



Usability Evaluation of the Dapodik Application Using the Technology Acceptance Model and PLS-SEM in Educational Units of Batang Subdistrict

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ABSTRACT

Dapodik is the only reporting channel that schools must use to submit their data, so how easy it is to operate directly affects the daily work of school operators. Earlier studies mostly reported usability as a single score and did not test how ease of use, usefulness, and user attitude relate to each other. This study analyzed user acceptance of Dapodik in Batang Subdistrict using the Technology Acceptance Model. Sixty respondents completed five standard tasks and then answered a 10-item Likert questionnaire on perceived usefulness, perceived ease of use, and attitude toward using. The data were analyzed with percentage indices, linear regression, and partial least squares structural equation modeling. The overall index was 70.90% (Good), with perceived usefulness at 70.00%, perceived ease of use at 70.80%, and attitude toward using at 72.50%. Perceived ease of use significantly affected perceived usefulness ($\beta = 0.773$) and attitude toward using ($\beta = 0.453$). The effect of perceived usefulness on attitude ($\beta = 0.351$; $p = 0.055$) and its mediating role were not significant. Discriminant validity among the three dimensions was not achieved (heterotrait-monotrait ratio 0.954 to 1.018). The item on data entry speed received the lowest score.

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1. Introduction

Dapodik (*Data Pokok Pendidikan*, or Basic Education Data) has been the single channel for school data reporting in Indonesia since Regulation of the Minister of Education and Culture No. 79 of 2015 came into force [1]. Data on students, teachers, education staff, and school facilities are entered through this application. The government then uses the data to distribute school operational funds (BOSP), to pay teacher allowances, to run the Smart Indonesia Program, and to support school accreditation [2], [3]. For this reason, trouble during data entry is more than an administrative inconvenience. It can affect the benefits that schools and teachers receive.

An important application is not always an easy one. In Batang Subdistrict, school operators still often ask one another where a menu is located, why the validation process rejected their data, and why synchronization stopped halfway. These complaints are rarely measured in a systematic way. Similar problems have been reported elsewhere. Manual handling of student data before it is reported to Dapodik has been linked to data redundancy and reporting delays [4]. Operators also mention limited technical training and little time to update data [5], and the Dapodik website has shown unstable performance between schools

[6]. The results of a systematic measurement would help the local education office to prepare better assistance for operators.

The ease of using Dapodik has been studied several times. Destiarini and Munir tested Dapodik for elementary schools through usability testing and found that efficiency was the weakest indicator [7]. Fitriah et al. also applied usability testing to Dapodik in an elementary school [8]. Gunawan et al. applied the USE Questionnaire and Importance Performance Analysis to map improvement priorities in Karawang Regency [9]. Rosnaedi et al. applied the Website Usability Evaluation Tool (WEBUSE) to 97 operators and obtained results in the Good to Excellent range [10]. Other studies looked at quality from the side of the service or the website. Setiyani et al. used WebQual 4.0 at a subdistrict education office and rated usability, information quality, and service interaction as very good [11], Marsudi et al. combined a public satisfaction survey with SERVQUAL for 152 school operators [3], and Novendra et al. also used SERVQUAL to study satisfaction with Dapodik [12]. Yunis et al. used the DeLone and McLean success model [13], and Pitriana et al. reviewed Dapodik governance in an elementary school with COBIT 5 [14]. Usability studies on other applications used standard questionnaires such as the System Usability Scale [15], [16], combined WEBUSE with heuristic evaluation [17], or combined tasks and a questionnaire for a school system that schools must use [18]. Most of these studies ended with a single score or a single priority map. The relationship among ease of use, usefulness, and user attitude was not tested.

The Technology Acceptance Model (TAM) explains technology acceptance through two user beliefs, namely perceived usefulness and perceived ease of use [19]. The original model also includes attitude toward using as the link between these beliefs and later behavior [20]. A critical review notes that TAM is simple and useful, although it is often extended with other factors [21]. For Dapodik itself, Adha et al. combined TAM with end-user computing satisfaction and reported that perceived usefulness and ease of use shape operator acceptance [22]. Ismail et al. used TAM with experience, complexity, and intention at elementary schools in Bone Bolango Regency [23], and Safa'ah et al. applied PLS-SEM to Dapodik operators, but with work motivation, information quality, and system quality instead of TAM beliefs [24]. TAM is also used for other public-sector applications in Indonesia, for example for a community health center information system analyzed with partial least squares structural equation modeling (PLS-SEM) [25], for a government statistics application [26], and for the adoption of a geographic information system in public organizations [27]. The results are not always the same. In the health center application, perceived usefulness had a significant effect on attitude, while ease of use did not [25]. In the statistics application, attitude did not mediate the effect of ease of use or usefulness on actual use [26].

