RESEARCH ARTICLE

LEVEL OF EFFECTIVENESS OF LAND TRANSPORTATION OFFICE PORTAL TO THE USERS AND PERSONNEL IN LAGUNA LICENSING CENTER

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ARTICLE DETAILS

ABSTRACT

The purpose of the study is to determine the level of effectiveness of Land Transportation Office Portal to the users and personnel in Land Transportation Office Laguna Licensing Center. Particularly, it aims to identify the demographic profile of the users and personnel in terms of age and ICT competence, determine the perceived level of effectiveness of Land Transportation Office portal among the users and personnel in terms of information quality, design and functions, reliability, security and privacy protection, system responsiveness, perceived usefulness, user satisfaction, and continuance intention. This research study utilized a descriptive - survey design. Total enumeration was applied to the personnel, while simple random sampling was used for the users. A self-constructed questionnaire was used as the research instrument, and the data collected was analyzed through simple linear regression analysis, frequency and percentage distribution, weighted mean, independent T- test, and one-way analysis of variance. Based on the findings, the majority of respondents were between the ages of 16 and 25, and the majority had intermediate ICT competence. The study concluded that the LTO portal was highly effective in terms of information quality, design and functions, reliability, security and privacy protection, system responsiveness, perceived usefulness, user satisfaction, and continuance intention. However, there were significant differences in perceptions based on age and ICT competence, suggesting the need for targeted improvements in these areas. Establishment of a monitoring tool for the LTO portal is recommended for its continuous enhancement.

KEYWORDS

e-government, ICT competence, portal, user satisfaction, security, and privacy

1. INTRODUCTION

The Land Transportation Office (LTO) is a government agency providing services through its web portal, established by Executive Orders 125 and 125A in 1987. LTO's responsibilities include vehicle registration, driver's license issuance, law enforcement, and managing apprehension cases (GOVPH, 2022). In response to Memorandum Circular No. 2020-2181, the LTO launched its Land Transportation Management System (LTMS) on May 18, 2020. Accessible at https://portal.lto.gov.ph, the portal facilitates services such as student permit applications, driver/conductor license services, renewals, record revisions, and certifications. Account creation is necessary for portal usage, aligning with the agency's shift to the new normal during the pandemic (PhilStar Wheels, 2021).

The LTO portal offers online services for transactions anytime and anywhere, prioritizing a customer-centric, frictionless, and paperless approach. The LTMS is a crucial element in the agency's five-year IT modernization initiative, enhancing efficiency and providing clients with convenient online services. In the Philippines, e-government is defined as using ICTs and electronic media to transform service delivery, fostering better relationships with citizens, businesses, and public bodies. This approach aims to create a digitally empowered government offering responsive, open, and online services tailored to citizens' needs, contributing to the nation's competitiveness (Daily Tribune, n.d.).

E-government services, typically offered through government-managed web portals, are influenced by factors like quality, functionality, reliability, and security and privacy protection. The quality of these web portal services is a key factor affecting user adoption and retention, shaping the utilization of e-government platforms by end users (Jiang and Ji, 2014, as cited in Jurnal Intelek, 2022).

2. REVIEW OF LITERATURE AND STUDIES

Under the Memorandum Circular No. 2020-2181, re; Implementation of the New Land Transportation System (LTMS), said to launched last 18 May 2020, primarily aims and aids the spread of the Corona Virus spread in LTO offices and agencies that are regularly visited by high volume of citizens. According to Journal Online article The Land Transportation Management System, or LTMS, is the LTO's online platform that enables drivers to, among other things, apply for a driver's license, schedule renewals, register motor vehicles, undergo motor vehicle inspection, and connect to driving schools (Journal Online, 2023). According to Dermalog, IT designer of the Land Transportation Office's new interactive consumer website, the driving public can save billions in fees and costs by using LTMS. Til Dunkel, project director of Dermalog Philippines added Driving public spends less time and effort interacting with the LTO because customers can schedule visits to the office using the LTMS, which also makes it convenient for them to complete the necessary paperwork from the comfort of their homes or places of business.

According to Recuenco the LTMS, an online platform managing the majority of transactions and operations at the LTO, is consistently criticized for slower-than-expected interactions (Recuenco, 2022). Despite its intended purpose of facilitating quick and straightforward activities at the Land Transportation Office (LTO) through its online

system, users report experiences that deviate from the anticipated efficiency. The LTO office in Baguio City has reportedly witnessed an increased number of visitors due to delayed document processing under the newly implemented system. Similar challenges have been observed in other LTO offices, where sluggish Internet connectivity remains a persistent issue. Additionally, difficulties have been reported in the transfer of information into the LTMS by vehicle insurance companies (Manila Bulletin - the Nation's Leading Newspaper, 2022).

