

Development of Ms Excel-Based Christian Religious Education Teacher Classroom Supervision Instrument in Lamandau Regency

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Abstract

Ms Excel-Based Application. this can help speed up the processing of class supervision results, as well as being able to store supervision results in digital format, and can even display them in hard copy format. The research aims to: find out the application features needed in the implementation of classroom supervision of Christian Religious Education (PAK) teachers. Develop an Ms Excel-based PAK teacher classroom supervision instrument. Knowing the feasibility of the Microsoft Excel-based PAK teacher classroom supervision instrument based on the trial. This research uses a qualitative approach, a type of development. The development steps adopted the Borg and Gall model, which consists of five development steps. The subjects of this study were PAK supervisors and teachers. Data collection through interviews, observation, and documentation. Research conclusions: (1) The classroom supervision application has features: easy to use, computerized, has high data mobility, has the ability: to perform mathematical calculations, is cost-effective, store and maintain data, obtain data quickly, and process data carefully. (2) Development of Ms Excel-based PAK teacher class supervision application through 5 steps, namely: (3) The feasibility test shows that the Ms Excel-based PAK teacher class supervision application can answer challenges, ease of operation, complete data results that meet the needs, accurate and precise calculations

Keywords: *Instrument Development, Classroom Supervision, Ms Excel*

Introduction

Classroom supervision, as part of academic supervision, for PAK teachers in the district of Lamandau experienced numerous constraints. These constraints have resulted from the unbalanced number of supervisors compared to the number of schools and PAK teachers they supervise (Pransinatha, 2022; Sanasintani, 2019; Schussler, 2016; 현상규, 2019). Conditions like these have resulted in insufficient supervision provided by the supervisors.

Minimizing constraints in supervision by using the Ms Excel-based Christian Religious Education Teacher Class Supervision Instrument. Based on Ms Excel, the application helped to accelerate the processing of class supervision results, as well as to save supervision results in digital format, and even display them in hard copy format.

The purpose of this study was to determine (1) the application features needed in the implementation of classroom supervision of PAK teachers in the Lamandau District. (2) Develop a Ms Excel-based PAK teacher classroom supervision instrument in Lamandau Regency. (3) To determine the feasibility of the Ms Excel-based PAK teacher classroom supervision instrument based on the pilot test in Lamandau District.

2. Method

2.1 Approach and Research Design

The research approach used is the qualitative approach, which is research that intends to understand the phenomenon of what is experienced by the research subject holistically, using descriptions in words and language, in a special natural context, and by utilizing various scientific methods (Moleong, 1998). As Sugiyono explained, Research and Development research, hereinafter abbreviated as R&D, is a research method used to produce certain products and test the effectiveness of these products (Sugiyono, 2013a, 2016). As Sugiyono explained, Research and Development research, hereinafter abbreviated to R&D, is the research method used to produce certain products and test the effectiveness of these products (Sugiyono, 2013a, 2013b). Products mentioned here are not merely in objects or hardware, but also in the form of software.

Products produced within this research are classroom supervision applications, namely Ms Excel-based application software that serves to assist in the implementation of the supervision process in the classroom (Hacker & Abers, 2004). Classroom supervision application helped a supervisor in inputting data, processing and displaying the results of the analysis until it was ready to print in the form of soft and hard copies.

Regarding development research procedures in this study adopting the Borg and Gall development steps mentioned previously, is shown in the following chart (Gall, Gall, & Borg, 2007).

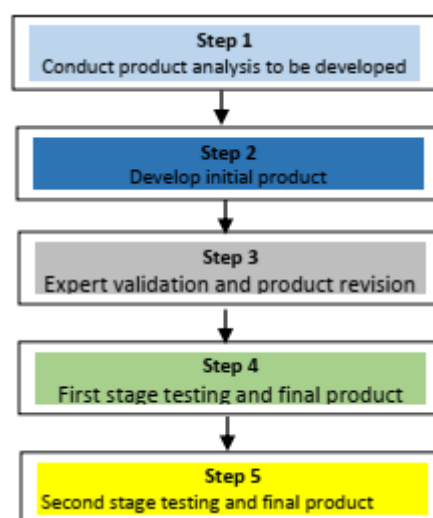


Figure 1 Research and development procedure Classroom supervision application adopted from development steps according to Borg and Gall

2.2 Research Procedure

First, analyze the product that was developed. This was implemented by conducting preliminary research (pre-survey) to gather information (literature review, observation), and identify problems for further planning. Measurements taken during this process include preliminary studies, problem analysis, needs analysis, and decision analysis. Furthermore, one of the steps carried out in the preliminary study is a feasibility study, this step is carried out to ensure that the product produced is truly applicable in the field.