Dapodik is mandatory, and whether a system is mandatory or voluntary changes how users accept it [28]. Field evidence shows that the relationships in acceptance models can differ when use is mandated [29], and Dapodik operators cannot choose not to use the system [24]. Because of this, intention to use and actual use are less meaningful as final measures. This study therefore analyzes user acceptance of Dapodik in educational units of Batang Subdistrict through three TAM dimensions: perceived usefulness (PU), perceived ease of use (PEOU), and attitude toward using (ATU). The study makes three contributions. First, it gives a picture of the acceptance level as an index for each dimension and each item. Second, it tests the relationships among the dimensions with regression and PLS-SEM [30]. Third, it adds a note on the discriminant validity of TAM dimensions in a data-collection application that users are required to use.

Put as questions, this study asks the following. How well do school operators accept Dapodik on each TAM dimension? Which dimensions are related to each other, and are these relations strong enough to be called significant? Do the three dimensions measure different things in an application that users must use? The rest of this paper answers these questions in order.

2. Research Method

This section first presents the concepts that guided the study (Sections 2.1 to 2.4), including the reason why only three constructs were measured. It then explains how the respondents were chosen, how the questionnaire was built, and how the data were analyzed (Sections 2.5 to 2.7).

2.1. Dapodik and Usability

Dapodik is operated through a fairly fixed workflow. The application is installed on a school computer, and the operator logs in with the school account. Data are then filled in or edited, validated, and synchronized to the central server. Operators are the main users, but principals and teachers also take part when they check or complete data. Usability is defined as the extent to which specified users can use a system to reach their goals effectively, efficiently, and with satisfaction [31]. Nielsen broke it down into five components: learnability, efficiency, memorability, errors, and satisfaction [32]. These five components were used as the basis of the questionnaire items, which were then grouped into the TAM dimensions.

2.2. Technology Acceptance Model and Hypotheses

Davis defined perceived usefulness as the belief that using a system will improve job performance, and perceived ease of use as the belief that the system can be used without great effort [19]. Ease of use is seen as one cause of usefulness, because an application that is light to use makes its benefits easier to feel. Both beliefs then shape the attitude of the user [20]. In TAM2, the attitude construct was no longer included, and the focus moved to intention and actual use [28]. This study still used attitude as the final outcome. The reason is that Dapodik is mandatory, so intention and actual use do not reflect the free choice of the operator, while comfort and satisfaction can still be measured.

Based on this logic, four hypotheses were formulated. H1: PEOU has a positive effect on PU. H2: PEOU has a positive effect on ATU. H3: PU has a positive effect on ATU. H4: PU mediates the effect of PEOU on ATU. The research model is shown in Figure 1.

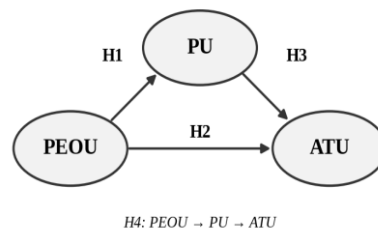


Figure 1. Research model and TAM hypotheses

Figure 1 shows three constructs with three direct paths (H1 to H3) and one indirect path (H4). Each construct was measured with reflective items.

2.3. Scope of the Constructs: Why Only PU, PEOU, and ATU

The model in Figure 1 contains only three constructs. This was a deliberate choice, and four reasons support it.

First, Dapodik is a mandatory system. When use is required, the usual links from beliefs to intention and then to actual use behave differently from those in voluntary settings [29]. Operators cannot choose to stop using Dapodik, so a high score on intention or on frequency of use would say little about acceptance. A TAM study of Dapodik that included intention reported very high agreement [23], which is hard to separate from the fact that use is compulsory. Attitude toward using is different. It records how comfortable and satisfied operators are while they work, and in mandatory settings attitude still varies with experience and with the way the organization supports the system [33]. For this reason ATU was used as the final outcome in place of intention and actual use.

