

# Development of MOLAH GATI Information System in Digital-Based School Administration

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**Abstract.** This study aims to develop the MOLAH GATI Information System in Digital-Based School Administration using the local account and Google Workspace for Education. This study uses the Research and Development level 3 method with the ADDIE model. The research stages start from the analysis, design, development, implementation, and product evaluation stages. This study developed 10 digital-based school administration features, and the application expert validity test results obtained an Aiken V validity coefficient value of 0.94, which is a very good category. The Aiken V validity coefficient value was obtained at 0.91, with a very good category for the material expert validity test. The feasibility trial by users shows that the MOLAH GATI information system is very feasible to use in digital-based school administration, with a feasibility percentage value reaching 90.7%.

**Keywords:** Information Systems; MOLAH GATI; School Administration.

## INTRODUCTION

The Ministry of Education, Culture, Research and Technology has issued a Regulation of the Secretary-General concerning Technical Instructions for the Utilization of Basic Education Data for Learning Service Access Accounts. It is reinforced by the Regulation of the Secretary-General No 20 of 2022 concerning Guidelines for Managing Education Service Access Accounts, which aims to transform technology-based education services digitally. To realise this, the Ministry of Education, Culture, Research and Technology created an Education Service Access Account and a Google Workspace for Education account with the domain Belajar. This account is given to all educators and education personnel registered in Dapodik at school [1].

With this, Belajar educators and education personnel can access Google applications to facilitate school educational administration activities. Various services available in the Google ecosystem, such as Google Drive, Google Docs, Google Spreadsheet, Google Sites, Google Meet, and other application services, can be utilised by schools to implement digital-based school administration.

The effectiveness and efficiency are offered through the use of Belajar.id accounts, in reality, do not necessarily make schools implement digital-based school administration. Secretarial management, such as correspondence activities, archiving, and financial administration, are part of school administration activities [2] and are mostly managed manually. Some of the administrative work done by schools is archiving incoming letters, outgoing letters, meeting minutes, recording incoming and outgoing financial flows, extracurricular activities, teacher teaching journals, document expeditions, and other administrative work that is still paper-based and handwritten. Although the internet network is available at 50 Mbps, all teachers have laptops.

The MOLAH GATI Information System is here to help solve this inequality. In the Sasak language, MOLAH GATI means "very easy or makes things easier". MOLAH GATI was developed using the Belajar account and Google Workspace for Education (GWE). There are various applications in GWE, including Google Sites, Google Docs, Google Spreadsheet, Google Meet, Google Drive, Google Slide, Google Calendar, and Google Form [3].

Based on the background description, a study was conducted to develop, refine, and test the feasibility of MOLAH GATI in supporting the implementation of digital-based school administration.

## METHOD

This study uses the Research and Development level 3 method. For the research model, the ADDIE Model was used, developed by Dick and Carry (1996), with the following steps: Analysis, Design, Development, Implementation, and Evaluation [4]. Analysis is the stage where researchers collect information related to the needs, situations, and work environment of SDN 23 Ampenan. Information obtained at this stage includes:

Schools need additional features for administering School Operational Assistance (BOS) fund documents and archiving student academic data.

A work environment climate that supports using digital technology in school administration.

The design stage uses the conclusions from the Analysis stage to start the design. At this stage, the researcher creates a design that will be developed. The design of the MOLAH GATI information system product that was developed includes updating the website interface, ease of access, and adding features as needed. So, the MOLAH GATI information system features, initially numbered eight, will be developed into 10 features.

Researchers carried out two activities in the Development stage: product development and product validation. In developing the MOLAH GATI information system, researchers used six GWE applications, namely: 1) Google Site to create a website; 2) Google Docs for word processing; 3) Google Spreadsheet to process data; 4) Google Meet to hold virtual meetings; 5) Google form for inputting data in the form of forms; 6) Google Drive for cloud storage services.

With these 6 WGE applications, researchers developed 10 features of the MOLAH GATI information system: incoming mail, outgoing mail, expedition books, online meetings, extracurricular reports, meeting minutes, daily agendas, teaching tools, academic records, and BOS documents.

