sources for transportation. Their research aims to identify gaps in the sustainability assessment of electric vehicles and offer strategies for adoption through integrated life cycle modeling approaches.

A qualitative study in Davao del Sur explored the lived experiences of jeepney drivers using Colaizzi's method, identifying themes around economic survival, passenger interactions, and responses to modernization (Winarto & Ong, 2023). In Baguio City, research on public transport modernization captured commuter and driver perspectives on social, economic, and environmental impacts (Nacion, 2022). These studies demonstrate the effectiveness of phenomenological methods in capturing stakeholder experiences in the Philippine public transport landscape.

While the existing literature offers valuable insights into the technical, economic, and environmental aspects of e-vehicle adoption, there is limited qualitative research that captures the lived experiences of commuters in smaller Philippine towns like Bustos, Bulacan. Most studies focus on urban centers such as Metro Manila or Cebu, overlooking how semi-rural or peri-urban communities perceive and adapt to the e-vehicle transition.

Moreover, little is known about the socio-cultural meanings, personal narratives of change, and day-to-day challenges faced by early adopters of e-vehicles in these areas. This study seeks to fill this gap by employing a phenomenological lens to explore how Bustos commuters navigate the shift to e-vehicle use, focusing on their experiences, perceptions, and the broader implications for sustainable transport development in the region. (Jensen et al. 2013) The flexible yet focused approach has

been instrumental in transportation studies where user experiences vary widely based on geographic, social, and economic contexts.

Research Objectives

1. To explore the lived experiences of daily commuters in Bustos, Bulacan, regarding the use of electric vehicles (e-vehicles) as a mode of transportation.
2. To examine the perceived benefits, challenges, and behavioral adjustments associated with the shift to e-vehicle commuting among local users.
3. To understand the social, environmental, and economic meanings that commuters attribute to their transition toward e-vehicle usage in the context of local mobility and sustainability.

Methodology

This study employed a qualitative phenomenological research design (Creswell & Poth,2018) to explore the lived experiences of daily commuters in Bustos, Bulacan, who utilized electric vehicles (e-vehicles) as their primary mode of transportation. The phenomenological approach was deemed appropriate as it allowed the researcher to capture the depth and richness of participants' subjective experiences, particularly how they made sense of the transition to e-vehicles in the context of their daily mobility, social environment, and economic circumstances.

Participants were selected using purposive sampling, specifically criterion sampling, which involves identifying individuals who meet predetermined qualifications relevant to the research. The study focused on individuals who had consistently used e-vehicles for commuting over the past six months. A total of 15 participants, including students, employees, and small business owners, were identified and invited to participate in the study. Criteria for inclusion included residency in Bustos, Bulacan, regular use of e-vehicles (such as e-bikes, e-trikes, or e-jeepneys), and willingness to share personal insights. The demographic diversity among participants enabled the study to capture various experiences and perspectives. Andrade et. Al. (2021), the understated importance of good sampling techniques in the design and interpretation of research. It states that this situation must change, indicating a need for greater emphasis and improvement in how sampling methods are applied and understood in research studies.

Data were gathered through semi-structured in-depth interviews, conducted face-to-face and, when necessary, via online platforms due to weather conditions or scheduling conflicts. Each interview lasted approximately 45–60 minutes and was

guided by an interview protocol developed based on the study's objectives. Questions probed into participants' motivations for using e-vehicles, perceived benefits and limitations, daily adjustments, emotional responses, and their reflections on environmental and economic impacts. With consent, all interviews were audio-recorded, transcribed verbatim, and translated from Filipino to English when applicable. DiCicco-Bloom & Crabtree et al. (2006), qualitative research methodologies, particularly semi-structured interviews, have been extensively employed in studies exploring the user perceptions and behavioral adjustments for adopting new technologies such as electric vehicles.