Second, PU and PEOU are the two core beliefs of TAM [19], [20]. Later models contain the same ideas under other names. The unified theory of acceptance and use of technology, for example, speaks of performance expectancy and effort expectancy [34], which correspond to usefulness and ease of use. Measuring PU, PEOU, and ATU therefore covers the central chain of the model (ease of use, then usefulness, then attitude) without repeating the same idea with several constructs. The questionnaire items also follow the usability components of Nielsen [32] and ISO 9241-11 [31], so each item can be traced to one of the three constructs.

Third, the design of the study limits how many constructs can be tested. The data came from a one-time survey of 60 respondents. Actual use over time cannot be measured in such a survey, because it needs system logs or repeated observation. In addition, the ten-times rule links the minimum sample to the largest number of arrows pointing at one construct [30]. With the three-construct model the largest number is two, so 20 respondents are enough. Adding external variables such as experience and complexity [23], work motivation [24], or the determinants described in TAM3 [35] would add arrows and would need a larger sample than 60 respondents.

Fourth, the study has a narrower question than the service-quality models that were used for Dapodik before. WebQual [6], [11], SERVQUAL [3], [12], and the information systems success model [13], [36] also measure the quality of information, the quality of service from the education office, or the net benefit for the organization. Those aspects matter, but they describe the service around the application more than the way an operator experiences the application itself. The question of this study is how operators judge the ease and the benefit of working with Dapodik and how these judgments relate to their attitude. Three constructs are enough to answer it.

This choice has a cost. The model is simple and easy to read, but it leaves out factors that other studies found to matter, such as human resource capacity, infrastructure, and organizational support [2]. These omissions are discussed as limitations in Section 3.5.5.

2.4. PLS-SEM and Discriminant Validity

PLS-SEM estimates the relationships among constructs, and between constructs and their items, in one model. It is often used for TAM models [25], [27], [30], and it has also been used with Dapodik operators [24]. The measurement model was assessed with outer loading (ideally ≥ 0.70), composite reliability (0.70 to 0.95), and average variance extracted (AVE, ≥ 0.50) [30]. In simple terms, outer loading shows how well an item represents its construct, while composite reliability and AVE show whether the items of one construct are consistent and share the same meaning. Discriminant validity was assessed with the Fornell-Larcker criterion [37] and the heterotrait-monotrait ratio (HTMT) with a limit of 0.90 [38]. Rönkkö and Cho stressed that discriminant validity is basically about how far the correlation between two measures, after measurement error is taken into account, is below one [39]. The structural model was assessed with the variance inflation factor (VIF), path coefficients, R^2 , effect size f^2 , and significance through bootstrapping [30]. The reporting follows the guidance of Hair et al. [40].

The criteria used in this study are summarized in Table 1.

Table 1. Criteria used to assess the PLS-SEM model

Criterion	Threshold	What it checks
Outer loading	≥ 0.70	How well an item represents its construct
Composite reliability (rho_c)	0.70 to 0.95	Consistency of the items within one construct
AVE	≥ 0.50	Share of item variance captured by the construct (convergent validity)
HTMT	Below the limit of 0.90	Whether two constructs are truly different
Fornell-Larcker	Square root of AVE above the correlations	Whether a construct is closer to its own items than to other constructs
Path significance	$p < 0.05$ (two-tailed)	Whether a path differs from zero, tested with 5,000 bootstrap subsamples

2.5. Research Design and Respondents

This study used a descriptive quantitative approach with a one-time survey design. The respondents were 60 people selected by purposive sampling [41] from educational units in Batang Subdistrict. The requirement was that they actively operated Dapodik in their work. A similar group of 60 purposively selected operators, committee members, and administrators was used in a recent evaluation of Dapodik integration [42]. The number of respondents is above the minimum of 20 given by the ten-times rule (ten times the largest number of arrows pointing to one construct), but it is still small, so the results are read with care [30].

