

A Model of Educational Smart Hour in Schools Government Inspectorate Area 5

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How to cite this article: Montakanti Pethaksorn, Sranya Saengamporn, Lampong Klomkul (2024) A Model of Educational Smart Hour in Schools Government Inspectorate Area 5. *Library Progress International*, 44(3), 22568-22575.

ABSTRACT

The objective of this study is 1) to study the components and conditions of teaching and learning of educational smart hour in schools Government Inspectorate Area 5, 2) to develop a model of educational smart hour in schools Government Inspectorate Area 5, and 3) to evaluate and certify the model of educational Smart Hour in schools Government Inspectorate Area 5. Mixed methods research was designed. The sample group used in the research was 312 educational institution administrators and academic teachers in Government Inspection Area 5. The tools used in the research consisted of a questionnaire with a confidence value. equal to. 891 and assessment form Statistics used in data analysis include the frequency of a particular value, percentages, means, standard deviations (S.D.), Confirmatory Factor Analysis (CFA) using a ready-made statistical computer program Results of the research found that 1) the components and conditions of teaching and learning of educational smart hour in schools Government Inspectorate Area 5 consisted of 4 main components and 16 sub-components, and the conditions of teaching and learning of smart hours in educational institutions Government Inspection Area 5 is at a moderate level. 2) A model of educational smart hour in schools Government Inspectorate Area 5 consisted of 4 main components and 16 sub-components, including active learning, problem-based learning, creativity, and innovation. 3) Results of the evaluation and certification of the model of educational smart hour in schools Government Inspectorate Area 5 from educational institution administrators and sample teachers in terms of feasibility and usefulness, it was found that the overall average is at the highest level.

Keywords: A Model of Educational, Smart Hour, Innovation.

I. INTRODUCTION

The 21st century education management aims to develop human beings to have learning and innovation skills, to love learning and seriously develop their skills to strive for excellence in what they do, to exchange knowledge, and to learn by themselves from various sources of knowledge to connect and develop the knowledge gained into new works with higher value, which will lead to innovation, life and career skills to create added value and novelty, creativity, and the ability to work with others, and information medial and technology skills, which will lead to the development of life through creative training and development. School administrators must develop learners to act, think, and learn by themselves until they develop good habits, have self-discipline, are responsible, have self-confidence, see the common good, be enthusiastic, be able to communicate, use knowledge to develop, and create their own knowledge, until lifelong learning skills arise, create a learning community, and create change leaders who develop in all aspects and are responsible for society continuously and sustainably (Wichian Panich, 2015) [1].

Genius Hour is a time for students to come together in groups of like-minded individuals to explore and create work on their true passions. There are six principles underlying Genius Hour: 1) The 80/20 rule: Google's

80/20 rule is a time structure that allows engineers and employees to spend 20% of their time working on projects they are passionate about. It is said that 50% of Google's products are created using student Genius Hour, a time when students spend 20% of their time exploring their passions; 2) Socialization; Teachers encourage students and their peers to plan and produce work for their learning. Additionally, students are provided with opportunities to receive assistance from experts and community members to achieve their work goals; 3) Create the core of Genius Hour, having a visible product or work for students to create consistently in their learning; 4) Inquiry & Navigation; Exploring the possibilities of the content without filtering, collecting data and narrowing research, students feel the idea that is important for them to navigate and investigate, exploring this possibility leads to more narrow research and research. In this way, this type of learning is important for Genius Hour; 5) Design; The content of interest and project content, students must design the learning experience by themselves; and 6) Objectives; Learners must find their own needs to define the objectives that learners want to learn, understand or what they want to create (Thaweesak Jindanurak, 2019) [2].

From the supervision, and monitoring of schools in terms of organizing teaching and learning activities by teachers, it was found that most teachers still use the traditional teaching methods, still focus on teachers as the main drivers of learning content, focus on teaching media produced by teachers themselves or textbooks provided by teachers, and when teaching is finished, the content or indicators in each subject, in terms of workload or work pieces required, comes from the idea of teachers who always set, guide, and advise learners to do, which blocks systematic thinking, creativity, planning skills, and work skills of learners. Therefore, the researcher is interested in developing a model for organizing smart hour teaching in educational institutions, having administrators as individuals to stimulate teachers to change their roles from teachers to coaches, and allowing learners to determine the learning outcomes in the hour or in the learning unit that are consistent with the indicators by themselves, which is the development of learners to have important skills that are consistent with the skills of learners in the 21st century.

