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RESEARCH ARTICLE

Transforming Digital Services: An Empirical study on the impact of TANGEDCO Mobile Application among Users in Vellore District

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ABSTRACT

Contemporary or modern society has transformed and revolutionized our daily lives in myriad ways and forms. The Internet provides a space and platform for the users or beneficiaries to get their tasks done in an efficient and less time-consuming manner. Digital media has traversed our lives so much that we are overly dependent on the internet and the applications that are present on our smartphones. In the current digital era, mobile applications have become synonymous with our daily lives. Users utilize mobile applications for a variety of purposes, and in the recent past, have embraced utility payments and bill payments through mobile applications. Research studies revealed that online transactions in India amounted to 14 lakh crore rupees or 9 billion US Dollars as of July 2023. Although there are several areas where transactions take place through various applications, one particular area that has witnessed a significant transformation is the electricity bill payment process. The advent of mobile apps, specifically the TANGEDCO mobile apps in the Vellore district, Tamil Nadu has streamlined and simplified the payment procedure, providing convenience and efficiency to consumers. This article explores the impact of mobile apps on electricity bill payments and highlights how TANGEDCO apps have positively influenced the process in Vellore district, Tamil Nadu. The research study adopts quantitative research approaches through questionnaires to elicit responses and meet the objectives of the study.

Keywords: *M-Apps, E-Governance, Digital Services, TANGEDCO, Digital transactions.*

INTRODUCTION

From E-governance to M-governance

E-governance refers to the utilization of electronic and digital technologies to facilitate the operation and transformation of government processes and services. E-

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governance applications have gained substantial momentum due to their capacity to bridge the gap between citizens and government entities. Bannister, F., and Connolly, R., (2012) gave their definitions and perspectives on e-governance from a global perspective. E-governance has its roots in the 1980s in India. Prabhu, CSR (2013) in his book E-governance: Concepts and Case Studies explored various facets of e-governance spoke in-depth on the concepts, definitions, history, and evolution. It also spoke about the various e-governance activities and initiatives made by various state governments.

The core objective of e-governance is to provide enhanced quality government services to citizens and in turn, accelerate the communication process through effective technological usage. It also addresses reducing government spending, providing more accountability, reducing corruption and subjectivity, reducing the cost to people of implementing infrastructural projects and making the government more open and accountable (Gaspar and Leite, 1989). Studies have demonstrated that m-governance propels governance by breaking social, cultural, and digital barriers between the government and the end-users or beneficiaries. The authors explored the potential aspects of m-governance and found several key successful ways of implementing and improving m-governance at all levels (Pandey, R., and Sekhar, K.V. 2013). Scholars explored the burning question of bridging the digital divide concerning e-governance and m-governance. They employed the spoke and hub model to meet the objectives of the study (Narayan, G. 2007).

REVIEW OF LITERATURE

Transparency and Information Dissemination

Transparency is a cornerstone of good governance and crucial in the policy-making process. Scholars explored the potential and effectiveness of m-governance in the effective delivery of services from the governments to the consumers (Deep, M.K. and Sahoo, G. 2011). Finger, M., & Pécoud, G. (2003) in their study focussed on the travel of the concept of e-government to e-governance in the world. Their study focussed on the major role played by local people and governments and also on how governance has emerged and made its foray and journey towards emerging governance mechanisms and the conceptualization of e-governments and e-governance. E-Governance is facilitated by the inventive use of knowledge and communications technology to help people and users to be beneficiaries of government services and policies. The decrease in operational price and increase in efficiency: According to Bwalya (2018), proper implementation of e-governance practices and reforms culminates in improved public service delivery for the citizens. K P Rao (2018) found out that e-governance improves the potency of the current system of paperwork and reduces the necessity for pulling in a lot of workforces.

Citizen Engagement and Participation

Heeks, R. (2001) in his article spoke at length on how e-governance can be used effectively for development purposes. For him, the end users or the citizens need to accept mediation processes between them and the government agencies. Saxena K.B.C. (2005) in his study spoke about citizen engagement and participation and more predominantly on the reasons and factors that contribute to their failure. He attributed the chief reason for the failure in aspects of focus being techno-centric rather than governance-centric for the betterment of e-governance. Agatayeva (2016) added information provided to citizens in a very timely fashion is envisioned to enhance the transparency of government and it will help to empower citizens to observe the performance of the government. Ham et al. (2015) pointed out that transparency allows citizens to know a government's accomplishments as a result of the govt providing them the required info.