A group researchers investigation assessed the significance of e-governance in addressing the challenges posed by the COVID-19 pandemic and enhancing the sustainability of the China-Pakistan Economic Corridor (CPEC) (Ullah et al., 2020). The study examined various indices, revealing an improvement in China's e-governance, contrasting with a gradual decline in Pakistan's rating. The findings suggested a need for substantial improvements in Pakistan's long-term socioeconomic development. The study recommended that Pakistan draw inspiration from China and other successful e-government models to effectively combat the pandemic and achieve sustainable progress. It proposed restructuring the government and implementing value-added digital policy features to enhance e-governance, address health crises like COVID-19, and promote sustainable development. Additionally, the study underscored the role of e-government in leveraging information and communication technologies for the empowerment of women and fostering gender inclusivity. The literature in this study underscores the importance of e-government in providing public services to the community, emphasizing the need for ICT competence in navigating web portals. It highlights advantages, especially in promoting health security during the COVID-19 period and identifies areas for evaluation to enhance community service through this approach.

Moreover, Bajar uncovered that nations globally allocate substantial public resources to fund their online presence through e-governments, significantly impacting various aspects of human life (Bajar, 2020). The internet has transformed governance and previously intricate government functions into more convenient processes. However, this virtualization has led to the politicization of e-governments, raising concerns about the autonomy government agencies have over their platforms. The study highlights that such authority can be misused for political or personal objectives, potentially amplifying personality politics in the national political scene. It is crucial to recognize that the government invests substantial funds in maintaining these websites and internet platforms. The study emphasizes the need for administrative accountability, as neglecting this responsibility with public funds involved is considered a blatant breach of administrative duties.

Moreover, Salvio's research emphasizes the importance of the accessibility of e-government services, especially for individuals with disabilities (Salvio's, 2020). Despite the global debate on citizens' perceived value in using these technologies, Salvio calls for additional studies to identify determinants affecting citizens' actual potential to benefit from e-participation. In the Philippines, Salvio's survey revealed that 77% of 12 e-government websites were deemed inaccessible, contrasting with the assessment of only 18% by 15 disabled individuals from various locations. The majority of these websites were found not to comply with WCAG 2.0 guidelines. Salvio proposes guidelines for improving e-Government website accessibility to eliminate obstacles limiting social and professional interactions for persons with disabilities (Extending the Evaluation on Philippine E-Government Services on Its Accessibility for Disabled Person, 2020).

In a study, governments globally have endeavored to incorporate electronic governance into their existing software applications, facing challenges in meeting citizens' increased expectations for new, effective, efficient, and modern internet-based services (Rabaai et al., 2015). The study, utilizing an expanded version of the Technology Adoption Model (TAM) with Kuwait as a case study, explores the determinants influencing the use of e-government services in developing countries. The findings indicate that perceived utility, perceived ease of use, computer self-efficacy, personal standard, believed trustworthiness, mindset, and intention to act contribute to explaining e-government service acceptance. Computer self-efficacy, perceived credibility, and subjective norm were identified as influencers of the perceived utility and convenience of e-government offerings. However, the study emphasizes that perceived utility is the most critical factor shaping the attitudes of Kuwaiti individuals toward e-government service adoption (Research and Reviews - International Journals).

In the study of explores the profound impact of ICT advancements on citizens' behavior and conduct, challenging conventional modes of operation and communication for individuals and governments (Kayote et al., 2020). The discourse on e-Government in public service delivery has

been ongoing for over two decades, with its multidisciplinary nature spanning information technology, political science, public administration, and political science. E-Government, though lacking a universal definition, represents a departure from the norm, emphasizing the use of ICT to redefine government systems and processes. The study underscores the varied interpretations of e-government, with scholars viewing it either as an end in itself or as a means to an end. The effective implementation of e-public service delivery is considered an accomplishment of a government's primary objective, reducing e-government to a tool to achieve specific ends.