Furthermore, the second step involved developing the initial product. Based on the information that has been obtained, further development of the initial design of the classroom supervision application. Based on the information that has been obtained, then develop the initial design of the classroom supervision application. This application was built using the Ms Excel program with the consideration that Ms Excel is already familiar with data analysis in the world of education (Sudiyono & Prasajo, 2011). Almost all computers have built-in programs such as word processing in Mc Office (Danim, n.d.). Class supervision applications are designed based on the supervision instruments used in the 2013 curriculum.

Step three - expert validation and product revision. Expert validation tests were conducted to obtain information, suggestions, and suggestions for improvements that were used to make revisions to the application that had been made. Information/data collection using observation, interviews, and questionnaires, followed by data analysis (Miles & Huberman, 1992). IT expert validation was intended to examine and test the correctness of the program flow diagram, test the link function between sheets, and mathematical formulas/formulas, and test the functioning of VBA/macros. Meanwhile, validation from educational supervision practitioners aims to determine the extent of suitability, accuracy, completeness, appearance, and ease of operation of the classroom supervision application. Validation of educational supervision practitioners is needed to provide an initial picture of the extent of acceptance of this application in the field. The results of the validation are then used as a reference for making improvements before testing at the next stage.

The fourth step was testing the first stage and revising the product. Based on the improvements that have been made, the classroom supervision application is then tested on a limited scale. Testing the app involved PAK supervisors from Lamandau district, but only using unreal data. Testing was conducted as the main purpose of this stage was to find out the obstacles in operating the application. Activities are intended to find out the shortcomings of the product that has been made for revision before the product is tested on a more real scale.

The fifth step testing the second stage and final product. After making improvements to the product, the application was tested using real data. Accordingly, the program was conducted by involving 1 PAK supervisor from the Ministry of Religious Affairs. Moreover, this activity was carried out to determine the extent to which this program can be operated in assisting supervision when implemented on a more real scale in the field. Evaluations conducted in this trial, assessing aspects of ease of access, aspects of completeness, aspects of suitability, aspects of accuracy, and speed of access were carried out using interview techniques with PAK supervisors.

Currently, this research is conducted at the Office of the Ministry of Religious Affairs of Lamandau Regency, which is the place where the development of the Classroom Supervision Application for PAK academic supervision activities is carried out. As for the research time, this research was conducted from April 01, 2022, to September 2022.

2.3 Collecting and Data Analysis

Data processing went through three streams of activities, namely data reduction, presentation, and conclusion drawing/verification. Data reduction can be defined as the process of summarizing, sorting out the main points, focusing on the important things, and looking for themes and patterns to provide a clear picture (Hughes & Melby, 1930). Presentation of data that organized the data and arranged the relationship pattern so that it is easier to understand. Drawing conclusions, namely concluding verification of patterns of regularities and deviations that exist in the phenomena that arise (Cipta, 2000). The data analysis technique was carried out at every stage of this research, from the preliminary stage to the final product stage in the development of the Classroom Supervision Application for PAK academic supervision activities in Lamandau District.

3. Results

3.1 Product Analysis Development

During this stage, preliminary research was conducted to gather information and identify problems for further planning. The main method of extracting information in this study was the interview method. The interviews in the context of problem identification involved 1 supervisor and the Head of the Office of the Ministry of Religious Affairs of Lamandau Regency.

Based on the problems mentioned previously, there are opportunities as shown by the positive response of the PAK supervisor and the support of the Head of the Office of the Ministry of Religious Affairs of Lamandau Regency for the plan to develop a Ms Excel-based classroom supervision application product (Interview with the Head of Christian Religion of the Office of the Ministry of Religious Affairs of Lamandau Regency dated 2022).