Mishra, S., & Singh, M. (2020) developed a conceptual framework and architecture for m-governance. They concluded that a proper structural framework increases the effectiveness and delivery of essential services to the customers and end-users. Pardeshi, V., (2014) concluded in her study that due to lack of proper vision about m-governance, the vast potential of m-governance continues to be untapped. Cegarra-Navarro, J. G., Garcia-Perez, A., & Moreno-Cegarra, J. L. (2014) explored how knowledge aided in the dissemination of information and the utilization of technology for governance purposes. Several researchers have pointed out how Information Communication Technologies (ICT) contributes immensely towards efficient learning, and at the same time does cost reductions for the government machinery at the grassroots level (Criado and Ramilo, 2003; Carter and Belanger, 2005; Badri and Alshare, 2008; Lean et al., 2009). ICT also serves a driving force for public administration related tasks and activities. Official town websites are highly visible manifestations of city developments and are used for collecting and paying money according to the regulations of city councils (Lean et al., 2009).

Fresh perspectives also provide a view of ICT as a driver for public administration to become more open and transparent, to enable democratic participation and networked activism (Land, 2009), to become more service-oriented by providing personalised and inclusive services to each citizen (Ward et al., 2003; Foot and Schneider, 2006), to become more productive and to deliver maximum value for taxpayers' money as well as for any ICT investment (Park and Perry, 2008). The term user engagement can be defined as a phenomenon through which individuals formulate meanings and actions that reflect their desired degree of participation in individual and societal decision-making processes (Gatautis et al., 2011). A particular type of user engagement is citizen engagement. It may be defined as individual and collective courses of action that are designed to identify and address matters of public concern (Hays,

2007). From this perspective, citizen engagement includes efforts to directly address an issue, work with others in a community to solve a problem or interact with the local institutions.

Efficiency and Service Delivery

Dawes S.S., (2008) in his study explored the evolution and challenges in e-governance for several players such as the users, and various key stakeholders at various levels. He concluded in his study that an electronic commerce guide for the states, e-government strategic planning, enterprise e-government, and leveraging e-government activities were needed to keep the e-governance mechanisms in place and move towards better policy-making by including the key stakeholders in the process of legislation and making it into a law or code. Seifert, J. W. (2003) in his study explored various sectors, factors, opportunities, and challenges of online governance. It also spoke at length on improving the delivery of essential services to the people through e-governance. Iyer, J., & Singh, S. (2017) explored the effective utilization of e-governance and m-governance initiatives in India. They concluded that m-governance is an alternative channel for offering various services to the citizens.

Accountability and Monitoring

E-governance applications facilitate rigorous monitoring and evaluation of policy outcomes. Real-time data collection and analysis tools enable governments to assess the impact of policies continuously. This data-driven approach enhances accountability by holding government entities responsible for achieving predetermined targets. Moreover, citizen access to performance metrics and progress reports fosters a sense of vigilance and encourages governments to maintain transparency in their actions. The availability of comprehensive data also aids in identifying areas that require policy adjustments, leading to evidence-based policy refinement. Okot-Uma, R. W. O., & London, C. S. (2000) in their study spoke about e-governance existing as a form of electronic democracy by being a platform for the voiceless people. For them, it is also a greater and an efficient way of empowering people whilst improving the accountability of public servants and monitoring them.

Case Studies

Kaur, B. (2010) explored the various facets of the key factors influencing the implementation of 4g with mobile ad-hoc networks in an m-governance environment. Tomer, G., Chauhan, G. S., & Panigrahi, P. K. (2016) looked at the feasibility of m-governance in agriculture. Sundar, D. K., & Garg, S. (2005) explored the frameworks present in local bodies for m-governance. Dhal, S., Mishra, D., & Mishra, N. (2021) looked at the various e-Governance, issues, and challenges in m-Governance services and sectors in India. They also explored the strategies for e-Service, e-Governance, and Cybersecurity, and the challenges and solutions for efficiency and sustainability. Several mobile applications across states have been proven to be helpful for end users to make their tasks easier. These include getting e-versions of their birth certificates, educational certificates, and even property deeds and documents, and that too at no cost and without corruption and bribes to the public servants (Agatayeva, S., 2016).