To analyze the data, the study followed Colaizzi's (1978) descriptive phenomenological thematic analysis, which involved seven steps: reading and re-reading transcripts, extracting significant statements, formulating meanings, clustering themes, developing an exhaustive description, identifying the fundamental structure of the experience, and validating findings with participants. Within this framework, thematic analysis identified recurrent patterns related to participants' motivations, challenges, environmental consciousness, and perceptions of green technology in e-vehicle use. These themes were then organized into broader categories that reflected sustainable mobility's socio-environmental and behavioral dimensions. This rigorous process ensured that emergent themes authentically reflected the participants' narratives and minimized researcher bias.

Ethical considerations were strictly observed throughout the study. Participants were informed of the research purpose, confidentiality protocols, voluntary participation, and their right to withdraw at any time. Ethical clearance was obtained from the institutional review board of the researcher's affiliated university. Anonymity was preserved by using pseudonyms and securely storing all data.

By grounding the inquiry in lived experience and contextual interpretation, the study provided deep insights into how e-vehicle commuting shaped people's daily lives, values, and mobility behaviors in Bustos. It also contributed to understanding the socio-environmental dimensions of sustainable transportation at the community level. Jeghers et al. (2023), the transportation challenges and inequities through new approaches and technologies, such as ridesharing. This implies a gap in understanding

how to effectively implement these solutions, particularly by assessing community transportation needs.

Results and Findings

Lived Experiences of Daily Commuters

As the global movement toward sustainable transportation gains momentum, local communities in the Philippines are beginning to adopt alternative mobility solutions such as electric vehicles (e-vehicles). In semi-urban municipalities like Bustos, Bulacan, e-vehicles, particularly e-bikes and e-tricycles, have emerged as practical, affordable, and eco-friendly alternatives to traditional fuel-powered transport. However, beyond technological features and environmental statistics lies the deeper question of how commuters personally experience and adapt to this transition. This study explores the lived experiences of daily e-vehicle users in Bustos, uncovering how convenience, environmental values, and social realities shape their daily journeys. Using a phenomenological lens, the research highlights the voices of individuals navigating this shift, offering insight into the social meanings, challenges, and opportunities that define their day-to-day mobility.

Practicality and Convenience in Local Travel

Many participants highlighted how e-vehicles such as e-bikes and e-trikes made their daily commutes more accessible and affordable. These vehicles offered a reliable alternative to conventional public transportation, especially for short distances within the town.

Participant 3:

"Mas madali pong makasakay ng e-trike papuntang palengke o barangay hall. Hindi na kailangan mag-abang ng matagal kagaya dati." (It's easier now to get a ride on an e-trike when going to the market or the barangay hall. There's no need to wait long like before.)

Participant 9:

"Yung e-bike ko, ginagamit ko araw-araw papasok sa trabaho. Hindi na ako nababahala sa gasolina. Sa kuryente lang, sobrang tipid." (I use my e-bike every day to go to work. I no longer worry about gas. I just charge it with electricity, and it's very cost-efficient.)

This theme shows that practicality and convenience play significant roles in Bustos' adoption of e-vehicles. Commuters are embracing e-vehicles not just out of

necessity, but because they improve daily routines through cost savings and increased mobility.

Environmental Awareness and Emerging Eco-Consciousness

Participants associated their use of e-vehicles with a positive impact on the environment. The absence of engine noise and harmful emissions was frequently cited as improving their communities' air quality and public health.

Participant 2:

"Kaya ako nag-e-trike kasi gusto ko rin makatulong sa kalikasan. Hindi ito mausok at tahimik pa. Hindi katulad ng lumang motor namin." (I chose to use an e-trike because I also want to help the environment. It does not produce smoke and is quiet, unlike our old motorcycle.)

Participant 11:

"May mga kapitbahay na rin na nakapansin na parang mas presko ang hangin ngayon. Marami na kasi ang gumagamit ng e-vehicles." (Some of our neighbors have noticed that the air seems fresher nowadays. That's because many are now using e-vehicles.)

