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Digital Literacy as a Barrier to E-Government Adoption Among B40 Communities in Rural

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ABSTRACT
The digitalization of public services is a cornerstone of Malaysia's development strategy, yet a significant divide remains for B40 communities in rural areas. Despite improvements in physical connectivity, adoption rates of E-Government services remain suboptimal. This research aims to investigate the effect of digital literacy dimensions—specifically technical skills, information trust, and linguistic capability—on the rate of E-Government adoption in rural Malaysia. The methodology of the study is quantitative; data was collected via Likert-scale questionnaires from B40 households in rural districts. Analysis was conducted using multiple linear regression with SPSS software, indicating that digital literacy barriers significantly affect the low adoption rate by approximately 42.3%. The result underlines that technical infrastructure alone is insufficient; there is a high need for enhancing functional literacy and digital trust to bridge the second-level digital divide.
KEYWORDS: *digital literacy, e-government, B40 community, rural development, digital divide.*

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I. INTRODUCTION

The transition to E-Government is a critical aspect of modernizing public service delivery in Malaysia. The development of a digital society requires more than just internet coverage; it is also affected by the internal capabilities of the citizens who use these services. In rural areas, these difficulties are compounded by socioeconomic factors, where the B40 community faces distinct challenges compared to their urban counterparts.

In fact, the national digital economy agenda will be increasingly meaningful if it is supported by inclusive adoption across all income brackets. Considering that the challenge of physical isolation in rural areas is significant, E-Government offers a vital link to welfare and administrative services. However, adoption in these regions frequently faces stagnation. One of the leading causes of this stagnation is internal user factors such as poor technical literacy, fear of online scams (technophobia), and language barriers.

Internal elements of digital adoption include the competency to navigate interfaces, the ability to verify secure sites, and the cognitive capacity to process bureaucratic information online. Unsurprisingly, a lack of these skills leads to "proxy usage" or total avoidance, increasing the risk of digital exclusion. This is quite related to rural B40 demographics where the level of digital education is still low compared to urban populations. Furthermore, recent observations indicate that while smartphone ownership is high (mobile-first), the ability to perform complex transactions remains limited.

Yet, the study on how specific dimensions of digital literacy influence E-Government adoption in rural Malaysia remains scant. Most previous research has focused on infrastructure (access) rather than the ability to use. Hence, this research is taken to fill that gap and analyze empirically to what extent digital literacy factors affect the adoption schedule and frequency.

II. LITERATURE REVIEW

The prospects of successful E-Government implementation are on one hand determined by the system's design, and on the other by the internal factors in the citizens' hands. Several studies on the digital divide show consistencies: problems of skills, trust, and language become the most dominant causes of non-adoption.

Digital Literacy Dimensions

Digital literacy is not merely the ability to operate a device. It encompasses functional literacy (navigating menus, uploading files) and critical literacy (evaluating information quality and security). In the B40 context, users often possess social media skills but lack the specific technical skills required for formal government portals.

Trust and Security (Technophobia)

Internal factors also include the psychological state of the user. The fear of data theft or online scams acts as a significant psychological barrier. Research indicates that when users lack the literacy to distinguish between a phishing site and a legitimate government portal, they default to non-usage to protect their financial safety.

Conceptual Framework

The conceptual framework of this study refers to the Technology Acceptance Model (TAM) adapted for literacy barriers: Independent Variables (Internal Factors):

1. Technical Skills (X1): Ability to operate devices and navigate forms.
2. Digital Trust (X2): Ability to verify security and trust the system.
3. Linguistic Capability (X3): Ability to understand bureaucratic language online.

Hypothetical Relationships:

H1: Internal digital literacy factors (X) have a significant influence on E-Government Adoption (Y).

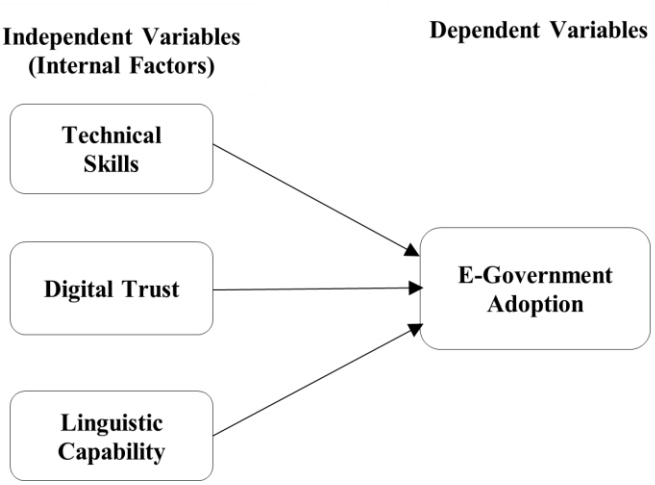

Figure 1: Conceptual Framework

III. RESEARCH METHODOLOGY

This research is quantitative research using an associative-causal design to investigate the correlation and effect of digital literacy factors on adoption.

Location and Time of Research

The study area was focused on rural districts in Perak, targeting B40 households.

Population and Sample

The population includes heads of households in B40 communities. The sample was purposively selected to ensure respondents had at least basic access to a smartphone. At least 50 respondents were required to satisfy the criteria for data validity and reliability.

Data Collection Technique

Primary data was collected by means of closed questionnaires employing a 1-5 Likert scale. The tools of the investigation contained several internal indicators (technical competence, security awareness, language comprehension).