In addition, the potential resources enabling the development of this product, as it was known locally existing supervisors were capable and had technological devices in the form of laptops (Dron, 2022; Pischetola, 2021; Tamara, Ramada R, Saras, Ronaldo, & Abidondifu, 2022); (Sahertian, 2000). It becomes an enormous opportunity for product development to improve the quality of supervisory services by optimizing the function of computers as data processors and presenters (Hamrin, 2011).

To develop a product, a feasibility study will be required. Four feasibility criteria support the development of information systems, namely technical feasibility, operational feasibility, economic feasibility, and schedule feasibility (Baker, 2017; Ginting, 2010; Sarmauli, Timan Herdi Ginting, Colina, & Haloho, 2022; Sihombing, 2022; Suriani & Betaubun, 2022; Tekerop, Istinia, Elisabeth, & Munte, 2019; Timan Herdi Ginting, Colina, & Haloho, 2022); (Umiarso & Gojali, 2010).

Technical feasibility addresses three key issues: whether the proposed technology or solution is practical enough, whether it already has sufficient technology, and whether it has sufficient technical expertise. Technical feasibility is done by reviewing the availability of technology.

Operational feasibility provides a measure of how well the solution works or is accepted in the organization, by measuring the level of acceptance of the solution. Operational feasibility was carried out by looking at the ability of officers and the ability of the application to produce information and applications of the system. Application developed using Ms Excel by utilizing several functions (Sugiharto, Sambada, Purwadianto, & Kusbandono, 2021). Based on this application, the user/supervisor could merely run the program, without having to master Ms Excel in depth. To help users when facing difficulties in running it, this application is given a button that connects to the help menu.

The feasibility of the schedule was used to determine that the development of this Ms Excel-based classroom supervision application could be carried out according to the time limit set (Winaryati, 2014). Preparation of this Ms Excel-based classroom supervision application, considering that the compiler is also a lecturer who is busy with campus affairs, the preparation is scheduled to be done in one semester.

Economic feasibility used to determine the development of Ms Excel-based classroom supervision applications can be run and can provide benefits for PAK academic supervision activities. In terms of economic value, this product development plan does not require large costs because the means of developing this product are already available and owned by PAK supervisors.

The development model chosen uses Data-Based Management System Development (later abbreviated: DBMS), which is an electronic data storage system in a computer that aims to improve the efficiency and effectiveness of work. (Saputra & Sukarno, 2019; Sukarno & Sarjono, 2015). The advantages of archiving data using DBMS programs are they can store huge amounts of data and are easy to trace back.

The operating system (OS) represents a program that acts as an intermediary between computer users and computer hardware.

This research selected Microsoft (MS) Windows 7 with the consideration that the operating system (OS) has been used by PAK supervisors so that human resources (users) are accustomed to using the operating system (Sukmadinata, 2010). Selection of software (tools) for the proposed needs The software (tools) used to build Microsoft Excel-based classroom supervision applications is to optimize existing features, be it functions / formulas, links, Visual Basic for Applications (VBA) (Kim, Hong, Oh, & Lee, 2018).

Another consideration given was the familiarity of the program, the fact almost all portable computers have it installed, and the ability of users/supervisors to operate it. Development of this application using Mc Office 2010.

3.2 Product Development: Work Design

The flowchart for making the Ms Excel-based Christian Religious Education (then abbreviated: PAK) classroom supervision application is as follows:

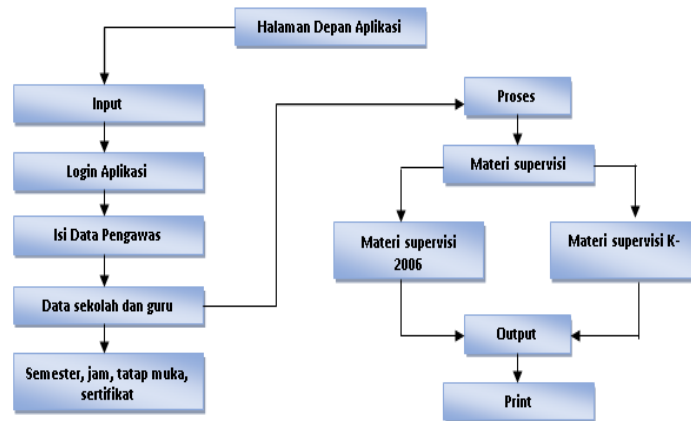


Figure 2. Microsoft Excel-based Christian Religious Education classroom supervision application program