This theme reflects a developing environmental consciousness among local commuters. Their shift to e-vehicles is practical and a personal and moral choice aligned with sustainability and climate responsibility.

Adaptive Challenges and Community Perceptions

Despite the practical benefits, users encountered challenges such as limited charging infrastructure and societal perceptions. Some felt that e-vehicles were not yet entirely accepted as viable long-term transportation options by the broader community.

Participant 9:

"May mga tao pa rin na tingin sa e-bike ay parang laruan. Iniisip nila na hindi ito pangmatagalan o seryoso." (Some still see e-bikes as toys but think they are not durable or serious enough for daily commuting.)

Participant 13:

"Minsan nahihirapan ako kapag malayo ang pupuntahan. Wala kasing sapat na charging station. Sa bahay lang talaga ako nakakakarga." (Sometimes I struggle when I must travel far. There aren't enough charging stations. I can only charge my bike at home.)

This theme reveals that social attitudes and infrastructure gaps still influence how commuters experience the use of e-vehicles. Although early adopters see the

potential, wider acceptance and system support are essential for e-vehicles to become mainstream and sustainable.

The lived experiences of daily commuters in Bustos, Bulacan, show how the transition to electric vehicles is both enabling and evolving. E-vehicles provide affordable, practical, and environmentally friendly transportation. However, the journey also involves navigating logistical challenges and shifting social perceptions. These stories illustrate that adopting e-vehicles is about embracing a new technology and shaping a new culture of sustainable and responsible commuting in a local context.

Perceived Benefits, Challenges, and Behaviors

The growing popularity of electric vehicles (e-vehicles) in the Philippines marks a significant shift in how people approach everyday mobility, particularly in towns like Bustos, Bulacan. As economic pressures, environmental awareness, and the search for accessible transport converge, more local commuters are transitioning from traditional fuel-powered vehicles to electric alternatives such as e-bikes and e-trikes. However, beyond the technological appeal of e-vehicles lies a more complex reality shaped by how individuals perceive their usefulness, cope with infrastructural and social limitations, and adapt their daily routines. This part of the study explores how Bustos commuters navigate the benefits, challenges, and behavioral changes associated with e-vehicle use, offering insight into the human experience behind a broader movement toward sustainable transportation.

Cost-efficient and Practical Alternative

Many participants emphasized the financial relief provided by e-vehicle use, and with traditional transportation costs rising due to fuel price fluctuations, electric vehicles, particularly e-bikes and e-trikes, offered a cheaper, more predictable option. Commuters did not have to rely on daily fares or weekly refueling, which made

budgeting easier, especially for workers and small-scale vendors. The simplicity of charging at home further reduced costs and logistical stress.

Participant 1:

"Simula nang gumamit ako ng e-bike, halos kalahati na ang nabawas sa gastos ko sa pamasahe buwan-buwan.") Since I started using an e-bike, I've cut almost half of my monthly transportation expenses.)

Participant 8:

"Kahit walang masyadong kita, nakakabiyahe pa rin ako araw-araw dahil hindi ko na kailangang bumili ng gasolina." (Even with low income, I can still commute daily because I no longer need to buy gasoline.)

This theme reflects how economic pragmatism drives innovation acceptance. For many Bustos residents, using e-vehicles was not just a preference but a necessity. The shift represents a micro-level response to macroeconomic pressures, where local users innovate at the grassroots level by adopting low-cost alternatives. In effect, e-vehicles become tools of financial resilience, empowering users to maintain productivity despite economic constraints. This also highlights a subtle democratization of mobility, where access to affordable transport is no longer limited by fuel dependence.

Usage Challenges and Infrastructure Limitations

Though commuters saw e-vehicles as practical, they also pointed out severe limitations. Battery life and lack of charging infrastructure were common concerns. These restrictions caused users to adjust routes, shorten their trips, or resort to traditional transport for longer distances. Some even avoided traveling at night or during bad weather due to the risk of battery failure and limited roadside support.