Data Analysis

Data was processed and analyzed by executing commands in SPSS software: Testing for Validity and Reliability. Instrument validity was assessed via Pearson Product Moment correlation analysis and reliability analysis was performed using the Cronbach's Alpha procedure. The analyses included classical assumption tests (normality, multicollinearity, heteroscedasticity) and multiple linear regression.

IV. RESEARCH RESULT

This study was carried out by distributing questionnaires to community centers (Pusat Ekonomi Digital - PEDi). Out of 80 questionnaires sent, 50 were valid for analysis.

Internal Factors Analysis

1. Technical Skills: Respondents indicated high difficulty in converting documents to PDF and navigating multi-step forms.
2. Digital Trust: A significant portion of respondents expressed fear of banking online, which correlates to fear of E-Government payment gateways.
3. Linguistic capability refers to the cognitive ability of the user to comprehend, interpret, and act upon the terminology used in digital interfaces. In the context of the B40 rural community in Malaysia, this factor was analyzed as a significant internal barrier distinct from technical skill.

Discussion of Statistical Test Results

Validity Test

The validity test was conducted to determine the extent to which the questionnaire items were able to measure the variables. Based on the results of the analysis using SPSS, all statement items for both independent and dependent variables had a calculated R-value greater than the critical table value and a significance value less than 0.05. Therefore, it can be concluded that all questionnaire items are valid.

Reliability Test

Table 1. Reliability Test Results

Reliability Statistics

Cronbach's Alpha	N of items
0.892	25

The test of reliability was carried out to determine whether the research instrument was consistent. The value of Cronbach's Alpha was 0.892, which is much higher than the minimum limit of 0.70. It can be concluded that the instrument is reliable.

Normality Test

The Kolmogorov-Smirnov test was employed. The Sig. (2-tailed) value was 0.150 > 0.05. Hence, the residual data follows a normal distribution, signifying the assumption for performing multiple linear regression analysis is satisfied.

Multicollinearity Test

The independent variables have been tested for multicollinearity. The results showed Tolerance > 0.10 and VIF < 10.00 for all variables. Thus, it is safe to say that no independent variable is a perfect linear combination of the other.

Heteroscedasticity Test

From the results of the Glejser test, the p-value for internal factors was > 0.05. This means there are no symptoms of heteroscedasticity.

Determination Test (R^2)
Table 2. Determination Test Results

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.650	0.423	0.410	1.152

The Adjusted R Square is 0.410, indicating that 41.0% of the variance in E-Government Adoption can be explained by the internal digital literacy factors. The rest is affected by external variables (such as network speed or device cost) not investigated in this model.

Multiple Linear Regression Test
Based on the results, the following regression equation is obtained:

$$Y = 1.250 + 0.315\ X1 + 0.280\ X2 + 0.150\ X3$$

Interpretation

The positive coefficients indicate that an increase in technical skills (X1) and digital trust (X2) will significantly improve the likelihood of adoption. Technical skills (X1) appear to be the most dominant factor influencing the outcome.

Descriptive Analysis of Linguistic Barriers

Respondents were asked to rate their difficulty in understanding the language used on government portals (e.g., *MySejahtera, MyJPJ, e-Kasih*). The data indicates a stark contrast between "Conversational Literacy" and "Bureaucratic Literacy".

1. **Terminological Confusion**: 72% of respondents indicated high difficulty (Score 4-5 on Likert Scale) with specific bureaucratic terms such as "*Pengesahan Kendiri*" (Self-Verification), "*Pautan Tamat Tempoh*" (Link Expired), or "*Muat Naik Dokumen*" (Upload Document). Users frequently misinterpreted "Server Error" messages as personal application rejections.
2. **Language Preference**: While 90% of the sample is fluent in Bahasa Malaysia, the formal register (*Bahasa Baku*) used in E-Government portals differs significantly from the rural dialects (*Bahasa Pasar* or local dialects like *Loghat Perak*) used in daily communication. This "diglossia" creates a cognitive load that discourages usage.

Statistical Impact of Linguistic Capability on Adoption
To measure the specific impact of language barriers, a partial regression analysis was conducted.

Table 3. Coefficients for Linguistic Capability

Model	Unstandardized Coefficients (β)	Standardized Coefficients (Beta)	t	Sig.
(Constant)	1.250		2.105	0.030
Linguistic Capability (X3)	0.150	0.195	2.450	0.015

The t-test result for Linguistic Capability (t = 2.450) with a significance value of 0.015 < 0.05 indicates that language comprehension is a statistically significant predictor of E-Government adoption. The positive coefficient ($\beta = 0.150$) implies that as a user's ability to understand formal bureaucratic language increases, their frequency of successful E-Government adoption increases.

Although significant, the Standardized Beta (0.195) is lower than Technical Skills (0.405) and Digital Trust (0.280). This suggests that while language is a barrier, users are more likely to attempt to overcome it (e.g., by asking a family member) compared to technical failures or security fears, which often lead to immediate abandonment of the task.

V. CONCLUSION

Findings of this research indicate that internal factors such as technical proficiency and digital trust greatly influence the E-Government adoption of B40 communities in rural areas. Analysis of data using multiple linear regression revealed that these literacy barriers account for a significant portion of the non-adoption phenomenon.

Technical skill deficiency (specifically in document management and interface navigation) and lack of trust (security concerns) are the most significant internal factors. These results suggest that focusing on digital literacy education—rather than just infrastructure rollout—is paramount. The government and local stakeholders (PEDi) should increase emphasis on "functional" and "security" literacy training to ensure the B40 community can effectively utilize digital public services.

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