RESEARCH METHODOLOGY

Objectives, and Hypothesis of the Study

The specific objectives of this study are

1. To analyze the demographics characteristic of respondents on the usage of TN Government m-apps on their smart phones in Chennai and Vellore Districts of Tamil Nadu.

2. To examine the reasons for using the TN Government m-apps.

3. To understand and identify the factors influencing the respondents on the usage of TN Government m-apps on their smart phones.

Theoretical Framework and Conceptual Model

The Technology Acceptance Model (TAM) (Davis, F. D. (1989) was adopted from the Theory of Reasoned Action (Ajzen &Fishbein, 1975) and the Theory of Planned Behaviour (Ajzen, 1991). Davis (1989) experimented with the behavioral and attitudinal variables as used in the TRA and TPB. The study also revealed the External stimulus (system design features), cognitive response, perceived usefulness (PU), the perceived ease of use (PEOU), affective response (attitude towards using), and behavioral response (actual system use). Further the study also explained the causal relationship and links between the perceived usefulness (PU), perceived ease of use (PEOU), attitude towards using, actual usage, and the behaviour intention for specific causes.

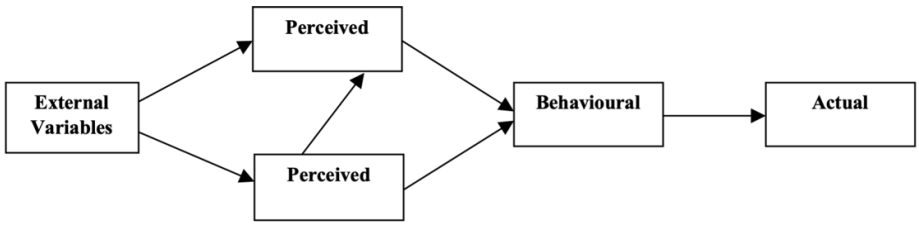

Figure 1 Technology Acceptance Model proposed by Fred Davis and his Team in 1989

Locale of the Study

The state of Tamil Nadu in India and its citizens have been chosen as the locale of the study. More specifically only two districts i.e. Chennai and Vellore were chosen to collect data for this research work. The major reason for choosing Chennai district is that 'it is the headquarter of the state as well as a metropolitan city. The researcher wanted to choose another district that is adjacent to the headquarter which is also rather developing district in terms of digitalisation. Therefore, Vellore district was also chosen. These two districts cover both rural and urban areas. Chennai being a district of metrocity more open to advanced developments and Vellore stands as unique and wide spread developing areas where more initiatives are taken by the government to reach out and benefit the people through M-apps.

Data Collection

For this study, a very well-structured questionnaire was used to collect data. About 500 questionnaires were distributed in the selected locale of the study, i.e. in Chennai and Vellore districts. Out of the 450 duly filled questionnaires, 200 questionnaires were collected from the Vellore District where the current study was conducted. The data was collected during August to December 2025 across two districts of Tamil Nadu.

Data Analysis and Statistical Tools Used

The data collected from the respondents were analyzed with statistical tool SPSS v16 and presented the same as tables, Pie-charts and bar charts diagrams, etc. The results were analyzed and compared with descriptive analysis and inferential analysis. The other tools used for analysis are Non-Parametric Friedman Test, Chi-square analysis, Average score analysis, Cross Tabulation analysis, Simple Regression Analysis, and Structural Equation Model. The results of the study were analysed using various statistical tools. The data collected from the respondents were analysed and presented in the form of tables and bar charts as a statistical tool. The results were compared and analysed by using descriptive analysis and inferential analysis. The data were analysed with SPSS version 16.0 and was carried on with Descriptive analysis, Non-Parametric Friedman Test, Chi-square analysis, Average score analysis, One way Analysis of Variance (ANOVA).