Participant 5:

"Kapag malayo ang destinasyon, hindi ko na ginagamit ang e-bike kasi baka maubusan ng karga sa gitna ng daan." (English): "If the destination is far, I don't use my e-bike because it might run out of charge in the middle of the road."

Participant 11:

"Wala kasing sapat na charging station dito sa amin. Sa bahay lang talaga puwedeng mag-charge kaya limitado ang biyahe." "There are not enough charging stations in our area. I can only charge at home, so my trips are limited."

This theme exposes a critical gap between technological adoption and systemic readiness. Users' experiences show that the local transportation ecosystem has not kept pace while individual behavior has shifted. These limitations create stress, uncertainty, and partial dependence on traditional transport, undermining the full

potential of e-vehicle integration. Moreover, the challenge is not only technical—it is socio-political. Without strong municipal support for infrastructure development, e-vehicle usage may remain marginal or unsustainable in the long term. The narrative thus reflects a transitional phase of innovation, where enthusiasm exists but enabling conditions are lagging.

Behavioral and Perspective Shifts in Commuting

Participants reflected on how e-vehicle use prompted a more mindful and proactive commuting style. Unlike passive commuting in public vehicles, using an e-bike or e-trike requires attention to battery levels, weather conditions, route safety, and time management. Users became more self-reliant, careful, and engaged in decision-making. It also meant taking personal accountability for safety, maintenance, and sustainability.

Participant 6:

"Dati sanay akong sumakay ng tricycle o jeep. Ngayon, mas conscious na ako sa oras at ruta kasi ako na mismo ang nagmamaneho." (I used to rely on tricycles or jeeps. Now, I'm more conscious of time and routes because I'm driving myself.)

Participant 13:

"Mas naging responsable ako. Iniisip ko palagi kung sapat pa ang charge, kung may ulan, o kung ligtas ba ang daraanan." (I have become more responsible. I always consider whether the battery is enough, if it will rain, or if the road is safe.)

This theme reveals a transformational shift in the commuter's role, from a dependent passenger to an autonomous traveler. The transition to e-vehicles cultivated a deeper awareness of time, environment, and safety. These changes are behavioral and identity-forming: commuters begin to see themselves as responsible, eco-conscious individuals with control over their mobility. This shift fosters a culture of ownership, resilience, and sustainable awareness, laying the groundwork for broader societal changes in how transportation is perceived and practiced.

The transition to e-vehicle commuting among Bustos residents is profoundly personal and multidimensional. While mainly driven by economic necessity, the shift reveals structural barriers and behavioral transformations. Participants shared how e-vehicles relieved financial stress, provided newfound independence, and exposed them to infrastructural gaps and social adjustment demands. More than just a mode of travel, e-vehicles became catalysts for rethinking movement, responsibility, and environmental stewardship. Their experiences offer valuable insight into how

grassroots innovation and behavioral shifts can shape the future of sustainable transport, especially when local contexts are given center stage.

Social, Environmental, and Economic Meanings that Commuters Attribute

The transition to electric vehicles (e-vehicles) among local commuters in Bustos, Bulacan reflects a response to practical mobility needs and a deeper redefinition of values, responsibilities, and social identity. As users shift from traditional fuel-powered transport to electric alternatives, their commuting behavior becomes intertwined with perceptions of environmental stewardship, economic survival, and civic responsibility. This section of the study investigates how commuters ascribe meaning to their use of e-vehicles, not merely as a mode of transportation, but as a symbolic act rooted in personal, social, and ecological consciousness. By exploring these lived meanings, the study uncovers how electric mobility is understood concerning sustainability, community well-being, and economic empowerment within a semi-urban Philippine context. This inquiry is essential to framing e-vehicle adoption as a technological advancement and a culturally and economically situated transformation in everyday life.

