

# The Developing of Application Web-Based to Academic Supervision Model



G Habibi, K Rukun, Hadiyanto

**Abstract:** This dissertation was written based on the preliminary study of implementation of academic supervision activities in the city of Bukittinggi has not worked effectively and efficiently. A number of technical and practical problems are faced by supervisors and teachers. Overlapping scheduling, class visiting caused disruption of the learning process and bring the psychological effects for the teacher, practical and effective assessment, weak archiving, and follow-up activities were not well targeted. The current model had not been able to overcome these problems, for this reason the writer has developed a a management model named web-based academic supervision as a solution to the existing problem. This research was research and development used Borg and Gall model with stages preliminary studies, development, field testing, and dissemination. The object of the research was supervisor and teachers of elementary school of Bukittinggi town. The data ware collected through questionnaires, validation sheets, and interviews. The final model of web-based academic supervision management was called Web-based Academic Supervision (WBAS). WBAS consists of three stages with 7 steps, they ware pre-observation stage with the steps developed emotional relationships, discussions/conferences, and determine the supervision schedule. The second stage was observation consist of carrying out observations and evaluations of the class administrative documents, the implementation of lesson plans, and the implementation of learning. The third stage was post-observation consist of analysis/reflection, discussion/ conference, and follow-up activities. The validity of WBAS Model was obtained 4.17 with a valid interpretation, the average score of the practicality of the model was 85.14 with a practical interpretation, and the average score of the effectiveness of the model was 87.16 with a very effective interpretation.

**Keywords :** Aplication Web-Based, Model of Academic Supervision.

## I. INTRODUCTION

Professional teachers are an important factor in advancing the quality of education. Based on this, the performance of teachers in the performance of their roles and tasks in schools, especially in the learning process in the current context, requires the development and shift towards greater innovation.

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Innovative teacher performance is important for the successful implementation of educational innovations in order to improve the quality of education [1].

The success of providing quality education is closely related to the success in increasing the competence and professionalism of educators and educational staff (CAR) without denying other factors such as the facilities and infrastructure and financing. One of the factors that can develop the professionalism of teachers is to receive continuous and continuous supervision and coaching. This is closely related to the supervision of education, especially those conducted by the principal as the leader of his teachers. Supervision activities are one of the important components to improve the quality of education because the objective of this supervision activity is to improve the capacity of teachers in the teaching process and also to develop the management skills of school principals [2].

In addition, Rahabav also added that the supervision is: to enhance the professional capabilities of teachers, principals let supervision portion larger geared towards academic supervision because it is one of the essential functions in the overall school program [3]. In other words, supervision by school principals should focus more on academic supervision because this factor will increase the professionalism of teachers and this is also important to carry out school programs in general.

Adewale also said something similar that academic supervision and teacher classroom teaching are two teaching activities that are closely related to the goal of developing teachers at a higher level of teacher proficiency[4]. Sudjana and Wastandar also confirm that academic supervision is a series of activities that help teachers develop their skills to achieve learning objectives[5]. It can be concluded that one of the supporting factors of the teacher's professionalism in teaching is the role of the principal in carrying out academic supervision activities.

Based on preliminary observations made by researchers in primary schools throughout the city of Bukittinggi, the researchers found that the monitoring models that used to be used were traditional models, scientific models and some clinical models, but were more dominated by traditional and scientific models.

This is evidenced by the impression that the principal always blames what the teacher is doing. Like mistakes in writing lesson plans, mistakes in choosing strategies and learning methods. But, on the other hand, the director as supervisor has also carried out the supervision in a scientific way, such as the elaboration of evaluation plans and instruments.

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In carrying out supervision management using this model, a number of problems were still encountered: the director of academic supervision continued to have problems, especially in managing the supervisory process itself. This is based on the results of the author's interviews with several school principals as supervisors and class teachers in several elementary schools in Bukittinggi. The supervisory techniques commonly used by principals are class visits and individual talks. This technique has not been fully capable of improving teacher performance. In addition, there are several important problems in the implementation of academic supervision that has been carried out. First, several school principals are still experiencing problems in terms of managing the supervision implementation schedule. Second, in terms of processing, the value of observations or class visits are not yet managed in a professional, accurate and effective manner. Third, the management of the archives of the results of teacher evaluations, both old and new, has not been limited. Fourth, the monitoring of the activities of class visits has not been managed or managed correctly. Fifth, the individual conversation between the principal and the teacher becomes a concept that is often misunderstood by the teacher.