The main diagram of the Microsoft Excel-based Christian Religious Education classroom supervision application program starts with a cover, input, process, and output display with the following chart:

Interface design of the application: Sisain Interface Cover / Front Page / Cover

Aplikasi Supervisi Kelas GURU DALAM PEMBELAJARAN	
Supervisor	Pengawas Sekolah
Nama Supervisor	Evirawathi Usith
NIP Supervisor	NIP. 197401302005012002
Nama Sekolah	SMAN 1 NANGA BULIK
Nama Guru	Dessy Sarjani, S.Th
NIP Guru	NIP. 198112152009032005
Pangkat/Golongan	Penata IV-a
Tanggal Pembinaan	Lamandau, Agustus 2022

Materi Supervisi Guru	
Kunjungan Kelas Kurikulum 2006	
Kunjungan Kelas Kurikulum 2013	
Semester /Tapel	Ganjil / 2022/2023
Jlh Jam Tatap Muka	24 jam pelajaran
Sertifikasi	2018

Created @ 2022 by IAKN Palangka Raya

Figure 3. Interface Cover / Front Page / Cover

Once the start button is clicked, the User Login is displayed as shown below:

Users have to enter their Username and Password, the default for username and password is "admin". After pressing the "OK" button then enter sheet 2 "Log In"

Input Interface Design

Aplikasi Supervisi Guru

Silahkan Login

Masukkan Password

Login Keluar

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The login menu serves to enter supervisor data such as name and NIP. Data input results are displayed in subsequent formats and shown while printing the supervision result document.

Display of the login design after entering the password:

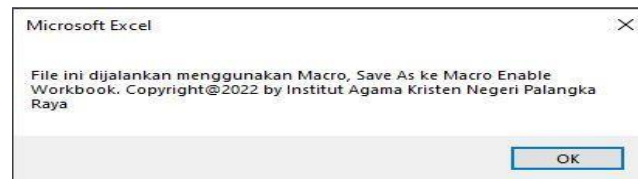


Figure 4. Display of IT expert assessment results

3.3 Validation

The validation process was carried out by running the Ms. Excel-based classroom supervision application, and IT experts were invited to provide an assessment score for the software. The score consists of:

- Very Lack (SK)
- Lack (K)
- Sufficient (C)
- Good (B)
- Excellent (SB)

Validation material consists of Clarity of instructions for use, Ease of use of the application, Clarity/accuracy of navigation, Consistency of buttons/buttons, Can be controlled at the user's speed, Use of font type and size, Composition, and combination of colors, Use of images, photos or graphics, Screen quality (screen design), Efficiency of screen use supporting supervisor work efficiency. Feedback response if there is a filling error, Accuracy of calculation, Output results from the application (printout) (Muslim, 2009). After running the application, the IT Expert gave the following score:



Obtained is 3.64 which means good enough. Production could be carried out provided further improvements were needed. After discussion, the IT department provided comments and suggestions:

- The coloring in each sheet was uniform in one color group. This has been improved by giving colors with the appropriate percentage.

For example plain white color Turns orange and gray

Nama Sekolah : SMAN 1 NANGA BULIK Semester/Tapel : Ganjil / 2022/2023
Nama Guru : Dessy Sarjani, S.Th Jumlah Jam T.M: 24 jam pelajaran
NIP : NIP. 198112152009032005 Sertifikasi : 2018
Pangkat/Golongan : Penata IV-a