II. RESEARCH OBJECTIVES

1. To study the components of educational smart hour in schools Government Inspectorate Area 5.
2. To develop a model of educational smart hour in schools Government Inspectorate Area 5.
3. To evaluate and certify the model of educational smart hour in schools Government Inspectorate Area 5.

III. CONCEPTUAL FRAMEWORK

The model of educational smart hour in schools Government Inspectorate Area 5 obtained from the study of documents can show the relationship between the following variables:

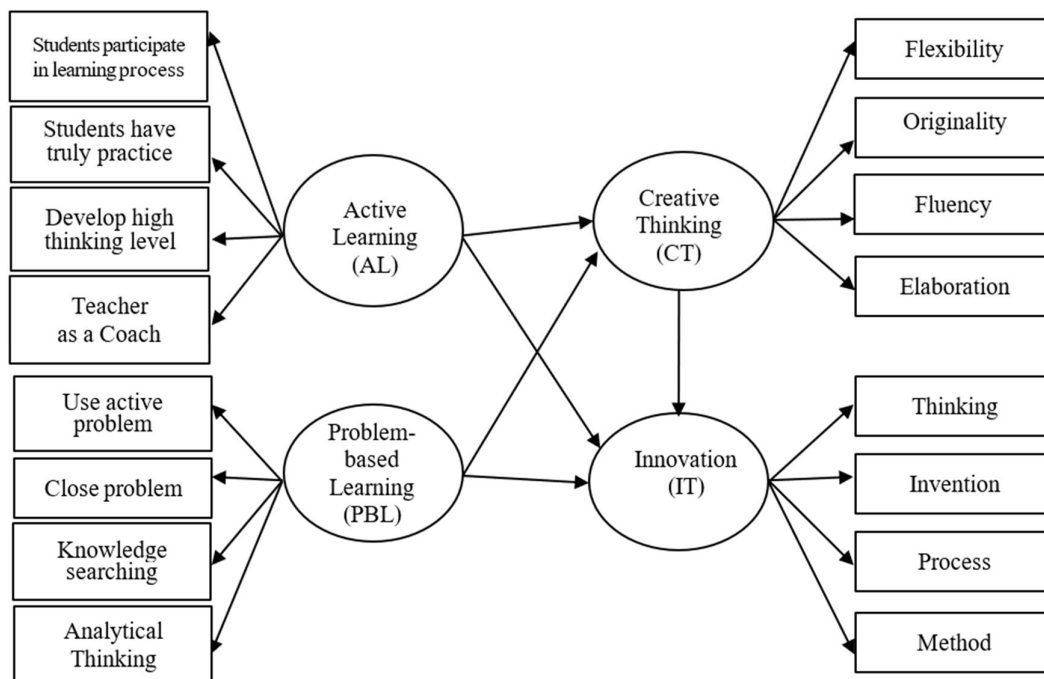


Figure 1 Conceptual Framework

IV. RESEARCH METHOD

The research method is divided into 3 phases:

Phase 1: Study the components of educational smart hour in schools, analyze the components of smart hour teaching management of educational institutions using Confirmatory Factor Analysis (CFA), study the Smart Hour teaching management of educational institutions, Inspection Area 5 using questionnaires with educational institution administrators, academic teachers, Inspection Area 5. In determining the sample size, the researcher determined the sample size using the formula of Hair et al. (1998) [3], which is to use a sample size of 8 people per 1 parameter to be estimated or the number of path showing the relationship between variables in the model of the research framework. In this research, there are a total of 39 parameters to be estimated, the appropriate sample size is 312 people, using the 2-stage random sampling method by randomly selecting from the number of schools in Inspection Area 5, 156 schools, and performing simple random sampling to find a sample of 312 people, and then developing the model using the statistical program.

Phase 2: Connoisseurship Seminar: to develop a model of educational smart hour in schools Government Inspectorate Area 5, the researcher drafted a model of educational smart hour in schools Government Inspectorate Area 5, which was developed from components that had undergone a confirmatory component analysis, and presented it to experts and experts. The informants were experts in basic education administration, experts at the basic education level, and experts who were university lecturers, using purposive sampling, totaling 9 people, to assess and certify the model's accuracy and appropriateness, as well as provide suggestions for the model.