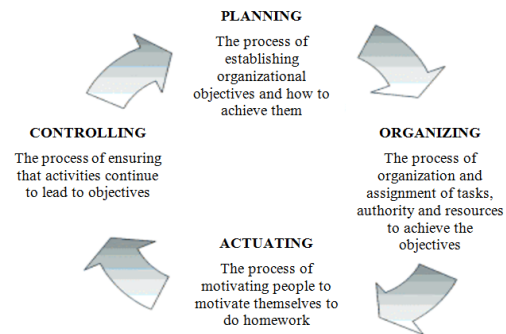
Several previous studies also revealed the same fact. The research conducted by Comfort et al concluded that school principals should make more efforts in academic supervision to improve teaching work[6]. Principals should ensure clear comments and periodic reviews, that is, compare students' academic performance with the objectives set to improve teaching and learning. In addition, the monitoring situation in schools carried out in recent decades also shows that there has been no comprehensive supervision in schools in recent decades. That the lack of supervision in schools has become an obstacle to educational policy. Principals should provide constant and adequate feedback to teachers about the performance of their teaching tasks and ensure periodic reviews by comparing students' academic performance with the objectives set to improve teaching and learning in schools.

Based on this, a more efficient and innovative academic supervision management model is needed so that the principal can carry out the academic supervision process optimally, especially at this time. The challenges of the 21st century are closely related to technology or what is now known as the era of the industrial revolution 4.0, the era in which the digital industrial world has become a paradigm and a reference in the current order of life. In other words, the teaching and development of basic skills is currently moving towards the evolution of a virtual learning environment to support classroom education with certain educational activities based on electronic learning. Therefore, schools are rapidly migrating to online environments and supervisory practices must adapt to the changing educational landscape[7]. In other words, the ability of directors to use technology and information that is currently growing is urgently needed.

In addition, the use of technology is expected to facilitate the principal's work as an academic supervisor. In addition, supervisory practices must adapt to current trends in the development of information and technology [8].

With current technological developments, it is possible to manage academic supervision online or by providing the

web. The supervisory model developed is a scientific model based on the management of the POAC model developed by Terry in his book entitled Principles of management [9]. The POAC management model can simply be described as follows.



**Fig. 1. POAC Management Functions**

Benefits and convenience are things that are one of the reasons to implement monitoring on the web. One form of online supervision is to design a web-based application that can be used to facilitate the process of supervising activities by principals and teachers at the school. The web-assisted academic supervision model was developed to overcome several challenges in the implementation of academic supervision, such as the large number of fostered teachers and distant geographic location. Web-based supervision offers several supervisory implementations using web-based Internet technology assistance and building communication and virtual community (virtual community) between staff and teachers fostered [10]. This model of academic supervision will certainly help the implementation of supervision in the orientation and training of teachers to improve their competence. The use of high technology for academic supervision is an alternative to overcome the problem of implementing academic supervision [11]. Guntoro et al, also emphasized that web-based applications offer a way to communicate and obtain information using the technology of the global network with the aim of providing teaching, guides, rich material and collaborative learning that can be accessed at any time [12]. Rochaety also discovered that the supervision carried out with the help of information systems and technology not only works as a means of support, but is also a main weapon to support the success of the world of education so that it can compete in the global market [10]. Based on the problems and facts obtained, in order to improve the quality of academic supervision and develop the capacity of principals to plan, implement and evaluate the supervision process, it is necessary to develop a web-based academic supervision model so that all the potentials in the era of the industrial revolution 4.0 are fulfilled and the educational process is well organized.

In general, the objective of the research is to determine the process and the impact of implementing the development of a web-based academic supervision management model for elementary school principals. Specifically, it points to:

1. Know the factual model of the implementation of web-based academic supervision management by the principals of the elementary schools in Bukittinggi;

2. Describe the form of the web-based academic supervision management design model for the elementary school principal;
3. Describe how to develop a web-based academic supervision management model for the elementary school principal;
4. Test the level of validity, practicality and effectiveness of the web-based academic supervision management model for elementary school principals.

