

Transparent Perception and Police Trust Against the Background of Wide Application of Police Portal Websites

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Abstract—The rapid development of e-government has profoundly changed the traditional public relations model. Taking the police portal as the background, this paper explores the internal logic between it and police trust in the context of widespread electronic application from the perspective of public transparency perception, and proposes strategies to enhance public transparency perception and police trust to constitute the research objectives. This paper conducts an empirical test with people's perception of transparency as the main effect, people's satisfaction with e-government as the mediating effect, and people's computer literacy as the moderating effect. It is found that: Firstly, people's perception of transparency is positively related to police trust. Secondly, people's satisfaction with e-government has a partial mediating effect on the relationship between people's perception of transparency and police trust. Thirdly, computer literacy plays a moderating role in people's perception of transparency and police trust. This paper verifies the above influencing factors and provides theoretical support and policy input for the subsequent construction of police trust and the promotion of sustainable development of e-government.

Keywords-E-government; transparent perception; police trust; people's computer literacy

1. Introduction

Since the opening of government informatization in China in the 1990s, great progress has been made in the construction of e-government. Focusing on the practice of e-government in China, academic circles have discussed the construction of informatization infrastructure, management of government operation mode, organization flattening construction, and other aspects, and interpreted the development practice of e-government from multiple perspectives.

However, the existing research is mostly based on a 'national perspective'. In the day of promoting the construction of service-oriented government, the lack of research from the public perspective will undoubtedly restrict the sustainable development of e-government, and the practical needs call for a shift in the research perspective.

In addition, in the rapid advance of police e-government, the resulting algorithm black box problem affects the public's trust in the police, which is contrary to the openness contained in policing governance, and erodes the basis of police trust to a certain extent. Therefore, in the process of construction, the government should pay attention to the construction of a transparent government, strive to respond to the real needs of the people, and put the people in the main position, to better form the synergy of governance. The existing studies still place people as the object of regulation in the process of studying the path of police trust enhancement, which is contrary to the direction of promoting the modernization of governance capacity and governance system. It is necessary to reshape the people's subject position and pay attention to emotional governance.

Therefore, constructing a model of the generation of public police trust in the context of the widespread use of e-government in the study can help grasp the role of the relationship between the elements and the derivation mechanism from a micro perspective, continuously deepen the logic of the evolution of police trust and supply powerful measures to enhance police trust.

2. Materials

2.1 Selection of measurement variables

According to the existing research results on the influencing factors of police trust, this study explores the internal logic of police trust generation in the context of the widespread use of police portals from the three dimensions: public transparency perception, e-government use satisfaction, and public computer literacy. The meaning of each variable and the measured variables are shown in Table 1.

2.2 The proposal of the research hypothesis

2.2.1 Analysis of the Direct Effect of Public Transparency Perception and Police Trust

Table 1 Latent variables and measurement variables

variable	variable definition	measurement dimension	variable number
Public Trans-parent perception	the public's evaluation of the degree and quality of information available on the police portal website	difficulty of public access to police service information	T1
		the response of police websites to people's demands	T2

		people's evaluation of the authenticity of police websites	T3
		people's perception of the expected transparency of government websites	T4
E-government use satisfaction	the subjective satisfaction evaluation and its expected difference made by the public based on understanding the work of the police portal and its operating agencies and personnel	satisfaction of police portal operators	M1
		satisfaction with the units of the police portal website	M2
		satisfaction with the work of the police portal	M3
People 's computer literacy	people's ability to use relevant tools, obtain and identify information in the information age	application portal application office ability	S1
		the ability to understand the operation mechanism of the portal website	S2
		attention to police portal information	S3
police trust	the dynamic psychological judgment of the public on the possibility of police and its subordinate institutions, staff, and governance ideas serving the people and enhancing the interests of the people	trust in individual police	X1
		trust in police organizations	X2
		trust in police ideology and institution	X3

Government Transparency, as the state of the public's understanding of the operation process and derived outcomes of government administrative actions (Zhang, Zhuo, 2018),^[1] has received attention from both academic and practical communities for its important role in improving the quality of government and promoting the implementation of good governance (Johnson Gbemende E, 2021) ^[2]. Existing research believes that government transparency is an organic unity of people's subjective transparency perception and the actual degree of government's external publicity, which should not only focus on the accessibility, truthfulness, reliability, and timeliness of the information released by the government at the objective level (HuangPu, 2020), ^[3] but also pay attention to the overall evaluation of the above process by the public, and this leads to the core concept of the paper: public transparency perception. The

public's perception of transparency is 'the public's evaluation of the degree and quality of information available on the government portal'. In the process of building a transparent government, the government's responsiveness is improved and the legitimacy of the subject of power is reproduced through two paths: increasing public understanding to promote public approval, and opening up differences to gather social consensus. However, in this process, the public is in a relatively weak position in terms of information and is more likely to perceive the information released by the government in a one-way manner. At this time, the public's transparent perception affects the cognitive process and can have an impact on police trust (Yan, Wang, 2019).^[4]

Based on this, this paper puts forward the research hypothesis:

H1: Public transparency perception has a positive impact on police trust.