Non-Parametric Friedman Test

The Friedman test is a nonparametric alternative to the repeated measures of analysis of variance. It is the nonparametric equivalent of a one-sample repeated measures design or a two-way analysis of variance with one observation per cell. Friedman tests the null hypothesis that k related variables come from the same population. The Friedman nonparametric test is used to identify the factor, which is more influencing the respondent towards the shared value.

Chi-Square Analysis

The Chi-square analysis is used to test the significance of the association between two attributes. In other words, this technique is used to test the significance of the influence of demographic characters over the m-apps Usage Behaviour, awareness and perception level, Factors leading to use government m-apps, Number of m-apps installed on your Smartphone, Factor that influence to use Government m-apps, Language preferred to use m-apps, Level of Attitude towards m-apps". All the tests were carried out at a 5 percent level of significance with Yates correction in the source table.

Cross Tabulation Analysis

The researcher had made use of the cross-tabulation method in cross-checking the relationship with different variables. Effort has been made to find out different level in using the government m-apps between gender, age, education, and occupation.

Limitations of the Study

The current research study is based on samples from only one district – Vellore. Due to the samples were chosen on the basis of the demographic factors involving mix of both urban and rural respondents and the social strata.

DATA ANALYSIS, PRESENTATION, AND FINDINGS

Table 1. Respondents' Gender

Respondents' Gender	Frequency	Percentage
Male	90	45%
Female	110	55%
Total	200	100%

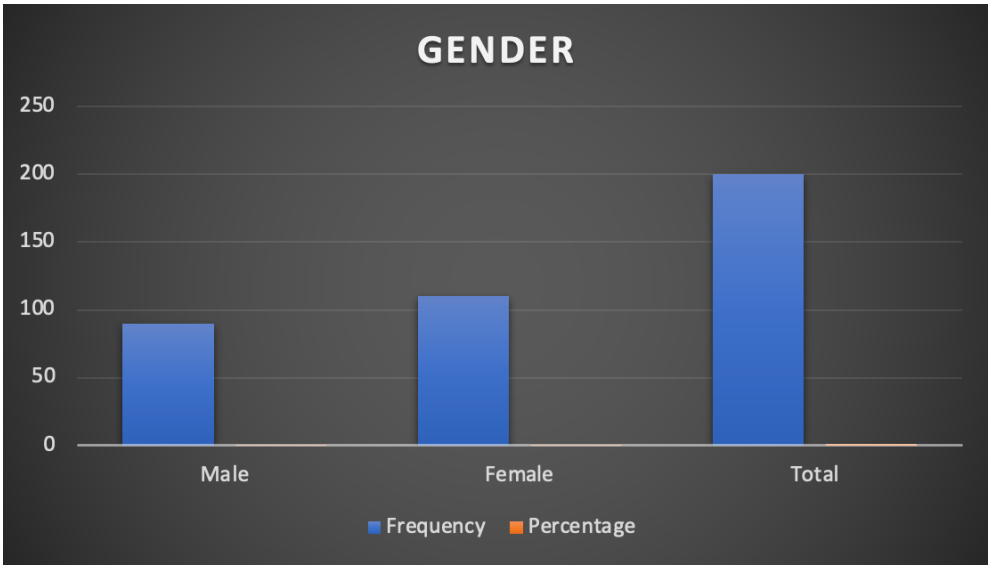

Figure 2 LEGEND: X-Axis: Gender, Y-Axis: Frequency

Regarding Gender of the respondents the study illuminated that female respondents made up 55% and male respondents made up 45%. It is inferred that female respondents are using digital India apps more than their male counterparts.

Table 2 Age Group

Age Group	Frequency	Percentage
18-21	65	32.5%
22-25	75	37.5%
26-29	60	30%
Total	200	100%