The literature presented in this study emphasizes the significance of e-government in providing public services to the community. It advocates for the development of ICT competence for navigating web portals, particularly highlighting advantages during the COVID-19 period to enhance health security. The literature also identifies areas to be evaluated, aiming to understand deficiencies and optimize community service through this method. Similarly, Rabbai and Shang and Li concluded that the adoption of government services can be explained by factors such as perceived usefulness, perceived ease of use, computer self-efficacy, subjective norm, perceived credibility, attitude, and behavioral intention (Rabbai, 2015; Shang and Li, 2020). The quality of e-government services encompasses features associated with the delivery of specific public services. Technical dimensions, including system quality, dependability, security, and accessibility, support service provision on government websites. Various variables, such as information quality, dependability, security and privacy protection, system responsiveness, perceived usefulness, and user satisfaction, contribute to the overall evaluation. Other researchers, both domestic and international, differ in their research approaches, data collection methods, and instruments, but most share positive results regarding the impact of implementing e-government and utilizing websites for community service.

2.1 Theoretical Framework

This study is grounded in the Means-End Chain Theory (MEC) 1982 by Gutmen, a value-based cognitive framework guiding decision-making and consumer behavior. MEC links a product's physical attributes to intangible psychological principles. While empirically validated in various sectors, there is a lack of cumulative literature evaluation on MEC (Borgart, 2020).

Means-end theory significantly influences the study variables. In the context of the LTO portal, users evaluate its design, functionality, reliability, security, and responsiveness based on how well it helps them achieve their end goals related to land transportation services. For instance, users assess the portal's design and functionality based on its effectiveness in tasks like vehicle registration. Reliability is gauged by consistent information access and transaction execution. Security and privacy protection are evaluated based on the portal's ability to safeguard personal information during online transactions.

The responsiveness of the LTO portal is considered a means to efficiently achieve users' end goals without delays. Applying the Means-Ends Theory helps understand how users evaluate different aspects of the portal concerning their potential to assist in achieving intended objectives in land transportation services. According to Jiang and Ji (cited in Jurnal Intelek), the general standard of an e-government web portal significantly affects user satisfaction and perceived usefulness, contingent on users' goals (cited in Jurnal Intelek, 2022). Therefore, evaluating users' primary objectives and the level of service provided is essential. The service level of an e-government website is classified into three main categories based on users' goals: information acquisition, information exchange, and transaction processing (Jiang and Ji, 2014, cited in Jurnal Intelek, 2022).

First, the model consists of one external variable — overall service quality — and seven inherent variables — overall perceived service quality, efficiency value, democracy value, inclusiveness value, PSV, contentment, and intention to continue using the service. Service quality is comprised of eight criteria: system quality, dependability, security, accessibility, information quality, service capacity, interactivity, and responsiveness. Lastly, in terms of post-adoption, this model focuses on highlighting the mediating effect of perceived value on the correlation between the service quality and users' intention to reuse, as well as the connections between service quality as a whole and each dimension of perceived value (Jiang and Ji, 2014, as cited in Jurnal Intelek, 2022).

2.2 Statement of the Problem

This study aims to determine the level of effectiveness of Land Transportation Office Portal to the users and personnel in Land Transportation Office Laguna Licensing Center. It sought answers to the

following questions:

1. What is the demographic profile of the users and personnel in terms of:

1.1 Age, and

1.2 ICT Competence?

2. What is the perceived level of effectiveness of Land Transportation Office portal among the users   and personnel in terms of:

2.1 Information quality;

2.2 Design and functions;

2.3 Reliability;

2.4 Security and privacy protection;

2.5 System responsiveness;

2.6 Perceived usefulness;

2.7 User satisfaction; and

2.8 Continuance intention?

3. Is there a significant difference on the level of effectiveness of the Land Transportation Office portal among the users and personnel when grouped according to profile?

4. What recommendations can be proposed to enhance the efficiency of the new land transportation management system among the users?

2.3 Hypothesis

There is no significant difference on the assessed level of effectiveness of the Land Transportation Office portal among the users when grouped according to profile.

2.4 Research Methods

The study adopts a descriptive design using a survey method, aiming to assess the level of effectiveness of the LTO portal for users and licensing department personnel. The questionnaire, developed based on various theories, underwent validation for quality enhancement. The self-constructed questionnaire consists of three main sections, covering demographic information and evaluating the LTO portal's effectiveness across various categories. The research employed both total enumeration for personnel and simple random sampling for users. COVID-19 safety measures were observed during data collection. Quantitative data analysis involved simple linear regression analysis, and statistical treatment included descriptive and inferential statistics, using tools like Independent

T-test and Anova for comprehensive evaluation and comparison among respondent groups.