2.2.2 The Mediating Effect of E-government Satisfaction between Public Perception of Transparency and Police Trust

Drawing on the concept of customer satisfaction, this study considers satisfaction with e-government use as a subjective satisfaction rating made by the public based on their understanding of the government portal and the work of the authorities and personnel operating it, as well as the differences in their expectations, highlighting the differences in the public's perceptions before and after understanding and using e-government (Qian,2021).^[5] In the process of generating public satisfaction with the use of e-government, a good public perception of transparency helps people to improve their self-efficacy in dealing with information related to the image of the government, and to form an objective evaluation of the government as a service platform and its service content. Moreover, a strong public perception of transparency can reduce the perception of differences before and after using e-government, and avoid fluctuations in satisfaction triggered by cognitive dissonance, thereby promoting the generation of e-government satisfaction.

The widespread use of e-government helps to improve the government's efficiency. According to the theory of public choice, there is a positive correlation between government efficiency and public police trust. Moreover, people's high e-government satisfaction contains the requirements of improving the efficiency of government, so the improvement of e-government satisfaction can promote public police trust. In addition, existing research shows that the higher the public's satisfaction with the government, the higher their trust in the government (Meng, 2014);^[6] The process of using e-government as a field of communication between the people and the government, the people's satisfaction with the process of using e-government is a concrete reflection of the government's satisfaction and will have an impact on their police trust.

Based on this, this paper puts forward the research hypothesis:

H2: E-government use satisfaction has a partial mediating effect on the relationship between public transparency perception and police trust.

2.2.3 Analysis of the Moderating Effect of Public Computer Literacy between Public Transparency Perception and Police Trust

The problem of algorithmic black boxes in the widespread use of e-government is due to both the institutional reasons for the lack of transparency in the government's operations and the

technical gaps that existed when the algorithms were first designed. As a result of the interaction between institutions and technology, the algorithmic black box also has an impact on the public's level of trust in the police, following the path described above and influencing the public's subjective perception of government transparency. In this process, the public's good computer literacy can to a certain extent enhance the public's understanding of the operation of e-government processes, thus affecting their transparency perception and the degree of police trust transmission process. The improvement of people's computer literacy enables them to better grasp the internal logic of the government's use of e-government to assist in the process of governance, enhancing the perception of transparency in the process of governance, thus improving the transparency of government operations and regulating the process of police trust generation.

Based on this, this paper puts forward the research hypothesis:

H3: Public computer literacy plays a moderating role in public transparency perception and police trust.

To sum up, build the research hypothesis model, as shown in Figure 1.

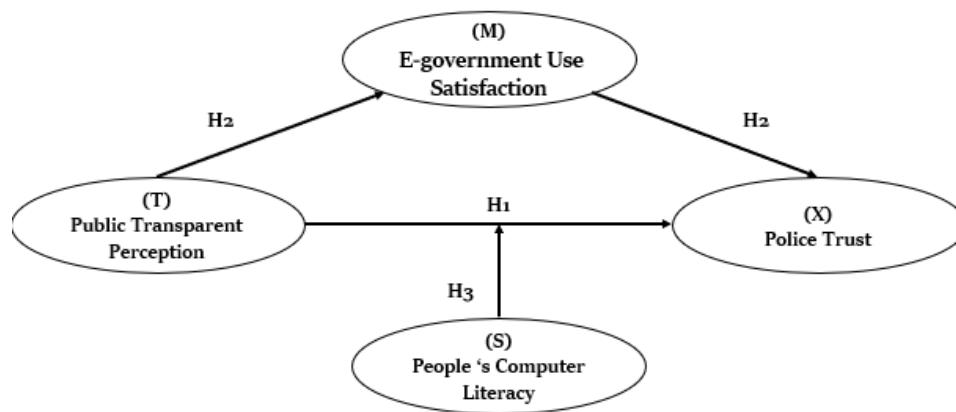


Figure 1 Hypothesis diagram of dual mechanism model of mediation and regulation

2.3 Model solving and testing

This study uses SPSS25.0 and AMOS25.0 software to analyze the hypothesis model. The specific operations are as follows:

2.3.1 Model assumptions

By combing the existing research, the research content, and the research target design hypothesis model, a preliminary judgment is formed.