Phase 3: Evaluation and certification of the model of educational smart hour in schools Government Inspectorate Area 5. The researcher tested the smart hour teaching model of educational institutions, Government Inspection Area 5 with a sample group of 12 teachers from 6 schools, consisting of 2 small schools, 2 medium schools, and 2 large and extra-large schools, 2 teachers per school, selected by purposive sampling. After that, the sample group evaluated and certified the model in terms of feasibility and usefulness of the model of educational smart hour in schools Government Inspectorate Area 5.

V. RESULTS

The research results on the model of educational smart hour in schools Government Inspectorate Area 5 are as follows:

The results of the study on the components of smart hour teaching management of educational institutions in the 5th inspection area found that the components of smart hour teaching management of educational institutions in the 5th inspection area consisted of 4 main components and 16 sub-components, namely: Component 1; Active Learning teaching; Sub-component; 1) Learners participate in the learning process; 2) Learners practice; 3) High-level thinking development; 4) Teachers act as coaches; Component 2; Problem-based learning; Sub-component 1) Using problems to stimulate; 2) Problems close to home; 3) Seeking knowledge; 4) Analytical thinking; Component 3: Creativity; Sub-component 1) Flexible thinking; 2) Initiative; 3) Agile thinking; 4) Detailed thinking; and Component 4: Innovation; Sub-component 1) Ideas; 2) Inventions; 3) Processes; 4) Methods.

The management of smart hour teaching of educational institutions in the inspection area 5 found that the model is consistent with the empirical data, considering the statistical values used to check the consistency between the model and the empirical data as follows: the chi-square value is 64.48, the degrees of freedom are 64, and the probability (p) is .459, which is the chi-square value is statistically insignificantly different from zero, indicating that the main hypothesis is accepted that the developed model of the effectiveness of smart hour teaching of educational institutions in the inspection area 5 is consistent with the empirical data, which is consistent with the results of the analysis of Goodness of Fit Index (GFI) value of .977, Adjusted Goodness of Fit Index (AGFI) value of .930, which is close to 1, and the root mean square index (RMR) value of .027, which is close to zero, and the residual value in the form of the standardized score between the highest variables (Largest Standardized Residuals) is 4.102, which supports that the research model is consistent with the empirical data.

When considering the reliability of the observed variables, it was found that the reliability of the observed variables was between 0.235 and 1.019, the variable with the highest reliability was flexibility of thinking (CT1) with a reliability of 1.019, followed by initiative (CT2) with a reliability of 1.018, and the variable with the lowest reliability was invention (IT2) with a reliability of 0.235. Overall, the reliability of all the observed variables was at a moderate to high level.

When considering the predictive coefficient (R-SQUARE) of the latent endogenous variable structural equation, it was found that innovation effectiveness (IT) had a predictive coefficient of .850, indicating that the endogenous variables in the model, namely 1) Active Learning (AL), 2) Problem-based Learning (PBL), and 3) Creativity (CT), could explain 85.00 percent of the variance in innovation effectiveness (IT).

When considering the correlation matrix between latent variables, it was found that the range of correlation coefficient between latent variables was between 0.409 and 1.000, all pairs of variables had the same direction relationship (positive correlation). The variables with the highest correlation coefficient were Problem-Based

Learning (PBL), and Creativity (CT), with a correlation coefficient of 1.000, having a high level of relationship. It was shown that when Problem-Based Learning increased, creativity also increased, and the variables with the lowest correlation coefficient were Problem-Based Learning (PBL), and Innovation Effectiveness (IT), with a correlation coefficient of 0.905, having a high level of relationship.

When considering the direct and indirect influences between the variables in the model, it was found that the relationship between the variable Problem-Based Learning (PBL) and Innovation Effectiveness (IT) (correlation size = 0.905), separated into a direct influence of .119, and an indirect influence of .016, for a total influence of .905, where the total influence significantly affected Innovation Effectiveness (IT) at a statistical level of .01. It is noteworthy that from the data analysis results, it was found that the direct influence of Problem-Based Learning (PBL), and Active Learning (AL), and the transmission of creativity (CT) on Innovation Effectiveness (IT) was higher than the indirect influence. Therefore, the creativity variable (CT) is a variable that supports Innovation Effectiveness (IT) in the Smart Hour Teaching Effectiveness Model of Educational Institutions in the 5th Inspection Area. The details of the analysis results are shown in Table 1.