Data were collected from 20 September 2026 to 17 October 2026, a period of four weeks. As in task-based evaluations of other school systems [18], each respondent first performed five standard tasks before filling in the questionnaire. The tasks were logging in to the application, adding student data, editing teacher data, running validation, and doing synchronization. The questionnaire was filled in on a printed sheet or on Google Form. The whole procedure, from the selection of respondents to the analysis, is summarized in Figure 2.

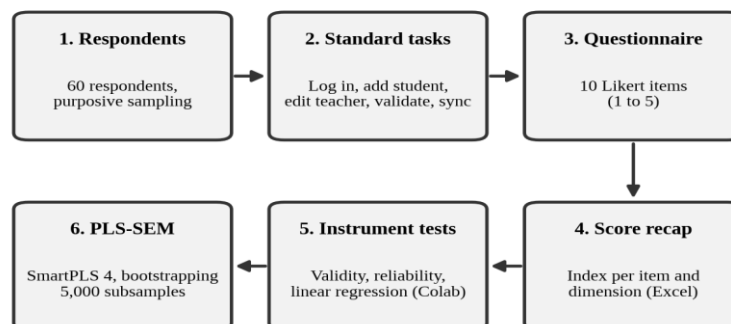


Figure 2. Research procedure

2.6. Instrument

The instrument was a 10-item questionnaire with a Likert scale [43] from 1 (strongly disagree) to 5 (strongly agree), as detailed in Table 2.

Table 2. Dimensions and indicators of the questionnaire

Dimension	Items	Indicators
PU	PU1–PU3	Data entry speed, smooth validation and synchronization, few disruptions
PEOU	PEOU1–PEOU5	Ease of learning, clarity of menus and terms, ease of remembering menu locations, consistency of the display, clarity of error messages
ATU	ATU1–ATU2	Comfort of the interface, overall satisfaction

Table 2 shows that PEOU has the most items (five), followed by PU (three) and ATU (two). Item validity was tested with the Pearson product-moment correlation against the total score (r table 0.254 for $N = 60$ at the 5% level), and reliability was tested with Cronbach's alpha [44]. Unlike the System Usability Scale, which gives one score from 10 items [16], the items here were grouped into TAM dimensions so that the relationships among dimensions could be tested. The full wording of each questionnaire statement is given in Table 3.

Table 3. Questionnaire statements

Item	Statement
PU1	Entering student data is fast, without roundabout steps.
PU2	Validation and synchronization run smoothly.
PU3	I rarely experience disruptions (the application closes by itself, or saving or synchronization fails).
PEOU1	The workflow is easy to learn without asking many questions.
PEOU2	Menu names and terms are easy to understand.
PEOU3	I still remember where the menus are after several days of not opening the application.
PEOU4	The layout is consistent, so the work pattern is easy to remember.
PEOU5	Error messages explain which part of the data must be corrected.
ATU1	The interface is comfortable for working over a long time.
ATU2	Overall, I am satisfied with Dapodik.

2.7. Data Analysis

The score of each dimension was converted into a percentage index with Equation (1), where S is the answer score, k is the number of items in the dimension, and N is the number of respondents. The index was grouped into five categories with an interval of 16%: Very Poor (20.00–36.00), Poor (36.01–52.00), Fair (52.01–68.00), Good (68.01–84.00), and Very Good (84.01–100.00).

$$I = \frac{\sum S}{5 \cdot k \cdot N} \times 100\% \quad (1)$$

Reliability was calculated with Cronbach's alpha in Equation (2) [44], where σ_i^2 is the variance of item i and σ_t^2 is the variance of the total score. A value of 0.70 was used as the common benchmark [45].

$$\alpha = \frac{k}{k-1} \left(1 - \frac{\sum \sigma_i^2}{\sigma_t^2} \right) \quad (2)$$

The relationships among dimensions were tested with linear regression (PU on PEOU, and ATU on PEOU and PU) and with PLS-SEM using SmartPLS 4 [46]. The PLS-SEM used bootstrapping with 5,000 subsamples, a two-tailed test, and a 5% significance level. The indirect effect was calculated with Equation (3). The recapitulation of scores and indices was done in Microsoft Excel, and the instrument tests and regression were done in Google Colab.

$$\beta_{indirect} = \beta(PEOU \rightarrow PU) \times \beta(PU \rightarrow ATU) \quad (3)$$

3. Result and Discussion

This section presents the research findings systematically, following the sequence of the analytical procedures conducted in the study. First, the characteristics of the respondents are described to provide an overview of the participants and their relevance to the research objectives. Second, the acceptance level is examined to identify the extent to which respondents accept and use the system under investigation. Third, the reliability and validity of the research instrument, along with the measurement model, are evaluated to

ensure that the constructs are measured appropriately. Fourth, the structural model is analyzed to assess the relationships among the proposed constructs and test the research hypotheses. Finally, the findings are interpreted and discussed in relation to the research objectives, theoretical foundations, and previous studies.