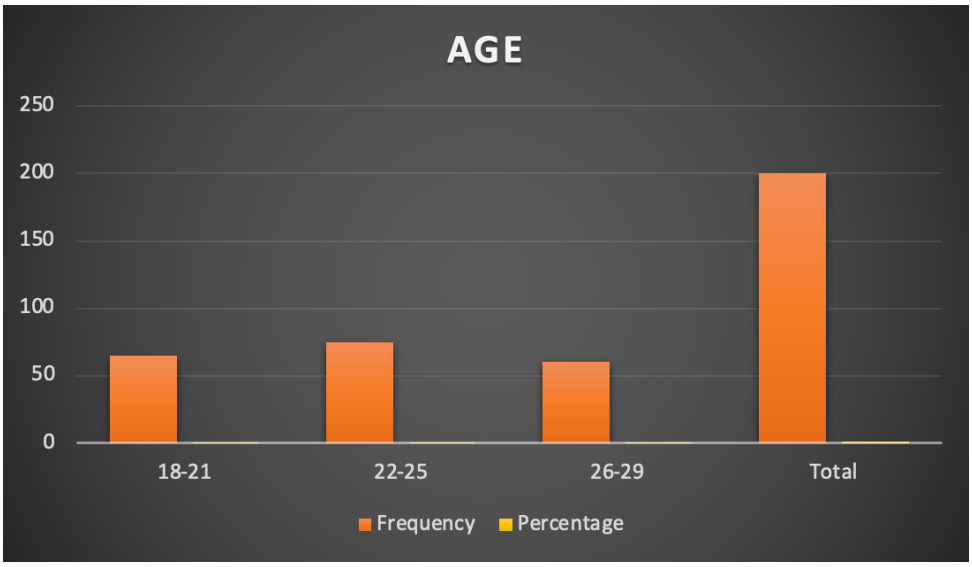

Figure 3 LEGEND: X-Axis: Age Group, Y-Axis: Frequency

As regards the Age group, the study illuminated that, respondents in the age group of 22 - 25 years were the maximum with 37.5% followed by respondents in the age group of 18 - 21 years with 32.5%. Respondents in the age group of 26 – 29 years were the least with 30%. Thus, it can be interpreted that the age group between 21-30 years are the ones who use Smartphones in the highest percentage. The findings corelates to Vijayalakshmi, G.T. and Manimozhi, N. (2018) study on smartphone users confirmed that the age group 21 – 30 is the highest percentage of Smartphone users. According to Selwyn, N. (2004) older people may have a lack in knowledge to use digital devices and their applications so that they may spend lesser money and time

towards the use of digital devices. Both the early researches have correlated and supported the present data and findings.

Table 3 Educational Qualification

Educational Qualification	Frequency	Percentage
10th	65	32.5%
12th	55	27.5%
UG	50	25%
PG	30	15%
Total	200	100%

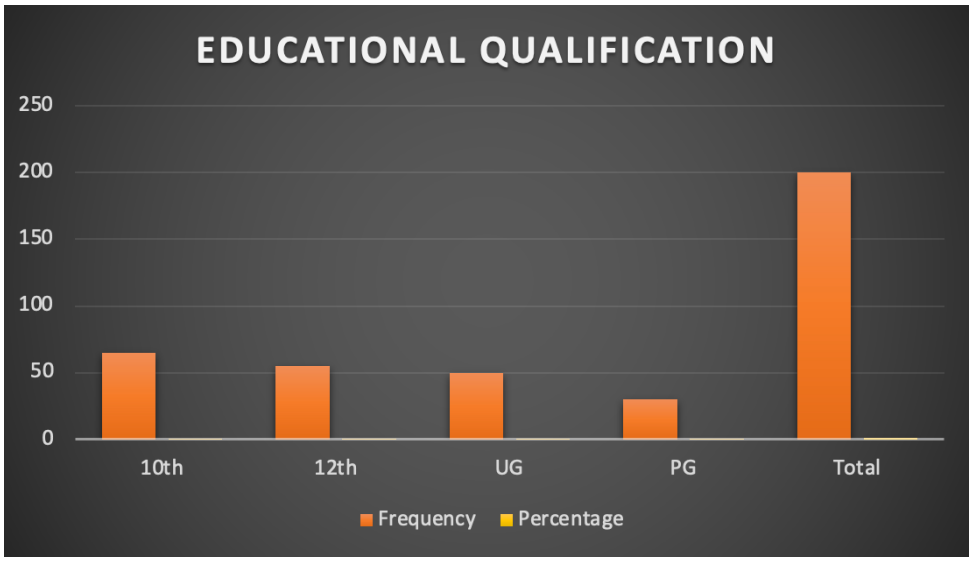

Figure 4 LEGEND: X-Axis: Educational qualification, Y-Axis: Frequency

As regards educational qualification, the research study illuminated that 10th respondents were the highest with 32.5% followed by 12th respondents with 27.5%. UG respondents came next with 25%. PG respondents are the least with 15%. It is inferred that the major percentage of respondents are having very less education.