No.	Komponen Penilaian Guru Dalam Kegiatan Pembelajaran	Ada	Tidak Ada	Nilai
A.	Kegiatan Pendahuluan			
a.	Melakukan apersepsi dan motivasi	V		3
b.	Menyiapkan fisik dan psikis peserta dalam mengawali kegiatan pembelajaran	V		3
c.	Mengaitkan materi pembelajaran sekarang dengan pengalaman peserta didik dalam perjalanan menuju sekolah atau dengan tema sebelumnya	V		3
d.	Mengajukan pertanyaan yang ada keterkaitan dengan tema yang dibelajarkan	V		3
e.	Mengajak peserta didik berdinamika melakukan sesuatu kegiatan yang terkait dengan materi	V		3
B.	Kegiatan Inti			
1.	Guru menguasai materi yang di ajarkan			
a.	Kemampuan menyesuaikan materi dengan tujuan pembelajaran	V		3
b.	Kemampuan mengkaitkan materi dengan pengetahuan lain yang diintegrasikan secara relevan dengan perkembangan intelektual dan kehidupan nyata	V		3

- b) Creating a database on key data, such as school data, school address, basic competencies, and subjects. This suggestion has been improved, especially on school data and school address, for basic competencies was not done due to inefficiency (Atmodiwiryo, 2011).
- c) If there is a need for system protection using a password. This has been done by adding a login menu by providing a VBA script that instructs filling in the User and Password.

The final result recap page is a page that displays the format commonly used by supervisors in classroom supervision. This page is a display of the results of filling in the previous format. On this page, there is a class supervision blank format (Donal, 1986).

3.4 First Stage Trial and Product Revision

Lamandau District Office PAK supervisors were involved in the changes and adjustments and then conducted small-scale trials. The test was conducted to determine whether the application could run properly (Fathurrahman, 2007). The results of this pilot test were used to make revisions for the second stage of the pilot test. The trial at the initial stage used fictitious data instead of actual data. The main purpose of this stage is to find out whether the classroom supervision application works and whether supervisors have the skills to operate it properly (Pidarta, 2009). Furthermore, the stages of this trial implementation are as follows:

First, how to run the classroom supervision application. In this trial, supervisors were given instructions on how to run the application. Since this application runs with VBA, what needs to be done is to ensure that the macro enable message is enabled. (Glickman & Tamashiro, 1980). Supervisors are then trained on how to use and utilize the buttons on the home page. After understanding the buttons available, then understand how to start/login, after the start button is executed, a window appears.:



After the window appears, the supervisor has to enter the username and password, the username and default password are "admin" in this application, then click the OK button, then enter the log-in menu.

Second, how to run filling in Supervisor data and Teacher data on the classroom supervision application (Glickman, 2002).

After entering the following log-in menu:



Next, supervisors were trained on how to fill in the Name and Employee Identification Number (later abbreviated: NIP) of the supervisor. Based on a suggestion from one of the supervisors, he wanted the name and NIP to be included in the database, so the supervisor just had to choose from the dropdown list. After the supervisor's data has been entered, then proceed with filling in the teacher data by clicking on the fill-in-teacher data button.

When filling in the teacher data, the supervisor can see the instruction button available. Filling in supervisor data and teacher data can be done before class supervision, so it is hoped that when entering the class, the supervisor can just continue filling in the supervision format (Kia, 2019).

Third, how to fill in the class supervision application format. Filling in the classroom supervision application format was conducted by providing a checklist in the box provided according to the supervisor's assessment. The filling can be sorted from preparation, preliminary activities, core activities, closing activities, and assessment. In filling this out, supervisors have no difficulty, since the format in this classroom supervision application adjusts to the format of sheets commonly used in classroom supervision (Dollarhide & Miller, 2006).

The advantages of the format in this classroom supervision application make it easier for supervisors, if there is a checklist error, the supervisor can easily replace it (Anak, 2009). All calculations run automatically (Arikunto, 2004); (Arikunto, 2013). Thus, when the classroom supervision activity finishes, the supervisor immediately knows the assessment score, and can quickly provide feedback to the supervised teacher.

Fourth, how to find out the results of supervision, save and print the results of classroom supervision. After making observations and checklists in the classroom supervision application is complete, then enter the print format sheet. On this sheet, the supervisor can see the results of the score recap and can provide feedback notes to the teacher. For administrative purposes or as physical evidence, supervisors can print the results of supervision, either in digital form or in hardcopy (Purwanto & Sujarman, 2009). Print in digital format means a special file that contains a PDF format supervision sheet to get a PDF format file print, the supervisor can do this by pressing the Print PDF button.