3.1. Respondent Characteristics

The 60 respondents came from 59 different educational units. A total of 55 respondents (91.7%) were Dapodik operators, two had a double role as teacher and operator, two were classroom teachers, and one was a subject teacher. There was no principal among the respondents. The length-of-use column was filled in by only 30 respondents, and 17 of them had used Dapodik for more than three years. With this composition, the findings mainly reflect the views of operators. The details are given in Table 4.

Table 4. Characteristics of the respondents (N = 60)

Category	Group	Number	Percent (%)
Role	Dapodik operator	55	91.7
	Teacher and operator	2	3.3
	Classroom teacher	2	3.3
	Subject teacher	1	1.7
	Principal	0	0.0
Length of use	Less than 1 year	2	3.3
	1 to 3 years	11	18.3
	More than 3 years	17	28.3
	Not filled in	30	50.0

The table confirms this pattern, indicating that the respondent sample is predominantly composed of school operators who are directly involved in managing and submitting educational data through Dapodik. Their involvement provides relevant insights into the system's usability and acceptance, particularly regarding operational tasks and administrative responsibilities. However, the respondent profile also reveals a limitation in the available demographic information, as half of the respondents did not report how long they had been using Dapodik. This missing information restricts the ability to examine whether differences in user experience influence perceptions of ease of use, perceived usefulness, and overall system acceptance. For example, experienced operators may have developed practical strategies for navigating the system, whereas less experienced users may encounter different challenges. Furthermore, the dominance of school operators means that the findings primarily reflect the perspectives of users responsible for routine data management rather than those of school principals or teachers who may interact with Dapodik differently. Consequently, the results should be interpreted within the context of the respondent group and should not be generalized to principals, all teachers, or other educational personnel without additional evidence. Future research should include a more diverse sample of educational stakeholders and collect complete information about respondents' experience with Dapodik. Such an approach would enable comparisons across user groups and experience levels, providing a more comprehensive understanding of system acceptance and usability in different educational contexts.

3.2. User Acceptance Level

The results for each dimension are presented in Table 5.

Table 5. Mean score, index, and category per dimension

Dimension	Items	Mean	Index (%)	Category
PU	3	3.500	70.00	Good
PEOU	5	3.540	70.80	Good
ATU	2	3.625	72.50	Good
Overall	10	3.545	70.90	Good

Table 5 shows that all three dimensions were in the Good category, with ATU the highest (72.50%) and PU the lowest (70.00%). The gap between them is only 2.50 percentage points. At the item level, the highest mean belongs to PEOU2, the clarity of menus and terms (3.65). The lowest mean belongs to PU1, the speed of completing data entry (3.40; index 68.00%, exactly at the upper limit of the Fair category). It is

followed by PEOU5 on error messages (3.48) and PEOU3 on menu locations (3.50). The other nine items are in the Good category, and the range of the means of all items is only 0.25 points.

The details for each item are given in Table 6 and Figure 3.

Table 6. Mean score, index, and category per item

Item	Indicator	Mean	Index (%)	Category
PU1	Data entry speed	3.400	68.00	Fair
PU2	Validation and synchronization	3.567	71.33	Good
PU3	Application disruptions	3.533	70.67	Good
PEOU1	Easy to learn	3.517	70.33	Good
PEOU2	Clear menus and terms	3.650	73.00	Good
PEOU3	Easy to remember menus	3.500	70.00	Good
PEOU4	Consistent display	3.550	71.00	Good
PEOU5	Clear error messages	3.483	69.67	Good
ATU1	Comfortable display	3.617	72.33	Good
ATU2	Satisfied overall	3.633	72.67	Good