Social Identity and Responsibility

Participants expressed that their use of e-vehicles carried social meaning beyond personal convenience. They perceived themselves as part of a broader movement toward cleaner and more responsible commuting. E-vehicle usage was not only functional but also became a visible expression of civic duty, environmental awareness, and even social leadership within their local communities.

Participant 2:

"Parang mas may silbi ako sa komunidad kapag gumagamit ako ng e-trike. Hindi ako nakakadagdag sa usok sa paligid." (I feel more useful in the community when I use an e-trike. I'm not adding to the pollution in the area.)

Participant 10:

"May mga kapitbahay na humahanga kasi pinili kong gamitin ang e-bike. Para sa kanila, isa akong halimbawa ng modernong pag-iisip." (Some neighbors admire that I chose to use an e-bike. To them, I'm an example of modern thinking.)

This theme underscores how technology adoption, particularly in smaller communities like Bustos, is deeply embedded in social dynamics and personal identity. Commuting via e-vehicle positions users as agents of change, neighbors who inspire others by modeling environmentally responsible behavior. This reflects a

transition in commuter consciousness: from passive transportation users to proactive contributors to collective well-being.

Environmental Consciousness and Eco-Commitment

E-vehicle users consistently framed their decisions as acts of environmental stewardship. They were aware that choosing electric transportation helped reduce air pollution and contributed to a healthier community. Some viewed their actions as investments, not only in their well-being but in the long-term health of future generations.

Participant 4:

"Isa sa mga dahilan kung bakit ako lumipat sa e-bike ay dahil gusto ko makatulong sa kalikasan. Hindi ito tulad ng motor na mausok." (One of the reasons I shifted to an e-bike is because I want to help the environment. It's not like a motorbike that emits smoke.)

Participant 12:

"Kapag maraming gumagamit ng e-vehicles, mas magiging malinis ang hangin natin. Nakikita ko ito bilang investment sa kinabukasan ng mga anak natin." (If more people use e-vehicles, our air will be cleaner. I see this as an investment in the future of our children.)

This theme reveals that environmental motivations are not abstract ideals, but personal, emotional commitments grounded in local experience. Commuters do not simply adopt green practices for trend or convenience; they connect them to legacy, intergenerational responsibility, and ethical living. This personal stake in sustainability gives deeper meaning to everyday actions like riding an e-bike instead of a gas-powered tricycle.

Practical Economics and Financial Empowerment

Participants viewed their transition to e-vehicles as a financial strategy. E-bikes and e-trikes allowed them to reduce recurring transport costs, avoid fuel price fluctuations, and reclaim control over their commuting schedule. The savings

accumulated weekly and were redirected toward other household needs or personal spending.

Participant 6:

"Hindi na ako araw-araw nagbabayad ng pamasahe. Sa isang linggo, halos dalawang daan ang natitipid ko. Malaking bagay 'yon." (I no longer spend money on daily fares. I save almost two hundred pesos a week. That's a big deal.)

Participant 13:

"Mas may kontrol ako sa oras at gastos. Dati kasi kailangan ko pang mag-abang ng jeep. Ngayon, e-bike na lang, mas madali at mas mura." (I have more control over my time and expenses. Before, I had to wait for a jeep. Now with the e-bike, it is easier and cheaper.)

This theme emphasizes how commuters frame their shift as economic empowerment. E-vehicle usage is not just about frugality; it reflects a broader desire for autonomy, self-reliance, and security in the face of rising transport costs. In this context, sustainable transportation is a climate solution and a tool for improving household resilience and economic dignity.

Commuters in Bustos, Bulacan, assign profound social, environmental, and economic meanings to their adoption of e-vehicles. For them, riding an e-trike or e-bike is not simply a matter of practicality but a conscious expression of civic identity, ecological responsibility, and financial self-sufficiency. These meanings reflect an intensely local understanding of sustainability, where mobility choices are intertwined with community values, family welfare, and personal integrity. The transition toward e-vehicles is thus not only a technological shift, but a moral and cultural realignment grounded in the lived realities of everyday Filipino life.