Reasons for Using TANGEDCO M-Application

Table 4 Friedman Test- Reasons to use Tamil Nadu Government's M-apps

	N	Mean	SD	Mean Rank	Reliability
Easy to access	200	3.91	1.06	6.27	
To collect information	200	3.98	1.02	**6.58**	
To get Government Documents Certificates	200	3.66	1.21	5.56	
Less time consuming	200	3.93	0.96	6.29	
Easy procedures	200	3.55	1.00	4.91	
Avoiding Q's	200	4.22	0.99	**7.27**	0.6994
Less paperwork	200	3.86	0.85	5.92	
Cost effective	200	4.01	0.95	**6.45**	
Corruption free	200	3.90	1.10	6.28	
Good Output Quality	200	3.61	0.96	5.24	
Result Demonstrability	200	3.56	1.05	5.22	

In order to identify the reason, which is more influencing the respondents towards using Tamil Nadu Government's m-apps, the Friedman's test analysis was used and the results are given in Table 4. It could be noted from the table that among the 11 factors "Avoiding Q's" was ranked first. The reason "To collect information" is ranked second and the reason "Cost effective" is ranked third and the reliability is 0.6994.

Table 5 Friedman Test- Factors relating to Perceived Ease of Use

	N	Mean	SD	Mean Rank	Reliability
Installing and using the Government M-apps is easy clear and understandable	200	3.88	0.98	1.98	
Browsing with Government M-apps does not require lot of mental efforts	200	3.96	1.03	**2.06**	0.599
I developed a skill whatever I want to do with the use of Government M-apps	200	3.75	1.15	1.96	

It could be noted from the Table 5 that among the 3 factors "Browsing with government m-apps does not require lot of mental efforts" was ranked first. The factor "Installing and using the government m-apps is easy, clear and understandable" is ranked second. This may be because the apps are mostly designed in vernacular language and so the local people could easily use them with clear understanding. The factor "I developed a skill whatever I want to do with the use of government m-apps" is ranked third may be because of the simple and easy to use the apps one develops particular skill to use the system. Table 5 confirms that the reliability is 0.599.

Table 6 Friedman's Test- Factors relating to Perceived Usefulness

	N	Mean	SD	Mean Rank	Reliability
I find Government M-apps useful in my job, business, and other government related activities. It makes it easier and improves my performance in all the areas	200	3.72	1.09	1.95	
Government M-apps increases job productivity and enables me to accomplish tasks more quickly	200	3.88	1.06	**2.18**	0.598
Using the Government M-apps enhances effectiveness in my job/business and other government related activities	200	3.50	0.95	1.87	

It could be noted from the Table 6 that among the 3 factors "government m-apps increases job productivity and enables me to accomplish tasks more quickly" was ranked first. Today the world is quick in everything. The consumers of any government related service apps want to carry out their activities fast and quick which would increase their job efficiency. The factor "Using the government m-apps enhances effectiveness in my job/business and other government related activities" is ranked third and the reliability is 0.598.

Table 7: Friedman Test- Behaviour Intention to use TN Government M-apps

	N	Mean	SD	Mean Rank	Reliability
I will strongly recommend others to use it	200	3.74	1.03	**2.85**	
I will use Government m-apps in the near future	200	3.63	0.93	2.68	0.595
I intend to use the Government m-apps for my educational purposes	200	3.20	1.09	2.13	
I intend to use the Government m-apps as frequently as possible	200	3.43	0.98	2.35	

It could be noted from the table 7 that among the 4 factors "I will strongly recommend others to use it" was ranked first. It is followed by the "I will use government m-apps in the near future". "I intend to use the government m-apps as frequently as possible" was ranked third and the reliability is 0.595. Mobile apps are a crucial tool for various mobile services like mobile health, banking, and mobile learning (m-learning) (Alalwan et al., 2018; Briz-Ponce et al., 2017; Hoque and Sorwar, 2017; Nikou and Economides, 2017; Crompton and Burke, 2018).