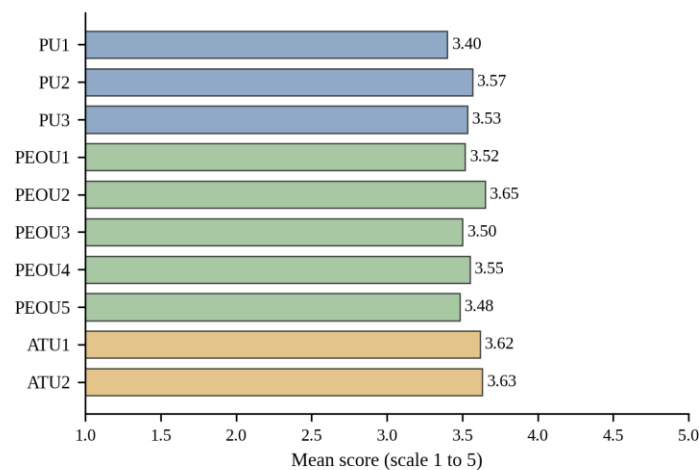


Figure 3. Mean score per item

Table 6 and Figure 3 show that only PU1 is in the Fair category, while the other nine items are in the Good category. The differences among items are small, so the order of the lowest items is read as a tendency, not as a firm difference. In short, operators rate Dapodik as good on all three dimensions, and the weakest point is the speed of data entry.

3.3. Instrument Quality and Measurement Model

All items were valid. The correlation of each item with the total score ranged from 0.593 (PEOU5) to 0.800 (ATU2), above the r table value of 0.254. After the score of the item itself was removed from the total, the correlations ranged from 0.494 to 0.732. The alpha of all items was 0.888. The results of the PLS-SEM measurement model are in Table 7.

Table 7. Outer loading, reliability, and AVE

Construct	Loading	Alpha	rho_c	AVE
PU	0.763–0.808	0.680	0.822	0.606
PEOU	0.652–0.820	0.790	0.856	0.544
ATU	0.853–0.900	0.702	0.870	0.769

Table 7 shows that composite reliability (ρ_c) was between 0.822 and 0.870 and AVE was between 0.544 and 0.769, so reliability and convergent validity were met. One item, PEOU5, had a loading of 0.652, which is below 0.70, but it was kept because the AVE of PEOU remained above 0.50. The alpha of PU (0.680) was slightly below 0.70, which is common for a construct with only three items.

Discriminant validity was not fully met. Each item loaded highest on its own construct, but the square root of the AVE of PEOU (0.737) was lower than its correlation with PU (0.773). The HTMT values

of all three pairs of constructs were above 0.90, namely 0.954 (PEOU–ATU), 0.986 (PU–ATU), and 1.018 (PU–PEOU), as shown in Table 8.

Table 8. Discriminant validity

Pair	HTMT	Correlation	Lowest square root of AVE
PEOU–ATU	0.954	0.725	0.737
PU–ATU	0.986	0.701	0.778
PU–PEOU	1.018	0.773	0.737

Table 8 shows that all three HTMT values exceeded 0.90. For the PU–PEOU pair, the correlation between the constructs (0.773) was also larger than the square root of the AVE of PEOU (0.737), so the Fornell-Larcker criterion was not met. In plain words, the respondents did not clearly separate usefulness, ease of use, and attitude when they answered.

3.4. Structural Model and Hypothesis Testing

The VIF values between constructs ranged from 1.000 to 2.486, so there was no collinearity problem. The R^2 of PU was 0.598 and the R^2 of ATU was 0.575 (both moderate). The largest effect size was found for PEOU on PU ($f^2 = 1.486$), followed by PEOU on ATU (0.194) and PU on ATU (0.116). The SRMR of the composite model was 0.081, slightly above 0.08. The results of the regression and the hypothesis testing are given in Table 9, Table 10, and Figure 4.

For readers who are less familiar with these indicators, the common rules of thumb in [30], [47] help. An R^2 of about 0.50 is read as moderate, so the two values above mean that PEOU and PU together explain a moderate share of the variation in ATU, and PEOU alone does the same for PU. For the effect size f^2 , values around 0.02, 0.15, and 0.35 are read as small, medium, and large. By this reading, the effect of PEOU on PU is very large, the effect of PEOU on ATU is medium, and the effect of PU on ATU is small.