Table 1 Statistical values of the correlation analysis between latent variables and the influence analysis of the model of educational smart hour in schools Government Inspectorate Area 5

Dependent variable Independent variable	CT			IT		
	TE	IE	DE	TE	IE	DE
AL	0.087** (0.031)	-	0.087** (0.031)	0.135** (0.038)	0.016* (0.007)	0.119** (0.034)
PBL	0.654** (0.050)	-	0.654** (0.050)	0.838** (0.077)	0.122** (0.030)	0.717** (0.066)
CT	-	-	-	0.186** (0.046)	-	0.186** (0.046))
Statistics	Chi-square = 59.26, df=45, p = .075, GFI=0.977, AGFI=.0.930, RMR=0.027					
Variable	CT1	CT2	CT3	CT4	IT1	IT2
Reliability	1.019	1.018	0.736	0.824	0.394	0.715
Variable	IT3	IT4	AL1	AL2	AL3	AL4
Reliability	0.789	0.853	0.625	0.569	0.499	0.235
Variable	PBL1	PBL2	PBL3	PBL4		
Reliability	0.452	0.514	0.543	0.470		
Structural equation of variables	CT			IT		
R SQUARE	0.491			0.850		
Correlation matrix between latent variables						
Latent variable	CT	IT	AL	PBL		
CT	1.000					
IT	0.734	1.000				
AL	0.409	0.548	1.000			
PBL	0.697	0.905	0.492	1.000		
Note: Numbers in parentheses are standard errors, **p < .01; *p < .05 TE = Total influence, IE = Indirect influence, DE = Direct influence						

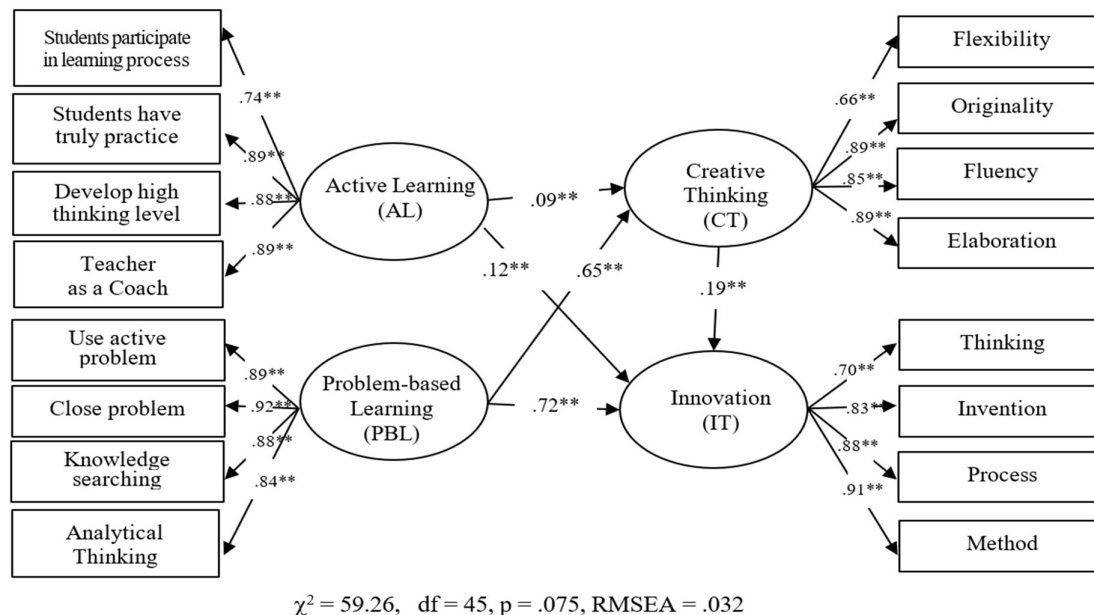


Figure 2 A Model of Educational Smart Hour in Schools Government Inspectorate Area 5