Discussion

The study's findings illustrate that Bustos commuters attach profound social, environmental, and economic significance to their shift toward e-vehicle use. Many participants highlighted financial relief as a driving factor, noting weekly savings of ₱200 or more and reduced dependency on gasoline fares. This echoes Saflor et al.'s (2024) findings, where cost reduction was identified as a significant motivator in the adoption of electric vehicles (EVs) in the Philippines (Cueto et al.). In this context, e-bikes and e-trikes become more than modes of transport; they serve as grassroots economic innovations, supporting mobility and resilience among low-income residents.

However, participants also experienced apparent infrastructural deficiencies, especially concerning insufficient charging options and limited battery range. These infrastructural issues have been highlighted in national surveys on EV adoption,

which cited range anxiety and infrastructure as top deterrents. Likewise, Cueto, Uy, and Diaz (2021) found that in General Santos City, sustainable transport via e-tricycles was constrained by infrastructure gaps, despite its operational advantages. The experiences of Bustos riders reflect a broader Philippine pattern: technological availability without adequate support ecosystems can limit the transformative potential of e-mobility.

More compellingly, participants articulated a powerful sense of social identity and environmental responsibility, expressing pride in contributing to cleaner air and setting a model for others. This sentiment aligns with findings from Nacion's (2022) assessment, which contrasted the operational efficiency of e-trikes with motorized tricycles and noted their potential for broader community acceptance. In Bustos, adopting e-vehicles transcended practical benefits, symbolizing a moral alignment with community welfare and ecological stewardship.

A significant behavioral transformation also emerged: commuters no longer passively ride; they proactively plan routes, monitor battery levels, evaluate weather, and assume safety responsibilities. This mirrors findings from operational studies in Pampanga, where e-trike drivers demonstrated disciplined commuting behavior regarding route planning and maintenance. It suggests that e-mobility fosters a shift in commuter identity, from passive to agentive, environmental, and strategic travelers.

This study's findings highlight a multidimensional transformation in local mobility: financial savings and environmental attention drive e-vehicle adoption, but infrastructure and social support shape its sustainability. Bustos exemplifies the broader narrative of EV integration in developing contexts, a balance of grassroots adoption and systemic readiness. Without supportive infrastructure and policy, individual innovation risks being unsustainable; yet systemic change cannot fully materialize without individual uptake.

Conclusions

This study explored the lived experiences of e-vehicle commuters in Bustos, Bulacan, revealing that the transition to electric mobility is a multifaceted process shaped by economic, environmental, and social dimensions. Participants highlighted the practical and financial benefits of e-vehicle use, such as lower transportation costs, independence from fuel dependence, and convenience in daily routines. These economic advantages served as a gateway to broader behavioral changes, as users adapted to new responsibilities in route planning, battery management, and safety awareness.

Beyond individual utility, the findings demonstrate that commuters associate e-vehicle use with a sense of environmental responsibility and social identity. Many saw themselves as contributors to cleaner air and role models for sustainable practices in their communities. This underscores a shift in mobility from a purely functional activity to a moral and cultural act, grounded in the principles of ecological citizenship and local empowerment.

However, the study also revealed persistent infrastructural and perceptual barriers. Limited charging stations, range anxiety, and public misconceptions hindered the full integration of e-vehicles into daily life. These findings emphasize the need for holistic policy interventions that promote e-vehicle adoption and build the necessary infrastructure and cultural awareness to sustain it.

In conclusion, using e-vehicles in Bustos is more than a technological shift; it is a community-based transition toward sustainability, informed by lived experience, shaped by local realities, and driven by necessity and vision. This study provides empirical evidence that supporting grassroots mobility innovations like e-vehicles can generate cleaner transport and more empowered and environmentally conscious citizens.

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