Table 8: Friedman Test- Attitude towards using TN Govt's M-apps

	N	Mean	SD	Mean Rank	Reliability
I get satisfied information through the Government M-apps	200	3.65	0.89	7.06	
Surfing on the Government M-apps is not boring	200	3.09	1.05	5.07	
I do not think that surfing Government M-apps scary	200	3.50	0.98	6.57	0.777
I have never been frustrated with the Government M-apps	200	3.19	1.37	5.63	
I like the idea to use Government M-apps for easy information accessibility	200	3.69	1.15	**7.37**	

Government M-apps are pleasant to use	200	3.43	1.23	6.38
Time spent on Government M-apps is worthwhile	200	3.15	1.12	5.47
I enjoy searching information on the Government M-apps through search engines and Government browsers in my smart phone	200	3.05	1.12	5.12
Using Government M-apps in education is a wise idea	200	3.33	0.89	6.15
Government M-apps bringing us in to a bright new era	200	3.69	0.89	7.13
The Government M-apps has become an indispensable tool in day today life	200	3.81	0.99	**7.73**
The Government M-apps could be a choice for avoiding intermediate brokers and to reduce corruption in the government system	200	4.10	1.14	**8.33**

From the analysis of Table 8, it can be interpreted that the users of government m-apps do not want any brokers or intermediate agents to get involved in giving away the government services to them. People too find these apps more accessible because of their user-friendly technology.

Hypothesis

Null hypothesis (H_0): The hypothesized model has a good fit.

Alternate hypothesis (H_1): The hypothesized model does not have a good fit

Null hypothesis (H_{01}): There is no significant influence of Perceived ease of use on Attitude towards usage

Alternate hypothesis ($H1_1$): There is significant influence of Perceived ease of use on Attitude towards usage

Null hypothesis (H_{02}): There is no significant influence of Perceived usefulness on Attitude towards usage

Alternate hypothesis (H_{12}): There is significant influence of Perceived usefulness on Attitude towards usage

Null hypothesis (H_{03}): There is no significant influence of Attitude towards usage on Behaviour intention to use

Alternate hypothesis (H_{03}): There is significant influence of Attitude towards usage on Behaviour intention to use.

Estimate

Table 9: Estimate

			Estimate Un standardized	Standardized	S.E.	C.R.	P
Attitude towards usage	<---	Perceived ease of use	0.763	0.246	0.106	7.171	***
Attitude towards usage	<---	Perceived usefulness	0.240	0.080	0.103	2.324	0.020*
Behaviour intention to use	<---	Attitude towards usage	0.175	0.413	0.012	13.906	***
Behaviour intention to use	<---	Perceived usefulness	0.364	0.309	0.035	10.432	***

Here the co-efficient of ***Perceived ease of use*** is 0.763 represents the partial effect of Perceived ease of use on Attitude towards usage holding Perceived usefulness as constant. The estimated positive sign implies that Attitude towards usage would increase by 0.763 for every unit increase in Perceived ease of use and this co-efficient value is significant at 1% level. The co-efficient of ***Perceived usefulness*** is 0.240 represents the partial effect of Perceived usefulness on Attitude towards usage holding Perceived ease of use as constant. The estimated positive sign implies that Attitude towards usage would increase by 0.240 for every unit decrease in Perceived usefulness and this co-efficient value is significant at 5% level.

The co-efficient of ***Attitude towards usage*** is 0.175 represents the partial effect of Attitude towards usage on Behaviour intention to use holding Perceived ease of use and Perceived usefulness as constant. The estimated positive sign implies that Behaviour intention to use would increase by 0.175 for every unit increase in Attitude towards usage and this co-efficient value is significant at 1% level. Further the co-efficient of ***Perceived usefulness*** is 0.364 represents the partial effect of Perceived usefulness on Behaviour intention to use holding Perceived ease of use as constant. The estimated positive sign implies that Behaviour intention to use would increase by 0.364 for every unit decrease in Perceived usefulness and this co-efficient value is significant at 1% level.

Model fit

To check the efficiency of the model fit certain efficiency criterions are used and their results are given in the following Table 10.