3. RESULTS AND DISCUSSION

3.1 Profile of the Respondents

Table 1: Profile of the Respondents in terms of their Age

Age (in years)	Count	Percentage	Count	Percentage
	LTO Clients		LTO Employees	
16 to 25	163	42.67	0	0
26 to 35	126	32.98	6	54.55
36 to 45	57	14.92	3	27.27
46 to 55	27	07.07	1	09.09
56 and above	9	02.36	1	09.09
Total	**382**	**100.00**	**11**	**100.00**

As shown above, respondents from LTO clients, 42.67% or 163 were in the age brackets 16-25, 32.98% or 126 were in the age brackets 26-35, 14.92% or 57 were in the age bracket 36-45, 7.07% or 27 were in the age bracket 46-55, and 2.36% or 9 were in the age bracket 56 and above. The age range of most respondents was bracket 16-25 while the least were 56 and above. On the other hand, the largest number of respondents from LTO employees was in the age bracket of 26-35 while the lowest is the age bracket of 16 - 25 followed by 46 and above.

Table 2: Profile of the Respondents in terms of their ICT Competence

ICT Competence	Count	Percentage	Count	Percentage
	LTO Clients		LTO Employees	
Beginner	120	31.41	0	00.00
Intermediate	182	47.64	2	18.18
Expert	80	20.94	9	81.82
Total	**382**	**100**	**11**	**100**

Based on table 2, there are more of the LTO clients are intermediate when it comes to ICT competence with the frequency of 182 for the LTO clients and about 9 respondents are experts for the LTO employees with the frequency of 9. The result implied that most LTO clients are categorized as intermediate in ICT competence, it is crucial to ensure that the LTO's digital platforms and services are user-friendly and intuitive. While the number of LTO employees categorized as ICT experts is smaller, their presence still holds value. These experts can play a crucial role in assisting clients who face more complex ICT-related issues or challenges.

3.2 Perception of the Respondents on the Effectiveness of Land Transportation Office Portal

Table 3: Perception of the Respondents on the Effectiveness of Land Transportation Office Portal in terms of its Information Quality

Indicators	$\bar{x}$	s	Verbal Interpretation	$\bar{x}$	s	Verbal Interpretation
	LTO Clients			LTO Employees		
1. Information is updated in time.	4.62	0.66	Extremely Effective	4.82	0.4	Extremely Effective
2. Information is relevant.	4.68	0.58	Extremely Effective	4.82	0.4	Extremely Effective
3. Information meets my needs.	4.63	0.67	Extremely Effective	4.82	0.4	Extremely Effective
4. Information is complete.	4.68	0.64	Extremely Effective	4.73	0.47	Extremely Effective
Overall Mean	**4.65**		**Extremely Effective**	**4.80**		**Extremely Effective**

Table 3 indicates respondents perceive the LTO portal as highly effective in terms of information quality, with an x value of 4.65. This suggests a positive view of the portal's ability to deliver accurate, reliable, and relevant information. The strong agreement on this scale emphasizes the portal's effectiveness in providing quality information. The importance of respondents' perceptions of information quality cannot be overstated. A highly effective perception implies accurate, relevant, timely, and comprehensible information, fostering well-informed decisions and favorable outcomes. Positive perceptions build trust, loyalty, support, and advocacy from stakeholders. Consistently delivering high-quality information enhances an organization's reputation, credibility, and standing within the community. Effective information quality facilitates

better communication, collaboration, cooperation, and understanding with stakeholders.

Organizations benefit from improved decision-making, heightened trust, enhanced reputation, better communication, and increased stakeholder satisfaction when respondents perceive information quality as highly effective. This aligns with Qutaishat's idea that information quality reflects users' recognition of a website's value, with informativeness and security as key indicators (Qutaishat's, 2012). Informativeness gauges a website's ability to inform users about alternative products or services, while security assesses the level of trust in online financial transactions.