## II. METHODOLOGY

### 1. Type of Research

This type of research is research and development (Research and Development). This research method is used to produce certain products and prove their effectiveness. The type of development model used in this study is a procedure model. The procedure model is a descriptive model, which describes the steps that must be followed to produce Setyosari products (2015). While the development model used is Bennett, Borg and Gall (1984).

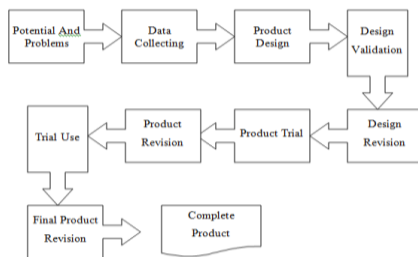


Fig. 2. The Borg & Gall Development Model

### 2. Test subjects

The selection of test subjects is mainly experts, researchers have used several criteria: (1) they have doctoral education qualifications, (2) they have knowledge and skills in the field of academic supervision management and (3) they have knowledge and skills in the IT field for IT validators and language experts to validate languages. The product effectiveness test was carried out through a survey that involved 10 principals and 30 primary school teachers in the city of Bukittinggi.

### 3. Types of data

In relation to the models and procedures for developing a web-based supervisory management model, the types of data that have been collected are quantitative and qualitative data. The quantitative data were obtained through a questionnaire on the management of academic supervision by the principal, a product validation sheet and a questionnaire on effectiveness and practicality. Qualitative data were obtained through interviews with several elementary school principals, teachers and several expert participants in the FGD.

### 4. Data collection instruments

Data collection in research and development has used several research instruments. The instruments referred to are: 1) Observation guidelines, which contain various elements of the implementation of academic supervision in the primary schools of the city of Bukittinggi, (2) Questionnaire or questionnaire, used to obtain an overview of the various problems that occur in relation to the management of academic supervision carried out by the principals of the

elementary schools. . The collection of data through questionnaires reinforces the data obtained through observation in the pre-investigation stage.

The researchers used several research instruments in the development stage, namely: 1) Product design validation sheets, used to determine the validity of the design according to experts. This sheet contains a series of elements related to the product design. (2) Questionnaire that is used to measure the extent to which the objectives of implementing academic supervision activities can be achieved using a web-based academic supervision model and testing its practicality. 3) Product validation proof sheets and 4) Interview guidelines.

### 5. Data analysis techniques

The data collected in its entirety is analyzed according to the form of the data. Qualitative data were analyzed in an argumentative descriptive manner based on related theories to obtain the results of the study according to the research objectives. Qualitative research data were analyzed following the sequence of analysis proposed by Miles (2007). Quantitative data were analyzed with descriptive statistics and inferential statistics. Descriptive statistics are mainly used to prove the validity of the product and the practicality of the product. While the effectiveness test with the SPSS software mainly tests the validity and reliability of the instrument.

## III. RESULT

### 1. Development of models and applications.

The development is the stage of manufacturing and testing the product, the academic supervision management model that has been designed is developed in the form of a product referring to the design of a Web-based academic supervision management model. The author has developed the design by breaking down each part of the activities that exist in the academic supervision of the clinical model. The activity begins with the construction of a good emotional relationship creating a friendly and open atmosphere between the supervisor and the teacher so that the teacher feels safe and understands the purpose of carrying out academic supervision. Until the follow-up activity there is an improvement effort based on the results of the reflection. The form of follow-up activities includes visiting a series of websites that contain a series of materials related to the learning process, skills and a series of articles in the form of magazines. Download a number of videos given by the supervisor to learn. On the other hand, the author has developed a web-based monitoring application according to the design that has been formulated. The developed application is hosted on the web with the URL [www.e-supervision.web.id](http://www.e-supervision.web.id). With the login menu it is shown as updated.

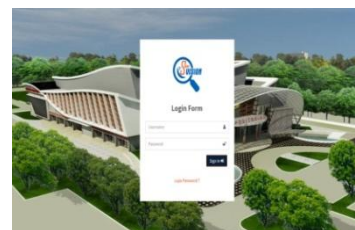


Fig. 3. Display Login Form.

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The applications that have been developed are called electronic supervision. The e-supervision application is an application system developed using the PHP programming language based on MySQL data that can be run as a means to help manage programming, value processing, administration and provide follow-up activities in the realization of academic supervision activities.