2.3.2 Sample structure analysis

The descriptive statistical analysis of the sample data is used to determine whether it conforms to a normal distribution, to test the representativeness of the data, and to analyze the data based on ensuring the generality of the data source.

2.3.3 Data testing

The reliability, validity, and correlation analysis of the research data is carried out to determine whether the data meet the conditions for further testing.

2.3.4 Hypothesis testing

The consistency between the model and the sample data was tested by χ^2/df , GFI, NFI, CFI, RMSEA, and other indicators.

2.3.5 Model calculation and interpretation

The regression analysis parameters to determine the final model results, combined with the questionnaire to explain the practical significance of the model.

3. Results & Discussion

3.1 Sample structure of survey data

The sample involved people from Beijing, Shanghai, Guangzhou, and other areas. After one month of collection, a total of 457 questionnaires were collected. After eliminating invalid questionnaires, 323 valid questionnaires were finally identified, with a valid return rate of 70.67%. The structure of the sample is shown in Table 2. The respondents had high coverage of demographic characteristics and were generally well-represented.

The content of the questionnaire consists of demographic characteristics and people's perceptions of transparency, people's satisfaction with e-government use, people's computer literacy, and police trust scales, all of which have been revised based on existing research findings.

Table 2 Demographic information of the questionnaire

variable	index	count	frequency
Gender	male	176	54.5%
	female	147	45.5%
age	below 18	7	2.2%
	18-24	174	53.9%
	25-30	21	6.5%
	31-40	36	11.1%
	41-50	48	14.9%
	51-60	20	6.2%
	above 60	17	5.3%
educational background	Primary school and below	2	0.6%
	junior high school	24	7.4%

		High school / technical secondary school / technical school	37	11.5%
		junior college	45	13.9%
		undergraduate college	204	63.2%
		Postgraduate and above	11	3.4%
political complexion	com-	Members of the CCP (including reserve members)	81	25.1%
		communist youth league member	160	49.5%
		Democratic parties and non-partisans	5	1.5%
		the masses	77	23.8%
class cognition		sublayer	63	19.5%
		middle and lower layers	100	31%
		middle layer	125	38.7%
		middle-upper-layer	24	7.4%
		upper layer	11	3.4%

The analysis found that the distribution of demographic statistical characteristics is more balanced, and the data sources are extensive, in line with the conditions for further analysis.

Table 3 Descriptive statistical analysis of questionnaire variables

dimension	Av.	σ	σ^2	SK	K
T1	2.91	0.928	0.862	-0.084	0.071
T2	3.06	0.914	0.835	-0.209	0.183
T3	3.44	0.822	0.676	-0.304	0.713
T4	3.15	0.838	0.702	-0.184	0.643
M1	3.34	0.805	0.649	-0.272	0.860
M2	3.31	0.799	0.638	-0.181	0.940
M3	3.27	0.802	0.643	-0.155	1.006
S1	2.98	0.874	0.764	-0.048	0.709
S2	3.75	0.960	0.921	0.202	0.405
S3	3.07	0.833	0.695	0.299	0.599
X1	3.53	0.835	0.697	-0.361	0.747
X2	3.62	0.899	0.809	-0.558	0.646

X3	3.69	0.913	0.834	-0.610	0.674
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The absolute value of skewness is less than 3, and the absolute value of kurtosis is less than 10, which can be quantitatively analyzed.^[7] According to Table 3, the descriptive statistics show that the sample conforms to the normal distribution and has the basic conditions for quantitative analysis, which can be tested in the next step.

3.2 Reliability and validity test

Before the analysis, it was necessary to determine whether the data met the scientific requirements using reliability and validity tests. In this study, confirmatory factor analysis (CFA) was chosen to test whether the previous hypotheses were consistent with the actual data.

3.2.1 Reliability test

For the sake of ensuring the internal consistency of the measurement results and the need to meet the validation hypothesis, SPSS software was used to conduct a reliability analysis on the questionnaire data. As shown in Table 4, Cronbach's alpha coefficient for each dimension of the scale was tested to be greater than or equal to 0.8. Therefore, the reliability of the scale in this study is high and has good internal stability.