Table 4: Perception of the Respondents on the Effectiveness of Land Transportation Office Portal in terms of its Design and Functions						
Indicators	$\bar{x}$	s	Verbal Interpretation	$\bar{x}$	s	Verbal Interpretation
	LTO Clients			LTO Employees		
1. The function is sufficient for me.	4.6	0.67	Extremely Effective	4.55	0.69	Extremely Effective
2. It provides me with personalized service function.	4.54	0.71	Extremely Effective	4.55	0.52	Extremely Effective
3. It has a clear navigation bar.	4.57	0.68	Extremely Effective	4.64	0.50	Extremely Effective
4. It is easy to use.	4.57	0.70	Extremely Effective	4.55	0.52	Extremely Effective
5. It is attractive.	4.50	0.69	Extremely Effective	4.55	0.52	Extremely Effective
Overall Mean	**4.56**		**Extremely Effective**	**4.57**		**Extremely Effective**

Table 4 reveals that respondents perceive the Land Transportation Office (LTO) Portal's design and functionality as highly effective, with an x value of 4.56. This indicates positive reception of the portal's interface, layout, usability, and features, meeting user needs. The high rating suggests users find the portal visually appealing, easy to navigate, and equipped with useful functionalities, enhancing their overall experience. This positive perception reflects LTO's success in developing a user-friendly portal, implying high usability, efficiency, and visual appeal. Effective design and functionality significantly enhance user experience, leading to increased satisfaction, loyalty, and engagement. Organizations consistently delivering quality design and functionality build a positive reputation, reducing support costs and providing a competitive advantage. These findings align with idea that patient portal design plays a crucial role in usage (Lazard et al., 2016). Despite significant investments, low utilization may result from neglecting design impact. Visual appeal, usability, trust, and credibility influence user engagement, encouraging continued portal usage despite technical difficulties.

Table 5: Perception of the Respondents on the Effectiveness of Land Transportation Office Portal in terms of its Reliability						
Indicators	$\bar{x}$	s	Verbal Interpretation	$\bar{x}$	s	Verbal Interpretation
	LTO Clients			LTO Employees		
1. It runs stably.	4.61	0.61	Extremely Effective	4.18	0.60	Very Effective
2. It is available at all times.	4.58	0.65	Extremely Effective	4.09	0.54	Very Effective
3. It can perform the operation accurately.	4.65	0.60	Extremely Effective	4.45	0.52	Extremely Effective
4. It functions 24/7.	4.56	0.66	Extremely Effective	4.36	0.67	Extremely Effective
Overall Mean	4.60		Extremely Effective	4.27		Extremely Effective

Table 5 reveals that respondents highly rate the reliability of the Land Transportation Office (LTO) Portal, with an x value of 4.6. This indicates their strong confidence in the portal's ability to consistently provide accurate, up-to-date, and error-free information and services. The elevated rating suggests minimal issues, such as system crashes or data inaccuracies, during portal use, emphasizing a positive user experience. The reliability of the LTO portal is perceived as trustworthy, establishing it as a dependable platform for accessing services and information.

An extremely effective perception of reliability implies a high level of trust in the evaluated product, service, or system, contributing to increased user satisfaction and continued usage. This trust serves as a robust indicator of the organization or company's success and sustainability. These findings align with Li and Shang's concept that accountable governments should prioritize listening to the voices of the populace (Li and Shang's, 2020). Citizens engaging with government websites expect a faster and more efficient feedback process for expressing their opinions and needs.

Table 6: Perception of the Respondents on the Effectiveness of Land Transportation Office Portal in terms of its Security and Privacy Protection						
Indicators	$\bar{x}$	s	Verbal Interpretation	$\bar{x}$	s	Verbal Interpretation
	LTO Clients			LTO Employees		
1. It can protect my personal privacy.	4.59	0.63	Extremely Effective	4.55	0.52	Extremely Effective
2. It does not misuse my personal information.	4.62	0.59	Extremely Effective	4.64	0.5	Extremely Effective
3. It has adequate security protection.	4.6	0.62	Extremely Effective	4.64	0.5	Extremely Effective
4. Using transaction services provided by the website is safe.	4.63	0.6	Extremely Effective	4.64	0.5	Extremely Effective
Overall Mean	4.61		Extremely Effective	4.62		Extremely Effective

Table 6 indicates a favorable perception of the Land Transportation Office (LTO) Portal's security and privacy effectiveness, with an x value of 4.61. This reflects confidence in the portal's capacity to protect personal information, prevent unauthorized access, and uphold data confidentiality. The high rating implies trust in robust security measures, such as encryption and secure authentication.