In addition to the PDF format, if the supervisor wants to have a complete file containing the scores of the supervised teachers, they can also save this application in the form of a copy with the file name starting with the name of the supervised teacher, this file can be reopened for the next stage of supervision (Manuputty, Penti, Agustina, Anjelia, & Rinie, 2023; Munte, 2022; Novitasari, Natalia, Pebrianto, & Gresella, 2023; Pongoh, 2022; Rahmelia, Haloho, Pongoh, & Purwantoro, 2022; Saputra & Sukarno, 2019; Tedy, Stevani, Tamara, & Yuliani, 2023; Veronika, Camelia, Febriliana, & Yapen, 2023). How to get a copy of the file, the supervisor can do this by pressing the Save As button (Afriansyah, 2019).

Print in hardcopy form by pressing the print button. Before printing, the printer type settings must be adjusted, the paper size must be made F4 or folio size (8.5 in x 13 in).

Results of the first phase of the trial, supervisors responded that they were happy with this classroom supervision application, but not yet smooth in running it. But after trying it several times, they finally found it easy to operate. Some suggestions for changes for perfection then the author tried to fix for the sake of perfection of this classroom supervision application. The final improved version of ASK is version 3.1, which is then given to supervisors to be tested in the implementation of actual classroom supervision.

Next, supervisors were trained on how to fill in the supervisor's name and NIP. Based on a suggestion from one of the supervisors, he wanted the name and NIP to be included in the database, so the supervisor just had to

choose from the dropdown list. After that, the supervisor's data is entered, and then proceed to fill in the teacher data by clicking on the fill-in teacher data button.

In the process of filling in the teacher data, the supervisor sees the availability of the instructions button. Filling in supervisor data and teacher data is done before class supervision, so it is hoped that when entering the class, the supervisor can just continue filling in the supervision format.

The final stage in the preparation of the classroom supervision application is the second stage of testing and the final product. This stage is the application of the product that has been produced by involving the Christian Religious Education Supervisor of Lamandau Regency with a total of 1 supervisor. The results of the trial conducted for 1 week, the supervisor felt helped and found it easy to implement classroom supervision.

The following are the stages of implementation to test the classroom supervision application developed after revision and ready for use:

First, user training. User training was conducted to provide information on the target and facilitate the use of the piloted application. This trial involved 1 PAK supervisor. The PAK supervisor who will test this application is prepared 1 week before the trial is conducted, to get familiar with and master operating the classroom supervision application. The user training was held on August 18, 2022, at the office of the Ministry of Religious Affairs of Lamandau Regency, guided by the researcher himself. The training began with how to turn on the program, get started, enter passwords, introduce hyperlink buttons, input supervisor data and teacher data, how to provide checklists and correct, printer settings to printing results. The obstacles encountered in this training were the limited ability of PAK supervisors to operate computers, as well as their age above 50 years.

Second, testing and evaluating the feasibility of the classroom supervision application. The purpose of testing the system is to find out whether the application made is free from errors. This trial was conducted by the researcher together with one PAK supervisor from Lamandau Regency. The trial was conducted for one day on August 18, 2022, at the Ministry of Religious Affairs office in Lamandau Regency.

The implementation of this trial began with a simulation of the operation of the Class Supervision Application. The trial at this stage is intended to determine the feasibility of this application in terms of ease of operation, completeness, suitability, accuracy of data on supervision results, and accuracy of calculations. The implementation of this evaluation runs for 2 days from September 9, 2022, to September 10, 2022.

4. Discussion

4.1 Lamandau Ministry of Religious Affairs Office.

The data collection process to determine the feasibility of the application was carried out using interview techniques with 1 PAK supervisor. The interview process begins with looking at the file of PAK classroom supervision application trial results that have been collected through the trial process that has been carried out. The supervisor was also asked to demonstrate the operation of the classroom supervision application. After that, the interview process was continued to determine the feasibility including ease of operation, completeness, suitability, accuracy of supervision result data, and accuracy of calculations (Mulyatiningsih, 2011).

Based on the results of the trials that have been carried out, the class supervision application can overcome in terms of operation, completeness, suitability, accuracy of supervision result data, and accuracy of mathematical calculations. The results of the evaluation were carried out to determine these aspects.