Table 4 Reliability test

Scale	Number of dimensions	Cronbach's Alpha
Public transparent perception	9	0.89
E-government use satisfaction	4	0.85
People's computer literacy	5	0.92
Police trust	10	0.82

3.2.2 Validity test

The questionnaire was designed from the beginning with mature research results, with good content validity, and was evaluated using standardized factor loadings, which are generally considered to have high loadings in their corresponding dimensions and high structural validity.

Table 5 Validity test of public questionnaire

variable	variable number	Standardized Regression Weights
	T1	0.7
T	T2	0.66
	T3	0.58

	T4	0.56
M	M1	0.6
	M2	0.72
	M3	0.61
S	S1	0.55
	S2	0.49
	S3	0.70
X	X1	0.8
	X2	0.62
	X3	0.77

3.3 Suitability test.

The following table is a comparison chart between the ideal standard of fitness and the measurement results of the questionnaire scale. It is found that the standard can be reached, indicating that the fitness index is better. ^[8]

Table 6 Comparison of scale fitness indicators

	χ^2/df	GFI	NFI	CFI	RMSEA
ideal standard	1—5	>0.90	>0.90	>0.90	<0.08
People's scale	4.04	0.92	0.94	0.96	0.05

3.4 Correlation analysis

This study took the approach of constructing a correlation matrix for each variable in preparation for the subsequent continuation of the hypothesis testing.

Table 7 Variable correlation matrix

	T	M	S	X
T	1	.761**	.628**	.636**
M	.761**	1	.678**	.707**
S	.628**	.791**	1	.516**
X	.636**	.707**	.516**	1

This study used SPSS to analyze the data collected in the preliminary stage to test the hypothesis model and to test the correlation between the variables and their mediating and moderating effects respectively through multiple regression analysis.

The data were tested for multicollinearity before regression analysis was carried out. The regression results showed that the tolerance of the scale (TOL) was between 0.1 and 1 and the variance inflation factor (VIF) was between 1 and 10, both of which were within the threshold values, thus indicating that the likelihood of multicollinearity in this study was low. Overall, this study is suitable for regression analysis.

3.5 Hypothesis testing

3.5.1 The direct effect test of public transparency perception

The direct effect test section used hierarchical regression to add the control variables and people's perception of transparency separately to the direct effect of people's perception of transparency on police trust, and the test results are shown in Table 8.

Table 8 Direct effect test of police trust

variable	M1	M2
Gender	-0.142	-0.031
age	-0.023	-0.054
educational background	-0.016	-0.038
political complexion	-0.018	-0.047
class cognition	0.126	-0.008
T		0.744
R ²	0.074	0.443
Adjusted R ²	0.059	0.432
F	5.073	209.261
dw	1.81	

The results of M1 show that the regression coefficients of people's age, education level, and class perception are -0.023, -0.016 and 0.126 respectively at $p < 0.01$, indicating that people's age and education are negatively related to police trust, while people's class perception is positively related to police trust. The results of M2 show that after adding people's perception of transparency to the regression equation based on M1, people's perception of transparency has a significant positive effect on police satisfaction ($B=0.744$, $p < 0.001$), thus, hypothesis H1 holds.

3.5.2 The mediating effect test of public e-government satisfaction

This section uses hierarchical regression to test the mediating effect of people's satisfaction with e-government use on people's perception of transparency, as shown in the table, M5 puts in people's satisfaction with e-government use based on M4.

M5 results show that after linear regression analysis of people's satisfaction with e-government use based on M4, people's perception of transparency has a significant positive effect on people's trust in the police ($B=0.259$, $p < 0.001$), the β coefficient decreases from 0.647 to 0.225, the total effect is 0.744, the direct effect is 0.259, indirect effect is 0.485, suggesting

that people's satisfaction with e-government has a positive effect on the relationship between people's perception of transparency and police trust is partially mediated, thus hypothesis H2 holds.

Table 9 The mediating effect test of people's computer literacy

variable	M3	M4	M5
Gender	-0.142	-0.031	-0.056
age	-0.023	-0.054	-0.056
educational background	-0.016	-0.038	0.002
political complexion	-0.018	-0.047	-0.051
class cognition	0.126	-0.008	-0.006
T		0.744	0.259
M			0.603
R ²	0.028	0.415	0.541
Adjusted R ²	0.013	0.404	0.531
F	1.843	209.261	86.139
dw	1.63		

3.5.3 The Moderating Effect of Computer Literacy on Public Perception of Transparency and Police Trust

In the part of moderating effect test, the hierarchical regression method is used to measure the moderating effect of people's computer literacy on public transparency perception and police trust. The two variables of people's transparency perception and police trust are standardized and set as 'standard (public transparency perception)' and 'standard (people's computer literacy)'. Then, the 'standard (public transparent perception)' is added to M7, while the 'standard (people's computer literacy)' is added to M8 based on M7, and the interaction term 'public transparent perception and people's computer literacy' between the independent variable and the adjustment variable is generated. M9 adds this interaction term 'public transparent perception and people's computer literacy' based on M8.