A strong perception of security and privacy suggests public confidence in the LTO's online portal, potentially leading to increased usage for vehicle registration and driver's licenses, streamlining processes. This heightened trust aligns with the Philippines' Data Privacy Act of 2012, emphasizing the need for robust security and privacy measures. These findings support Jiang and Ji's study, linking users' intent to continue using e-government services with factors like service quality, including information quality, dependability, web design, functional features, security, and privacy protection (Jiang and Ji's, 2014). These factors significantly influence users' decisions and interactions with e-government services.

Table 7: Perception of the Respondents on the Effectiveness of Land Transportation Office Portal in terms of its System Responsiveness						
Indicators	$\bar{x}$	s	Verbal Interpretation	x	s	Verbal Interpretation
	LTO Clients			LTO Employees		
1. It quickly responds to the public problem.	4.5	0.69	Extremely Effective	3.82	0.4	Very Effective
2. The feedback solves the user's problem.	4.49	0.69	Extremely Effective	4.09	0.54	Very Effective
3. It provides effective communication service.	4.54	0.66	Extremely Effective	4.27	0.65	Extremely Effective
4. It asks if I am satisfied and my requirements are met.	4.55	0.67	Extremely Effective	4.09	0.54	Very Effective
Overall Mean	4.52		Extremely Effective	4.07		Extremely Effective

Table 7 displays respondents' perceptions of the Land Transportation Office (LTO) Portal's system responsiveness, yielding an x value of 4.52. This indicates a positive outlook on the portal's efficiency in responding to actions and requests, with minimal delays. The high rating suggests a smooth user experience, reflecting satisfaction with the LTO portal's prompt and effective operation. Respondents perceive the portal as a highly responsive platform for accessing LTO services and information, enhancing their overall experience.

An extremely effective perception of system responsiveness implies public satisfaction with the speed and performance of the LTO online portal. This responsiveness can improve the user experience, making it more convenient and efficient for various transactions, potentially reducing the need for in-person visits to LTO offices and saving time and costs for both the public and the LTO. A responsive system contributes to the public's positive perception of the LTO's efficiency in providing services and improves overall operational efficiency. These findings align with Jiang and Ji's concept that information quality, design/function, dependability, security and privacy, and system responsiveness collectively gauge service quality for web portals (Jiang and Ji's, 2014).

Table 8: Perception of the Respondents on the Effectiveness of Land Transportation Office Portal in terms of its Usefulness						
Indicators	x	s	Verbal Interpretation	x	s	Verbal Interpretation
	LTO Clients			LTO Employees		
1. It provides useful information for me.	4.69	0.62	Extremely Effective	4.55	0.52	Extremely Effective
2. It provides valuable service for me.	4.69	0.57	Extremely Effective	4.55	0.52	Extremely Effective
3. In, general, I think it is useful.	4.72	0.54	Extremely Effective	4.82	0.40	Extremely Effective
Overall Mean	4.70		Extremely Effective	4.64		Extremely Effective

Table 8 presents respondents' perceptions of the Land Transportation Office (LTO) Portal's effectiveness in terms of usefulness, with an x value of 4.7. This indicates a positive outlook on the portal's value and benefits in meeting respondents' needs. The high rating implies that users believe the portal provides relevant and practical information, services, and features, contributing to their satisfaction with its usefulness. The LTO portal is perceived as a valuable tool for accessing services, obtaining information, and completing transactions.

A highly useful LTO online portal is likely to be more widely utilized for various transactions, improving the overall user experience and efficiency for the public. This enhanced usefulness contributes to a positive perception of the LTO's ability to deliver effective and efficient services. Furthermore, a useful system can improve the overall efficiency of LTO operations, leading to faster processing times and improved productivity. These findings align with Li and Shang's study, emphasizing the importance of adding value for citizens through e-government services to meet the needs of the public (Li and Shang's, 2020). The value provided by e-government services plays a crucial role in their validity and effectiveness.

Table 9: Perception of the Respondents on the Effectiveness of Land Transportation Office Portal in terms of its User Satisfaction						
Indicators	x	s	Verbal Interpretation	x	s	Verbal Interpretation
	LTO Clients			LTO Employees		
1. I am satisfied with the service provided.	4.67	0.58	Extremely Effective	4.73	0.47	Extremely Effective
2. I am satisfied with the using experience.	4.65	0.59	Extremely Effective	4.64	0.5	Extremely Effective
Overall Mean	4.66		Extremely Effective			

Table 9 illustrates respondents' perception of the Land Transportation Office (LTO) Portal's effectiveness in terms of user satisfaction, with an x value of 4.66, indicating an extremely positive response. Users are pleased with the portal's overall functionality, usability, and performance, finding it user-friendly, efficient, and effective in meeting their needs. This high satisfaction level suggests the portal successfully meets user requirements, provides a positive experience, and fulfills expectations. Users' satisfaction is crucial for increased portal usage, convenience, positive brand image, and enhanced LTO efficiency. Prioritizing user satisfaction and continual portal improvement are essential for meeting user needs and expectations.