VI. DISCUSSION

The components of educational smart hour in schools Government Inspectorate Area 5 consist of 4 main components and 16 sub-components as follows: Component 1 ; Active Learning, Component 2 ; Problem-based learning, Component 3 ; Creativity, and Component 4 ; Innovation. This is because the researcher studied data from academic documents, articles, research both domestically and internationally and synthesized data that took into account the frequency of data to be reliable as a guideline for educational institutions to apply appropriately to the context of the educational institution and the potential of the learners, which is consistent with Anussara Chalernsri (2020) [4] "Development of Active Learning Management Capability of Primary School Teachers with the Professional Learning Community Process", the research results found that components and indicators of active learning capability consist of 2 main components: main component 1: Ability to write active science teaching plans, which has 4 sub-components, 18 indicators; and main component 2: Ability to practice active science teaching, which has 6 sub-components, and 17 indicators. In addition, it is consistent with Kwanchanok Saengtanong (2020) [5] who conducted research on the model of educational institution development into an innovative organization for basic education institutions. The research results found that 1) The components of innovative organizations for basic education institutions From the study of the documents, it was found that the components of innovative organizations for basic education institutions consist of 11 components, namely: 1) Vision, strategy, goal, innovative organization, 2) organizational structure, 3) culture, organizational values, 4) organizational climate, 5) innovative organizational leaders, 6) personnel skills, 7) human resource management, 8) resource support, 9) rewarding success, 10) knowledge and information management, and 11) evaluation of innovation. When checking the consistency of the model of innovative organization components for basic education institutions.

The analysis of the educational smart hour in schools Government Inspectorate Area 5 found that overall, the average value was at a high level, consistent with Ngaokhae Deuatkhuntod (2021) [6] who conducted research on "The Development Model of Learning Management Skills for Teachers in the 21st Century of Chachoengsao Panyanukul School, Chachoengsao Province". The research results found that: 1) The results of the study of the current situation, the desired situation, and the necessary needs, there are 4 components of learning management for teachers in the 21st century, 28 indicators, which are most appropriate. The current situation is at a moderate level, and the desired situation is at a very high level.

The result of the development of the model of educational smart hour in schools Government Inspectorate Area 5 found that the model of educational smart hour in schools Government Inspectorate Area 5 consisted of 4 main components and 16 sub-components: Active Learning, Problem-based learning, creativity, and innovation. These were compiled into a manual as a guideline for educational institutions to use in organizing smart hour teaching of their institutions, consisting of: 1) Model principles, 2) Model objectives, 3) Model process, 4) Model implementation conditions, and 5) Model evaluation. This is consistent with Suphattra Phusitrattanawalee (2017) [7] who researched

on “Development of An Active Learning Management Model for Lecturers of Southern Technological Colleges”. The research results found that the result of the development of an active learning management model by a joint meeting of lecturers who voluntarily participated in the development of the active learning management model found that the active learning management of Southern Technological Colleges consisted of the important principles of the model. The purpose of the model, the learning management steps of the model, and the learning management results according to the model, and are consistent with Naowanit Songkram and Thanat Samnakup (2017) [8] “Development of a Virtual Smart Classroom System to Promote 21st Century Learning Skills in Learning Skills and Innovation for Higher Education Learners”. The learning process consists of 4 steps: (1) introduction, (2) learning, (3) creation of work and innovation, and (4) evaluation.

The results of the examination of the model of educational smart hour in schools Government Inspectorate Area 5 from experts and qualified persons in terms of the correctness and appropriateness of the model found that the overall average value was at the highest level, which is consistent with Walida Aunruen (2020) [9] who conducted research on “Development of A Learning Management Model Based on the Theory of Knowledge Creation through Social Interaction Combined with The Concept of Authentic Learning to Promote Learning Management Capabilities; Emphasize Individual Differences for Student Teachers”. The research results the overall evaluation results of the learning management model were very appropriate and consistent with Walirat Phutthasorn (2022) [10] who conducted research on “Development of An Active Learning Management Model in a Smart Classroom Environment Using the Engineering Design Process Combined with Situational Learning to Promote Professional Competence in Industrial Prototype Product Design for Undergraduate Students”. The research results found that the results of the model certification were at the highest level of appropriateness.

The results of the evaluation and certification of the model of educational smart hour in schools Government Inspectorate Area 5, found that the results of the experiment using the model of educational smart hour in schools Government Inspectorate Area 5, by evaluating the teaching management of teachers, had an overall average of excellent. The results of the evaluation of the examination of the suitability of innovations or learning outcomes of students, had an overall average of excellent. This is because the researcher had a meeting to clarify and create understanding, prepared a guideline for writing a learning management plan, guidelines for determining innovations or learning outcomes of students, including guidelines for creating criteria for measuring and evaluating innovations or learning outcomes of students that showed details and were easy to understand, which could be used as a guideline for actual implementation. At the same time, the researcher opened an opportunity for questions and guidelines for organizing learning activities until there was a clear understanding and implementation. In addition, the researcher visited the classroom with the school administrators and had joint reflections between the teachers and the researcher. The results of the teachers’ implementation were able to truly develop the quality of students and could be applied in teaching other learning units, including other subjects. The results of the evaluation and certification of the model of educational smart hour in schools Government Inspectorate Area 5, in terms of feasibility and usefulness of the model, found that the overall average was at the highest level.