Table 10 Moderating Effects of Computer Literacy on Public Perception of Transparency and Police Trust

variable	M6	M7	M8	M9
Gender	-0.142	-0.031	-0.028	-0.043
age	-0.023	-0.054	-0.064	-0.062
educational back-	-0.016	-0.038	-0.025	-0.022

ground				
political complexion	-0.018	-0.047	-0.052	-0.054
class cognition	0.126	-0.008	-0.009	-0.011
standard (T)		0.744	0.588	0.587
standard (S)			0.229	0.241
T*X				0.55
R ²	0.028	0.415	0.443	0.446
Adjusted R ²	0.013	0.404	0.431	0.432
F	1.843	209.261	15.841	1.608
dw	1.69			

Therefore, this part tests H3. The results show that the product of public transparency perception and public computer literacy has a significant positive impact on police trust ($B = 0.55$, $p < 0.001$), indicating that the direct effect of public transparency perception and police trust is moderated by public computer literacy, which can verify hypothesis H3.

In summary, the previous assumptions have been verified.

3.6 The structural link between public-level police credibility and public satisfaction

3.6.1 Public transparency perception positively affects police trust

A high perception of transparency is a joint result of the government's active promotion of open government and the public's positive attitude towards the results of government openness, which ultimately leads to an increase in police trust. Using well-established measures of police trust, the study found that identification with and trust in government staff, government agencies, administrative systems and governance concepts are positively influenced by people's perceptions of transparency. Therefore, this study argues that promoting open government and building a transparent government is still viable today with the rapid development of e-government.

3.6.2 Public satisfaction with e-government use partially mediates the relationship between public perception of transparency and police trust

The results show that people's perception of transparency helps to improve people's satisfaction with the use of e-government, enhances the subjective evaluation of government work efficiency, and thus enhances people's trust in the government. In the process of promoting e-government construction, the government should take enhancing users' satisfaction as an important work, strive to promote the unity of value rationality of transparency and instrumental rationality of satisfaction, and better work together from two paths to continuously enhance police trust.

3.6.3 People's computer literacy plays a moderating role between people's perception of transparency and police trust

As one of the important qualities and abilities needed by people's work and life in the information age, computer literacy is also imperceptibly affecting people's transparency perception through the game between people's ability and algorithm black box. In this process, higher computer literacy helps to improve people's understanding of the operation of e-government and enhance their subjectivity, thus forming a higher sense of transparency and efficacy, and contributing to the improvement of police trust.

4. Conclusions

Based on empirical research, this paper explores the formation path of public transparency perception on police trust under the background of e-government construction, and plays a constructive role in continuously improving police trust and forming governance synergy. The study found:

4.1 Public satisfaction with e-government helps to enhance police trust

As one of the subjective evaluations of government performance level, the satisfaction degree of people in the process of using e-government will be affected by the whole life cycle operation of the government portal website. As an important part of the development of digital government, the construction of government portals should pay attention to the common and individual needs of the people in the operation, and respond on time to effectively improve the satisfaction of the people, to strengthen the public trust between the government and the people.

4.2 People's computer literacy is important for increasing public satisfaction.

In the information age, the importance of people's computer literacy is also highlighted. In this study, people's computer literacy can enhance public transparent perception and enhance their understanding and trust in government work. As an important form of the government's function of providing public goods, improving people's computing literacy can not only improve people's satisfaction, but also enhance their understanding of the government's operation process, and ultimately realize the sustainable development of police trust. To this end, government decision-makers should make efforts from the following aspects: first, improve basic education and employment services, and provide higher quality learning resources and public development environment; second, give full play to the advantages of e-government construction, rely on portals to strengthen communication, enhance their responsiveness, and continue to enhance public transparent perception. While enhancing police trust, and maintaining their legitimacy.

In general, there is still room for further exploration in this paper. Specifically: First, in terms of the hypothesis and model design of the relationship between variables, the relationship between some variables can still be reinterpreted. For example, there may still be a chain intermediary relationship between public transparency perception, e-government use satisfaction, and public computer literacy, which can be used to establish a research model in subsequent research. Second, the questionnaire design is mostly based on the international mature re-

search scale, but the specific local scale in China still needs to be developed, and the follow-up research can be developed through qualitative analysis.

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