Furthermore, product validation involves application experts and material experts. Application

experts consist of 3 experts from the Ministry of Education and Culture's Technology Ambassador and Google Certified Trainer to validate software engineering and visual communication. Material experts consist of 3 people: the Head of the Mataram City Education Office, the Mataram City School Supervisor, and the Mataram City School Principal. They validate four aspects: accuracy, importance, completeness, and suitability of school administration to needs. Each expert gives a score to the validation instrument using a Likert scale of 1 to 5. Validity analysis is carried out using the Aiken V validity test using the following formula [5]:

$$V = \frac{\sum S}{n(c-1)} = \frac{\sum (R - L_0)}{n(c-1)}, \quad (1)$$

where V – Aiken index; S – Score given by the assessor minus the lowest Score in the category; R – Score given by the assessor;  $L_0$  – lowest assessment score (1); c – highest assessment Score (5); n – number of validators (raters).

Table 1 – Aiken V Validity Classification [5]

No	Aiken Validity Coefficient Value	Validity
1	$0 < V \leq 0.4$	Less Valid
2	$0.4 < V \leq 0.8$	Valid
3	$0.8 < V \leq 1$	Very Valid

In the Implementation stage, researchers involved 10 teachers and education personnel at SDN 23 Ampenan to conduct a MOLAH GATI information system trial. The trial was conducted if the results of the Aiken V validity test obtained a minimum value of  $0.4 < V \leq 0.8$  (Very Good category) [5]. Users conducted a trial to measure the feasibility of the product in 5 aspects, namely: ease of use, efficiency, effectiveness, satisfaction of use, and availability of support. Each user gave a score of 1 to 5 on the trial instrument. The data from the user trial results were quantitatively analysed and calculated using the following formula [6]:

$$P = \frac{f}{N} \times 100, \quad (2)$$

where P – Percentage number (1 – 100; f – Score obtained; N – Maximum Score (5).

The calculation results obtained from the formula are then converted into the following criteria:

Table 2 – Eligibility Level Criteria [6]

No	%	Eligibility Category
1	86–100	Very good
2	76–85	Good
3	66–75	Pretty good
4	56–65	Not good
5	<56	Very Poor

The evaluation stage is the final stage of the ADDIE model, which is carried out by assessing whether each step of the activity and product made has been by the specifications. This stage is carried out by analysing user responses based on the instruments used during the implementation stage. At this stage, the researcher makes final revisions or improvements to the information system application that has been developed based on input and suggestions obtained from the respondent questionnaire. The MOLAH GATI information system development research is successful if the application's validity and the material's validity obtain a minimum (Aiken validity value  $0.4 < V \leq 0.8$ ). It obtains a practicality and effectiveness value based on user trials reaching a minimum good value (76–85%).

## RESULTS AND DISCUSSION

*Features of MOLAH GATI Information System.* Through this research, researchers have developed the MOLAH GATI information system into 10 features by integrating 6 Google applications to make it easier for users to input, process and use data in the information system [7]. The features of the MOLAH GATI information system can be accessed via the website <https://www.sdn23ampenan.sch.id/molah-gati>.

*The ten features are:*

1. Outgoing mail creates automatic letter registration numbers and archives outgoing letter documents.
2. Incoming mail to archive incoming mail documents.
3. Expedition Book to archive proof of document delivery.
4. Online Meeting to conduct online teacher meetings.

5. Extracurricular Report to report extracurricular activities.



Figure 1 – MOLAH GATI Information System Menu Feature Image (in Indonesian)

6. Minutes of meeting to record the results of the school meeting.
7. Daily Agendato reports teachers' daily teaching agenda, including educational staff's daily activity reports.
8. Teaching Tools to upload learning devices created by each teacher.
9. Academic Records archive students' academic documents such as report cards, certificates, diplomas, and personal documents such as birth certificates, family cards, and parents' ID cards.
10. BOS Documents to save photos of BOS budget spending for each shopping account number.

In addition to developing features, the appearance of the website interface is also one of the focuses of developing the MOLAH GATI information system so that users can easily and more comfortably use it. Researchers also improved the uniform shape of the buttons, including consistency in the use of colour. In the Heuristic Evaluation theory, uniformity of the interface appearance is one of the principles of website development to avoid discomfort for users [8]. The interface appearance is the part that is immediately visible and becomes the focus of the eye

when a website is opened. So, the selection and use of colours are very important. This is because, subconsciously, users need 90 seconds to assess a website, and 90% of the assessment is based on colour [9].