VII. KNOWLEDGE FROM RESEARCH

This research entitles on a model of educational smart hour in schools Government Inspectorate Area 5 was conducted and knowledge from research can be shown as below figure.

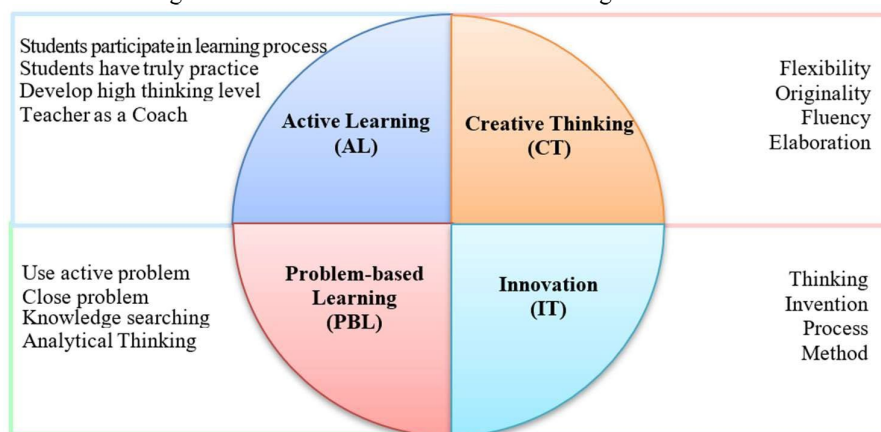


Figure 3 Knowledge from Research
Source: Montakanti Pethaksorn, 2024

VIII. RECOMMENDATIONS

A. General Recommendations

1. Educational institutions under the Office of the Primary and Secondary Education Area can use the developed the model of educational smart hour in schools Government Inspectorate Area 5 as a guideline for developing teaching and learning activities in educational institutions to develop the quality of students in terms of key competencies, desirable characteristics, and learning outcomes of students.

2. In applying the model of educational smart hour in schools Government Inspectorate Area 5, the user should study the details of the model of educational smart hour in schools Government Inspectorate Area 5 from the manual to gain a thorough understanding of all content points before applying it in a real situation.

3. The model of educational smart hour in schools Government Inspectorate Area 5 consists of 5 elements as follows: 1) Model principles, 2) Model objectives, 3) Model processes, 4) Model implementation conditions, and 5) Model evaluation, which can be successfully implemented depending on cooperation from school administrators, teachers, students, and parents, each of which plays an important role in supporting the operation to be effective.

B. Recommendations for Future Research

1. There should be conducted the research on each component by separate research on each component, namely Active Learning, Problem-based Learning, and creativity, which affects the innovation or learning outcomes of students.

2. There should be conducted the research on monitoring and data collection of teachers who use the Smart Hour teaching model as part of the request for or request for promotion in the DPA system.

3. There should be conducted qualitative research methods, such as behavioral observation, student interviews, should be used to collect data to obtain comprehensive information on beneficiaries.

CONCLUSION

This research conducted on a model of educational smart hour in schools Government Inspectorate Area 5. Results of research showed that the components and conditions of teaching and learning of educational smart hour in schools Government Inspectorate Area 5 consisted of 4 main components and 16 sub-components, and the conditions of teaching and learning of smart hours in educational institutions Government Inspection Area 5 is at a moderate level. A model of educational smart hour in schools Government Inspectorate Area 5 consisted of 4 main components and 16 sub-components, including active learning, problem-based learning, creativity, and innovation. Results of the evaluation and certification of the model of educational smart hour in schools Government Inspectorate Area 5 from educational institution administrators and sample teachers in terms of feasibility and usefulness, it was found that the overall average is at the highest level. Results from this research can be the guidelines for the implementation in schools in order to develop students' learning to research their high potential in learning during the current situation. Educational smart hour in schools should be one of the teaching and instruction that will be effective in educational management.

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