The e-supervision logo can be described as follows.



**Fig. 4. Logo of the Internet Academic Supervision Application**

The user monitoring applications involve administrators, principals and teachers. Everyone has their own duties and functions. admin the person who is fully responsible for applications that can enter data, edit data and delete data. The director works as a user who can enter schedules, ratings and make comments and upload files. While the teacher also acts as a person who is judged able to see the schedule, grades, print grades and download files embedded by the principal as supervisor.

## 2. Preliminary field test

### a. Validity test model

The results of the calculation of the validity score of the web-based academic supervision management model are presented in the following table.

**Table-I. Validity of the model**

No	Validator	Average	Interpretation
1	Validator 1	4,22	Valid
2	Validator 2	4,17	Valid
3	Validator 3	4,15	Valid
4	Validator 4	4,09	Valid
5	Validator 5	4,13	Valid
6	Validator 6	4,22	Valid
7	Validator 7	4,19	Valid
Average		4,17	Valid

The data in the table above shows that the average value is 4.17 with a valid interpretation. Therefore, it can be concluded that the web-based academic supervision management model can be declared valid. The reliability test of the web-based academic supervision management model and the intraclass correlation coefficient can be presented in the following SPSS result.

**Table -II Reliability and ICC model Reliability Statistics**

Cronbach's Alpha	N of Items
.888	7

The results of the SPSS result in the previous reliability statistics show that the Cronbach Alpha value of 0.888 is greater than the alpha value of 0.05, so the model is interpreted to have high reliability.

**Table- III. Intraclass Correlation Coefficient**

	Intraclass Correlation <sup>b</sup>	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.614 <sup>a</sup>	.460	.761	8.961	29	116	.000
Average Measures	.888 <sup>c</sup>	.810	.941	8.961	29	116	.000

The SPSS results table on the intraclass correlation coefficient shows that the value of the intraclass correlation is 0.888, so it can be interpreted that experts have a high level of consistency by providing an assessment of the validity of the management model of web-based academic supervision.

### b. Prove the validity of the application

The results of the calculation of the validity test of the e-Supervision application obtained an average value of 4.00. Therefore, it can be interpreted that the electronic supervision application is declared valid for use in academic supervision activities.

## 3. Main Field Test

The effectiveness test is carried out using data collection techniques for questionnaires. The questionnaire was distributed to 30 primary school teachers in Bukittinggi who were selected as samples. The author can present the results of the data calculations in the following table.

**Table -IV. Calculation values for effectiveness tests**

$\bar{x}$	Std.Dev	Variance	N
87,16	8,59	73,87	30

The table above shows that of the 30 respondents who evaluated the web-based academic supervision management model, an average value of 87.16 was obtained with a standard deviation of 8.59 and a variance of 73.38. The results of normality tests with the SPSS 20 software can be presented in the following table.

**Table-V. Data normality test Tests of Normality**

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
Score	.110	30	.200 <sup>*</sup>	.956	30	.247

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

According to the previous SPSS result, it is known that the significance value uses the Kolmogorov-Smirnov test of 0.200 and Shapiro-Wilk 0.247. Therefore, the significance value is greater than the alpha research (0.200, 0.247 > 0.05), so it can be concluded that the data is normally distributed. So that the parametric statistical test can be used.

To test the truth of the hypothesis formulated, the researchers used an average of a difference test using the SPSS 20 software with a t-test (t-test of a sample). The test results can be presented in the following SPSS result

**Table-VI. Effectiveness test with SPSS**  
**One-Sample Statistic**

	N	Mean	Std. Deviation	Std. Error Mean
Score	30	87.1550	8.59422	1.56908

**One-Sample Test**

	Test Value = 80					
	T	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Score	4.560	29	.000	7.15500	3.9459	10.3641

**Interpretation**

- 1) The average value was found to be 87.16 with a standard deviation of 8.59, exceeding the estimated average value.
- 2) The value of t-count 4,560 > of the score of t-table 1,711 (t-tab = n-1 (α) = 30-1, n29 α. 0.05 = 1,699) then H<sub>1</sub> is accepted.
- 3) The Score of Sig. (2-tailed) 0.000 < of alpha (0.05), which means that the test has a significance value.