Table 10: Model fit summary

Variable	Value
CMIN	3.781
P value	0.052
CMIN/DF	3.781
GFI	0.998
AGFI	0.977
CFI	0.992
IFI	0.992
TLI	0.954
NFI	0.990
RMR	0.105
RMSEA	0.059
FMIN	0.005

Table 10 shows the estimates of the model fit indices from AMOS structural modelling. Common model-fit measures like chi-square/degree of freedom (χ^2/df), the comparative fit index (CFI), root mean square error of approximation (RMSEA), the normed fit index (NFI), incremental fit index (IFI), and the Tucker Lewis index (TLI) were used to estimate the measurement model fit. As per the result, Chi square statistics with $p = 0.052$ does show a good fit of the model. Consequently, this model is considered for further interpretation in the goodness of fit measures.

CONCLUSION

M-governance applications have ushered in a new era of governance that is transparent, participatory, efficient, and accountable. The positive effects of these applications on public policy are evident through enhanced transparency, increased citizen engagement, streamlined service delivery, and improved accountability. As governments worldwide continue to harness the potential of digital technologies, it is crucial to address challenges and ensure that m-governance remains a force for positive transformation in public policy. Through a commitment to inclusivity, privacy, and adaptability, e-governance applications can pave the way for more responsive and effective governance in the digital age. Results of the study illuminated the impact of mobile apps on the electricity bill payment process, particularly through TANGEDCO mobile apps in the Vellore district. The research study shed light on various aspects of usage both positive as well as negative. On one hand it is serving the functions of information providing, aiding in educational purposes, simplifying job, employment opportunities and on the other it also presented posed practical difficulties such as such as OTP not received, lack of contact details of the officials, payment issues to name a few.

The study also recommends following measures especially at policy level to be implemented by government machinery.

1) It is suggested that the TN government and the concerned departments should design and develop the apps for the use of all age group especially the elders and senior citizens.

2) A Luddite or a mobile illiterate who is not a proficient in the use of modern technology will not be able to access the m-apps in the present condition. Audio prompting if added even the illiterate people can easily access the m-apps. It is suggested that the apps should also give alternative options to enter into the apps without any trouble.

3) Many users felt that through the m-apps they could not raise complaints successfully. After furnishing complaints some of the apps send confirmation SMS and most apps do not. The apps also do not give contact number of the concerned officers to speak to them directly. Because of these problems, many do not feel to use these apps. Therefore, it is suggested that all TN Government M-apps should simplify the system to raise complaints and receive the confirmation SMS related to that.

The success of these mobile apps highlights the immense potential of technology in revolutionizing essential services especially amongst the rural populace. As we continue to embrace digital advancements, utility providers must invest in user-friendly mobile apps that prioritize customer convenience and satisfaction. Future research will focus on the various problems faced by users.

Funding: The research study is not funded by any means.

Ethics Approval Statement

- The consent for the research study was approved by the Doctoral Research committee of the institute.
- Date of Approval: 20.07.2018
- Approval for the Data collection was granted by the said committee on the aforementioned date.

Ethics Committee Confirmation Letter

To Whomsoever It May Concern

This is to certify that the research proposal entitled "A study on Tamil Nadu government mobile apps and the usage among the consumers in Chennai and Vellore

district", submitted by Venkatesh Aravindh R., and Thirupathi S. from the Department of Journalism and Mass Communication, Periyar University, Salem, Tamil Nadu, has been reviewed by the Institutional Ethics Committee of Periyar University.
The Committee discussed the ethical aspects of the study in its meeting held on 20.07.2018, and after due consideration, it was found to be following the applicable ethical guidelines for research.
Accordingly, approval is granted by the Ethics Committee. The Committee affirms that the study may be undertaken/published in accordance with established ethical norms.
Sincerely,
Dr. S. Nandakumar
Chairperson
Institutional Ethics Committee
Periyar University, Salem, Tamil Nadu.
Informed Consent: **Informed consent** was obtained from all the participants in **oral** form, at the time of conducting the study with regards to their willingness to be part of their study and that they do take part voluntarily without any monetary benefits. These questionnaires which were distributed for the same also mentioned that all the information would be used only for academic research purposes and not be disclosed anywhere else.

Data Availability: All the data was obtained from the participants through the responses filled by then on the questionnaires which were distributed to them in hard copy.

Conflict of Interest: Nil.

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