Moreover, this finding aligns with emphasizing the importance of user satisfaction in software development. Improving the user experience (UX) is critical for user happiness and usability value, contributing to effective, efficient, and satisfactory usage (Sukanto, et al., 2020). Lack of user demand specification hinders product development goals and ignores the UX process, emphasizing the need for a focus on improving UX in software development.

Table 10: Perception of the Respondents on the Effectiveness of Land Transportation Office Portal in terms of the Continuance Intention						
Indicators	$\bar{x}$	s	Verbal Interpretation	$\bar{x}$	s	Verbal Interpretation
	LTO Clients			LTO Employees		
1. I trust the portal.	4.65	0.59	Extremely Effective	4.73	0.47	Extremely Effective
2. I would like to continue to use the portal.	4.69	0.57	Extremely Effective	4.73	0.47	Extremely Effective
3. I will recommend it to my relatives and friends.	4.69	0.62	Extremely Effective	4.73	0.47	Extremely Effective
Overall Mean	4.68		Extremely Effective	4.73		Extremely Effective

Table 10 reveals respondents' perception of the Land Transportation Office (LTO) Portal's effectiveness in continuance intention, with an x value of 4.68, indicating an extremely positive response. Users express a strong inclination to continue using the portal, perceiving it as valuable and beneficial to their needs, with positive outcomes motivating their intention for future utilization. This high rating reflects a sustained intention among users, indicating the portal's successful engagement and satisfying user experience, fostering a desire for continued long-term usage. Additionally, the result aligns with Sasongko's notion that trust and user continuance intention are influenced by perceived security and privacy, emphasizing the importance of addressing these concerns to enhance user confidence in the program (Sasongko's, 2022).

3.3 Difference on the Perceptions of the Effectiveness of Land Transportation Office Portal when Grouped according to the Profile Factors

Table 11: Results of the Test of Difference on the Perceptions of the Effectiveness of Land Transportation Office Portal when Grouped according to Age.

Variables	F-value	p-value	Verbal Interpretation
1. Information Quality	4.019	0.003	significant
2. Design and Functions	5.154	0.000	significant
3. Reliability	3.241	0.012	significant
4. Security and Privacy Protection	3.283	0.012	significant
5. System Responsiveness	2.366	0.052	not significant
6. Perceived Usefulness	2.358	0.053	not significant
7. User Satisfaction	2.057	0.086	not significant
8. Continuance Intention	1.709	0.147	not significant

Legend: p<0.05 significant

Table 11 displays computed probability values regarding respondents' perceptions of the Land Transportation Office Portal, grouped by age. Values for the first four variables were .003, .000, .012, and .012, all below the 0.05 significance level, leading to the rejection of the null hypothesis. This indicates a significant difference in perceptions based on age for information quality, design and functions, reliability, and security and privacy protection. However, the second four variables had probability values above 0.05, leading to the acceptance of the null hypothesis. This suggests no significant difference in perceptions based on age for system responsiveness, perceived usefulness, user satisfaction, and continuance intention. The findings imply that certain age groups hold distinct perceptions of the Land Transportation Office Portal's effectiveness. For instance, the youngest age group differs significantly from the oldest age group, suggesting varying levels of effectiveness for different demographics. Additionally, these results align with Gibbons' observation that diverse age groups have distinct expectations and preferences in web design (Gibbons', 2019).