The website interface display needs A combination of colours for the right composition. Colour harmony will be obtained if the colour selection is right. Colour harmony is obtained from the harmony when two or more colours interact. So, in the theory of colour combination, researchers use the theory of split complementary colour combination. This combination consists of three colours: one colour and two opposite colours [10]. For the MOLAH GATI information system, researchers use one blue colour and two opposite colours, white and black, as seen on the MOLAH GATI website.

All data inputted into the MOLAH GATI information system is stored in Google Drive as cloud storage [11]. The Google Drive application is a cloud storage service for storing and sharing digital data such as documents, photos, and videos. Google Drive cloud storage in the Belajar.id account has a storage capacity of up to 100 gigabytes for each account [1]. Utilising the Google Drive cloud storage of the Belajar account, researchers do not need to pay to rent cloud storage for the MOLAH GATI information system.

*Feasibility of MOLAH GATI Information System.* The feasibility of the MOLAH GATI information system in implementing school administration can be seen from 4 aspects: the results of the application expert validity test, the results of the material expert validity test, the results of the user trial and data security.

*Expert Application Validity Test.* The expert application validity test analysis results obtained an Aiken V coefficient value of 0.94. This value is in the  $0.8 < V \leq 1$  range with a valid result category. These results were obtained from the average Aiken V coefficient value of the software engineering aspect of 0.95 and the visual communication aspect of 0.93. The MOLAH GATI information system's development involves visual aspects such as shape and colour and concerns the functionality of the tools provided for users. An effective interface display includes buttons, forms, and user experience [8].

*Material Expert Validity Test.* The results of the analysis of the validity test of the material expert obtained an Aiken V coefficient value of 0.91.

This value is in the  $0.8 < V \leq 1$  range with a valid result category. These results were obtained from the average Aiken V coefficient value of the administrative accuracy aspect of 0.94, administrative importance of 0.96, administrative completeness of 0.92, and suitability to needs of 0.81.

The results of the expert validity test of the material show that the MOLAH GATI information system is very appropriate for carrying out routine administrative activities, including recording activities, organising correspondence with all its aspects, documenting activities, and preparing reports.

*User Trial.* Based on the results of user trials, the feasibility of the MOLAH GATI information system reached 90.7% with a very good category. The assessment instruments have five aspects: ease of use, efficiency, effectiveness, user satisfaction, and availability of support. These aspects in website design are called usability, and a website must include three aspects: effectiveness, efficiency, and user satisfaction. Effectiveness is related to users' accuracy and perfection when performing administrative tasks. Efficiency is related to how precisely and perfectly the MOLAH GATI information system achieves its goals. Satisfaction of use indicates that users do not experience difficulties or problems and are free from discomfort when using the MOLAH GATI information system website [13].

*Data Security.* For data protection, the MOLAH GATI information system security system uses the Google security system [14]. By utilising the Google security system, researchers use privacy security settings for four types of users, namely as follows:

*Restricted User.* Users whose emails are not registered cannot access data in the MOLAH GATI information system. This is intended for the public.

Users are viewers with restrictions (Viewer Allowed With Restrictions). Users with registered emails can view it without being permitted to print, copy, and download it. This is intended for parties outside the school interested in school data, such as the education office.

As viewers with registered emails, users can view it with permission to print, copy, and download. This is intended for interested and trustworthy internal school users.

Users as admin or editor. Users with registered email can become editors specifically for admins.

In addition to the four user type settings, researchers also provide a unique code for each data input. Before the user sends the entered data, the user will be asked to enter a unique code only known to users with access to enter data. So, even though the public can see the menu on the MOLAH GATI information system, they cannot enter data because they do not know the unique code.

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## CONCLUSIONS

The application expert validity test results obtained an Aiken V validity coefficient value of 0.94 with a very good category. An Aiken V validity coefficient value of 0.91 was obtained for the material expert validity test with a very good category.

The user feasibility trial showed that the MOLAH GATI information system was feasible for digital-based school administration, with a feasibility percentage value of 90.7%.