Furthermore, the ease of operation aspect. This trial was conducted to see the ease of operation, by trying the supervisor being asked to run the class supervision application, then asking for his response regarding the ease of running the application. From the results of the interviews that have been conducted, all supervisors say that the classroom supervision application is easy to operate and has no problems in operation.

The thing that supports the ease of operation of this application, this application is equipped with a menu for hyperlinks, a help button for each sheet, and is equipped with a menu button for another sheet. Based on the results of interviews revealed by PAK supervisors when asked whether they experienced difficulties in

operating this application, the research subjects said that actually, its use was not difficult, but because they were not used to using it.

The completeness trial was conducted to determine respondents' acceptance of the application being tested, comparing the completeness of data on the supervision format commonly used by supervisors in classroom supervision. Supervisors were asked to compare the usual format with the classroom supervision application. Based on the results of the interview with the supervisor, the author elaborated the narrative, namely that the completeness of the program seems to be complete after being compared with the research subject's format. The research subject informed me that the content is the same and that a program like this is needed for supervisors, and is very helpful in fieldwork.

The suitability trial was conducted to see how the proposed product fits with the needs and realities in the field. The author interviewed respondents about their responses about the classroom supervision application with the needs in supervision activities. In terms of the suitability of application in the field, PAK supervisors consider this application to be suitable for application in the field.

Accuracy trial to see whether the accuracy of the information generated by the proposed product is accurate or not (Hadi, 1990). Based on the information generated by this application, PAK supervisors did not find any errors in the accuracy of the data in the resulting form, either in the calculation of each sheet or in calculating the final results of the supervision score.

Based on the trials conducted, if the classroom supervision application is implemented in the field, the application is very helpful in the PAK classroom supervision process. This application can process and store, as well as present data that can be read directly or printed.

The data generated by this application becomes an integral part of the process of implementing classroom supervision. The data generated by this application is an integral part of the process of conducting classroom supervision. The data generated from classroom supervision is a provision for supervisors to provide direction and guidance to teachers in developing a better PAK learning process (Thoif, 2018). Therefore, the coaching steps taken by the supervisor are by the needs and problems faced by PAK teachers.

4.2 Limitation

Limitations of the Ms. Excel-based Classroom Supervision Application. The Ms. Excel-based Classroom Supervision Application for academic supervision of high school PAK teachers in Lamandau Regency has limitations: first, this application is computer-based, therefore it requires a computer or laptop to run. Second, this application uses Mx Excel visual basic for apps, so before running this application, users must turn on macros enable (Muhibbin, 2010; Mutmainah & Ahyani, 2022). If the user forgets or does not run the macro, then this application cannot run perfectly. Third, if there is a developer who can make it in a simpler format and can be run on lighter devices such as smartphones, then this application will be more practical.

5. Conclusion

The developed classroom supervision application for PAK teachers in Lamandau District has the following features: high data mobility, the ability to perform mathematical calculations, saves costs, can store and maintain data, is capable of obtaining data quickly, and can process data carefully.

Ms. Excel-based classroom supervision application was developed through 5 main steps that adopted the compiled research method, namely: through the stages: (a) Analysis of the product developed, namely by conducting preliminary research to gather information, identify problems which are then planned. The results of the problem analysis show that the supervisory data is incomplete, the filling of instruments is still manual, there is a lack of supervisors, a large supervisory area and mobility is not smooth, so the product developed meets the elements: easy to use, computer-based, and has high data mobility (b) Developing initial products, this application was developed using Ms. Excel with a display design: cover, input, process, and output, (c) Expert validation and revision, carried out twice, namely IT experts to validate the running of the application and supervision expert validation to determine the suitability of the application to the needs of supervisors. (d) First

stage trial and product revision, which is a simulation of the application of the application to supervisors and asking for input for improvement (e) Second stage trial and final product, on supervisory practices in schools after training in the use of the application.

Feasibility test has shown that the resulting class supervision application can run well, namely easy to operate, complete data generated, following the needs, and accurate and precise calculation.

Credit S statements

The author confirms sole responsibility for the following: study conception and design, data collection, analysis and interpretation of results, and manuscript preparation.

Declarations of interest

The author declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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All authors contributed to data analysis, drafting, and revising of the paper and agreed to be responsible for all the aspects of this work.

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