Table 12: Results of the Test of Difference between the Perceptions of the Respondents Grouped by their ICT Competence on the Effectiveness of Land Transportation Office Portal

Variables	F-value	p-value	Verbal Interpretation
1. Information Quality	17.864	0.000	significant
2. Design and Functions	9.670	0.000	significant
3. Reliability	5.030	0.007	significant
4. Security and Privacy Protection	8.759	0.000	significant
5. System Responsiveness	6.901	0.001	significant
6. Perceived Usefulness	8.210	0.000	significant
7. User Satisfaction	6.657	0.001	significant
8. Continuance Intention	9.185	0.000	significant

Legend: p<0.05 significant

Table 12 presents computed probability values for respondents' perceptions of the Land Transportation Office Portal, grouped by their ICT competence. The values (.000, .000, .007, .000, .001, .000, .001, .000) were all below the 0.05 significance level, leading to the rejection of the null hypothesis. This indicates a significant difference in perceptions based on ICT competence. The findings suggest that distinct levels of ICT competence result in significantly different perceptions of the LTO Portal's effectiveness. Respondents with low ICT competence differ significantly from those with high ICT competence, highlighting varying levels of effectiveness for different competence levels. Moreover, these results align with Korkmaz and Sahin's study, which found that respondents with higher ICT competence were more likely to use e-government services (Korkmaz and Sahin's, 2020). The study emphasizes the importance of providing assistance and training to users with lower ICT competence to encourage greater utilization of these services.

4. CONCLUSIONS

Based on the study's findings, the following conclusions can be drawn:

The majority of respondents were aged between 16 and 25, with the fewest above 56. Among LTO employees, those aged 26 to 35 provided the most answers, while the age groups of 16 to 25 and 46 and above had the fewest responses. Most respondents demonstrated intermediate ICT competence, while LTO personnel predominantly exhibited expertise in this area.

The Land Transportation Office (LTO) Portal's effectiveness, as perceived by respondents, was notably high across various dimensions such as information quality, design and functions, reliability, security and privacy protection, system responsiveness, perceived usefulness, user satisfaction, and continuance intention. The prevalent responses of "Strongly agree" and "Agree" indicate the portal's positive impact on users.

There was a significant difference in perceptions based on age for information quality, design and functions, reliability, and security and privacy protection. However, no significant differences were observed for system responsiveness, perceived usefulness, user satisfaction, and continuance intention. There was also no significant difference based on gender, but there was a significant difference based on ICT competence.

The implementation of a monitoring tool for LTO portal users holds substantial benefits for both the Land Transportation Office and its users. This tool can identify technical issues, enhance user experience, track usage patterns for portal design improvements, and bolster portal security. Leveraging insights from the monitoring tool enables the LTO to provide superior services, ultimately enhancing the efficiency and effectiveness of land transportation in the Philippines. Therefore, introducing a monitoring tool is a pivotal step toward improving overall user experience and portal security.

RECOMMENDATIONS

Based on the findings and conclusions of this research, the following recommendations are made:

Provide focused training and support for users aged 16-25 to enhance their ICT skills and portal familiarity, using tailored tutorials, workshops, or online resources. Leverage the expertise of LTO employees aged 26-35 to enhance portal design and functionality, involving them in research to identify areas for improvement. Implement mentorship programs to bridge knowledge gaps among employees, facilitating the transfer of ICT expertise. Adopt a user-centric design for the portal, ensuring a friendly interface, clear instructions, and intuitive navigation. Regularly evaluate and gather feedback through surveys or usability testing, incorporating insights into portal updates.

Sustain and improve information quality through regular updates. Address technical issues to enhance reliability for LTO employees,

providing necessary training and support. Strengthen security and privacy measures through regular updates. Optimize system responsiveness for LTO employees by minimizing loading times. Continuously gather user feedback, involving both clients and employees in the improvement process.

Given significant age-based differences in perceptions, tailor the LTO portal's features to each age group's needs. Conduct user research within age groups for insights into portal design and functionality. Address gender-based differences in perceptions of ICT competence by providing targeted training and support, ensuring equal opportunities for both male and female users.

Propose guidelines for the establishment of monitoring tool for the users.

And thus, further recommends:

- DOTr and LTO may be designed a user-friendly portal offering diverse services, including driver's license applications and vehicle registration renewals. Security measures like two-factor authentication protect users' information, ensuring accessibility for all, including those with disabilities. Timely updates and notifications, along with user support, are provided, and continuous improvements are made based on feedback.

- LTO employees may be well-versed in the portal's features, assisting users and encouraging its efficient use. They provide support, address user feedback for improvements, and ensure the portal complies with the latest policies. Confidentiality and security of user data are maintained.

- Student and driver applicants may maximize the LTO portal for license applications, document submissions, and fee payments. Feedback on issues or suggestions for improvement is welcomed, and personal data security is emphasized.

- Future researchers may explore the LTO portal's design, impact on services, strengths and weaknesses, user feedback analysis, and data security measures, making comparisons to similar online services.

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