The previous SPSS output data concludes that H<sub>0</sub>, who said that the average achievement of the objectives of the implementation of academic supervision activities using the WBAS model above 80 was acceptable. Referring to the interpretation table proposed by Riduwan and Akdon (2007) in the previous chapter, the average value of achieving academic supervision using the WBAS model is 87.16 at intervals of 81-100 with very effective interpretations.

**IV. CONCLUSION**

The research and development of a web-based academic supervision management model that has been implemented has produced several conclusions.

1. The factual model of academic supervision management consists of three stages: first, the preparation stage; programming, announcement of the supervision schedule and preparation of learning tools by the teacher. Second, the implementation phase; conduct observations or class visits, conduct assessments using instruments manually, call teachers and discussions, provide input or reinforce and deliver the results of the evaluation in writing. The three stages of evaluation and monitoring are carried out in the form of KKG implementation and bring tutors for training.
2. The design of a web-based academic supervision management model is a development of the clinical supervision model taking into account the management functions developed by Pawlas and Oliva (2007) known as the acronym POAC, planning, organization, performance And control.
3. The development of a web-based academic supervision management model is called Web-Based Academic Supervision (WBAS), which is a management model for web-based academic supervision activities as a means of managing programming , evaluation, archiving and implementation of academic monitoring and supervision activities. WBAS is the result of the development of the clinical supervision model with the pre-observation, observation and post-observation stages. The pre-observation stage consists of building emotional

connections, conferences / discussions and programming. The observation stage is the evaluation and observation stage carried out through the documentation with the electronic supervision application means. Subsequent observation is the final stage with analysis / reflection, conference / discussion and follow-up activities.

4. The results of the test of validity, practicality and effectiveness of the academic supervision management model based on the web developed, it is known that the average value of the validity of the model obtained 4.17 with valid interpretation, the average value of the practicality of the model 85.14 with practical interpretation and average value The effectiveness of model 87.16 with a very effective interpretation.

**REFERENCES**

1. Nurdiawati, Anissa et al. "Evaluation of Hydrothermal Treatment of Empty Fruit Bunch for Solid Fuel and Liquid Organic Fertilizer Co-Production." Energy Procedia 79: 226–32.2015
2. Erpidawati, Erpidawati, Nurhizrah et.al. "The Development of the Academic Supervision Model Basic School Supervisor." 2019
3. Rahabav, Patris. "The Effectiveness of Academic Supervision for Teachers." Journal of Education and Practice. 2016
4. Adewale, Orenaiya Solomon. "Effective Academic Supervision by the Vice-Principals." Journal of Education and Human Development 3(2): 607–17. 2014
5. Sudjana, N Dharma, and S Wastandar. "Pemantauan Pelaksanaan Standar Nasional Pendidikan (Panduan Bagi Pengawas Sekolah)." Bekasi: Binamitra Publishing. 2012
6. Comfort Ayandoja, Akinfolarin, Babalola Caroline Aina, and Aladetan Femi Idowu. "Academic Supervision as a Correlate of Students' Academic Performance in Secondary Schools in Ekiti State, Nigeria." International Journal of Educational Policy Research and Review 4(1): 8–13. 2017
7. Nolen-Hoeksema, Susan, and Edward R Watkins. "A Heuristic for Developing Transdiagnostic Models of Psychopathology: Explaining Multifinality and Divergent Trajectories." Perspectives on Psychological Science 6(6): 589–609. 2011
8. Cano, Esteban Vázquez, and M. Luisa Sevillano Garcia. "ICT Strategies and Tools for the Improvement of Instructional Supervision. the Virtual Supervision." Turkish Online Journal of Educational Technology. 2013
9. Terry, George R. "Prinsip-Prinsip Manajemen.(Edisi Bahasa Indonesia)." PT. Bumi Aksara: Bandung. 2000
10. Rochaety, Eti. "Dkk, Sistem Informasi Manajemen Pendidikan, PT." Bumi Aksara, Jakarta. 2005
11. Nancarrow, Tanya L, and Hing Man Chan. "Observations of Environmental Changes and Potential Dietary Impacts in Two Communities in Nunavut, Canada." Rural Remote Health 10(2): 1370. 2010
12. Guntoro, David, Totok Sumaryanto, and Achmad Rifai RC. "Pengembangan Model Supervisi Akademik Berbantuan E-Supervision Berbasis Web." Educational Management 5(2): 122–28. 2016

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