Table 9. Results of linear regression

Model and predictor	b	t	p	R^2
Model 1: PEOU → PU	0.767	8.559	< 0.001	0.558
Model 2: PEOU → ATU	0.555	3.407	0.001	0.571
Model 2: PU → ATU	0.441	2.782	0.007	0.571

Table 9 shows that all three paths were significant in the regression. Model 1 explained 55.8% of the variation in PU, and Model 2 explained 57.1% of the variation in ATU. The residuals of Model 1 were not normally distributed ($p = 0.004$), while those of Model 2 were normal ($p = 0.194$).

Table 10. Results of hypothesis testing (PLS-SEM)

Code	Path	β	t	p	Result
H1	PEOU → PU	0.773	13.028	< 0.001	Accepted
H2	PEOU → ATU	0.453	2.601	0.009	Accepted
H3	PU → ATU	0.351	1.923	0.055	Rejected
H4	PEOU → PU → ATU	0.271	1.891	0.059	Rejected

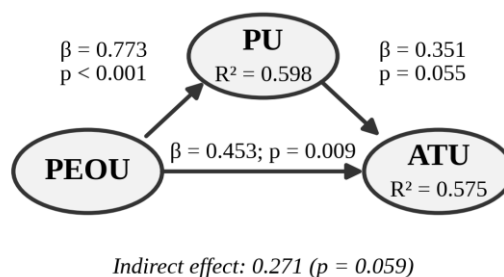


Figure 4. Path model results from PLS-SEM

Table 10 and Figure 4 show that PEOU had a significant effect on PU and ATU (H1 and H2 accepted). The effect of PU on ATU was not yet significant at the 5% level ($p = 0.055$), and its confidence interval included zero (-0.025 to 0.653), so H3 was rejected. The indirect effect of PEOU on ATU through

PU (0.271) was also not significant ($p = 0.059$), so PU did not significantly mediate the relationship (H4 rejected). The regression in Table 9 gave the same direction for H1 and H2, but the effect of PU on ATU was significant in the regression ($b = 0.441$; $p = 0.007$).

3.5. Discussion

3.5.1. Overall acceptance level

The overall index of 70.90% places the acceptance of Dapodik in the Good category, with a narrow gap among the dimensions. The lowest item, the speed of completing data entry, is in line with Destiarini and Munir, who found efficiency to be the weakest indicator of Dapodik for elementary schools [7], although the object and the instrument were different. The Good category also agrees with the result of Rosnaedi et al. [10]. Other Dapodik studies reported favorable ratings too: a very good rating with WebQual [11], a Good satisfaction index for Dapodik administrative services [3], and an 80.9% "very acceptable" level in a TAM study in Bone Bolango [23]. Kasbijanto et al. likewise found high goal achievement, with the weakest items related to technical barriers such as system downtime [42]. Because the scales and the categories of these studies are not the same, only the tendency is compared. One possible reason for the low score on data entry speed is the unstable performance of the Dapodik website between schools [6]. This study did not measure system speed, so this remains an explanation to be tested.

3.5.2. The role of ease of use

The very strong effect of PEOU on PU ($\beta = 0.773$; $f^2 = 1.486$) shows that operators who find Dapodik easy to use tend to find it useful, which follows the direction proposed by Davis [19]. A TAM study of Dapodik in Bone Bolango also found that ease of use significantly affected usefulness and intention [23], and the work of Adha et al. points the same way [22]. In contrast, the contribution of PU to ATU was weak. This pattern differs from Mulyono et al. on a health center application, where PU had a significant effect on attitude ($p = 0.003$) while ease of use did not ($p = 0.165$) [25]. For Dapodik, which is mandatory [28], the comfort of day-to-day work seems to matter more for the attitude of operators than the benefit they feel. This fits the view that relationships in acceptance models change under mandated use [29]. The absence of mediation by PU also agrees with Kartiko et al., who found that attitude did not mediate the relationship of ease of use and usefulness with use in a government application [26], although their variables and methods were different. Attitudes under mandated use may also depend on experience and on organizational support [33], which this study did not measure.

3.5.3. Why regression and PLS-SEM differ

Table 11 puts the two sets of results side by side, so the difference can be seen directly.

Table 11. Regression and PLS-SEM results compared

Code	Path	Regression (b; p)	PLS-SEM (β ; p)	Conclusion
H1	PEOU $\rightarrow$ PU	0.767; < 0.001	0.773; < 0.001	Both supported
H2	PEOU $\rightarrow$ ATU	0.555; 0.001	0.453; 0.009	Both supported
H3	PU $\rightarrow$ ATU	0.441; 0.007	0.351; 0.055	Results differ
H4	PEOU $\rightarrow$ PU $\rightarrow$ ATU	Not tested	0.271; 0.059	Not supported

The difference between the regression and the PLS-SEM results on the path from PU to ATU can be explained by three things. First, the bootstrap standard error (0.182) was larger than the regression standard error (0.159). Second, PEOU and PU were highly correlated (0.773; VIF 2.486), so the extra explanation added by PU after PEOU was taken into account was small. Third, the PLS-SEM p value of 0.055 lies right next to the 0.05 limit, so the two results do not really contradict each other. A safe conclusion is that ease of use is the factor most clearly related to the attitude of operators, while the unique contribution of usefulness is weak.

3.5.4. Discriminant validity

An important point is discriminant validity. HTMT values of 0.954 to 1.018 mean that respondents hardly distinguished among usefulness, ease of use, and attitude. HTMT was proposed as a more sensitive test than the Fornell-Larcker criterion [37], [38], and here both tests point to the same problem. By the definition of Rönkkö and Cho, a correlation between two measures that is close to or above one after measurement error is taken into account shows that the measures do not yet separate the constructs [39]. A check without the eight respondents who gave the same answer to all items did not change HTMT

meaningfully (0.95 to 1.02). Therefore, the path coefficients are read as relationships among overlapping dimensions, and future studies need items that separate usefulness and ease of use more clearly.

3.5.5. Practical implications and limitations

In practice, the assistance of operators should focus on what makes Dapodik easier to use, namely a fast data entry flow, the meaning of validation error messages, and the location of menus. A short internal guide and a list of the meanings of error messages can be prepared from the three lowest items. Users of another school system also struggled when the system did not explain the cause of an error, and they asked for direct links to the source of the problem [18]. Operators of the Dapodik inventory menu named limited technical training and limited time for routine updates as the main obstacles [5], and a review of Dapodik management in remote areas recommends continuous capacity building for operators [2]. These points support the suggestion of regular short training for operators.

The limitations of this study are as follows: it covers only one subdistrict, the 60 respondents are almost all operators, the length of use was filled in by only half of the respondents, the sample is small for PLS-SEM, and the SRMR is slightly above 0.08. The model also contains only three constructs, as explained in Section 2.3. Factors such as experience and complexity [23], work motivation [24], information and service quality [13], [36], and organizational influences [33], [35] were not measured. They can be added in future studies with a larger sample, which fits the common view that TAM is a sound base that is usually extended [21].

3.5.6. Answers to the research questions

Returning to the three questions in the Introduction, the findings can be summarized as follows. First, operators accepted Dapodik well on every dimension, with indices between 70.00% and 72.50%, and the speed of data entry was the weakest point. Second, ease of use was clearly related to both usefulness and attitude, while the link from usefulness to attitude was weak and its mediating role was not supported at the 5% level. Third, the respondents did not clearly separate the three dimensions, so the relations among them should be read with care.

4. Conclusion

User acceptance of Dapodik in Batang Subdistrict was in the Good category (index 70.90%), with PU at 70.00%, PEOU at 70.80%, and ATU at 72.50%. The 10-item instrument was valid and reliable (alpha 0.888), but discriminant validity among the dimensions was not met (HTMT 0.954 to 1.018). PEOU had a significant effect on PU ($\beta = 0.773$) and ATU ($\beta = 0.453$), while the effect of PU on ATU ($\beta = 0.351$; $p = 0.055$) and its mediating role were not significant. The item with the lowest score was the speed of completing data entry (3.40), followed by the clarity of error messages and the ease of remembering menu locations. It is suggested that operator assistance and interface improvement give priority to these three points. Future studies can widen the area and the number of respondents, include principals and teachers, add factors such as experience, complexity, and organizational support, and use items that separate the TAM dimensions more clearly.

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