



Developing Model of Basic Science Learning Management on Universal World's to Knowledge Quest Integrated for Enhancing Achievement of 12 Great Students

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Abstract:- Learning management design, appropriate and environment conducive in the learning of students were stimulating responses to learners and have to diversity and is ready for learners to learn while they are interested in learning to efficiency. Specific purposes of developing a model of basic science learning management on universal Worlds to knowledge quest integrated for enhancing the achievement of 12 great students. The collection came from the documentary study, the practice meeting, assessment of the model by the evaluate questionnaire, learning management, the assessment and questionnaire, the test of achievement to the data. The findings show that the guidelines levels, the factors and indicators on the model, suitability levels to model, the efficiency of learning management, students' achievement, include the satisfaction levels to model.

Keywords: Developing Model, Basic Science Learning Management, Knowledge Quest Integrated

Introduction

The modern world culture was a knowledge-based society in which all students need to be developed scientific literacy for all have to knowledge, understanding in the natural world and technology include applying knowledge logically. The knowledge of science is not only used to improve the quality of life. Also, helps to have the right knowledge and understanding about balance utilization and most importantly, knowledge of science helps to increase capacity for development and linking knowledge with learning management processes for giving the students to develop creativity, analytical thinking, critical thinking, including result skills and knowledge components throughout the process of searching knowledge, able to solve problems systematically, able to make decisions using a variety of information and testimonies (Ministry of Education, 2018). Foundation of science learning for the students to be connected seamlessly.

The science learning curriculum of Thai's basic education has specified indicators and the subject of learning for the students in-term of learning needs to be able to apply knowledge to their life and employ science to connect knowledge and learning processes, organizing learning activities which encourage students to develop their ideas including rational thinking, creativity, critical thinking, with scientific process skills and 21st-century skills (Office of the Chief Scientist. 2018). In the past, science teaching style is teachers determined or selected teaching style according to the recognized educators, using beliefs concepts, or from other teachers to study different teaching styles and then synthesized and developed into a teaching model for learning management to the students effectively (Bonnet, B & Keen, D.,2016). However, learning management in the universal World will be another means to encourage learners to have problem-solving skills. Universal learning is the way to develop and study the ability of the learner's algorithms in a large environment with many assumptions as possible so that the specific purpose of developing a model of basic science learning management on universal World's is to knowledge quest integrated for enhancing the achievement of 12 great students. The Learning management model will be suitable and acceptable for students' needs in real conditions as well as the students will have a positive attitude towards science. Moreover, the effect of learning on the universal World's model can encourage students to need to learn and obtain science knowledge.



Literatures Review

Developing science instruction model by the National Research Council (2018) presented teaching and learning elements which to the system of interaction between learners and teachers, learners themselves, and other environments. Learning is a process that occurs in students and will be useful if students can accumulate what they have learned to use in new situations including the connection will improve when the things learned to have a relationship with the new situation. teachers should use various methods to support and encourage learners to learn and accumulate what is learned to be used. Inquiry learning management. Learning management techniques that encourage students to search for answers to specific issues, emphasizes the students to be responsible for their learning (Abd-El-Khalich, F. and N.G. Lederman, 2017). Also, the role of teachers is to enlighten and facilitate will be a helping of the students for finding information, organize their information, apply knowledge rationally from organizing content and activities following interests, the aptitude of the learners and taking into account differences between the students (Van Cleave, J. R. & Minerals, 2016) the atmosphere a learning environment that facilitates the learning process and operations to help of the learners on finding a piece of information and organize their information, and apply knowledge rationally from organizing content and activities following interests (Krajcik, J.S.,2014). In aptitude of students and taking into account differences, organization of learning environments that facilitate the learners to learning, and operations to link knowledge with the process, allowing students to participate in every step of the studies, having learning activities to the development of talents and learning skills in the potential.

In addition, these academics study the guidelines of basic science learning management on universal World's to knowledge quest integrated for enhancing achievement, developing a model of basic science learning management on universal World's to knowledge quest integrated, and the effects a using model of basic science learning management on universal Worlds to knowledge quest integrated for enhancing the achievement of 12 great students inefficiency on learning management, students achievement, and satisfaction to model. There is the learning management design, appropriate and environment conducive in the learning of students were stimulating responses to learners and have to diversity and is ready for learners to learn while they are interested in learning to efficiency and sustainability.

Material and Methods

Try of research were to mixed-method research via action classroom research into study the guidelines for learning management from a survey by questionnaire, developing model came from the documentary study, the practice meeting, and assessment model by evaluating questionnaire, the effects a user model of efficiency on learning management of basic science learning management on universal World's, students' achievement by the test, and satisfaction to model by questionnaire to data method.

In the collections to respondents were to study the guidelines for learning management from a survey with 396 samples of voice directors, science teachers, head of learning subjects, 12 great students, parents, school board committees, developing model came from the documentary study, the practice meeting with key-informant of 1 voice director, 5 science teachers, 1 head of learning subjects and 4 educational experts, and assessment model by evaluating questionnaire with 13 experts, and the effects a using model of efficiency on learning management of basic science learning management on universal World's with 184 key informants of 12 great students, including the student's achievement by the test, and satisfaction to model by questionnaire with 396 samples of voice director, science teachers, head of learning subjects, 12 great students, parents, school board committees in Chumphaesuksa School. Also, the participants into key informants all were by purposive sampling and the samples all were by multi-stage random sampling to the data.

Data analysis into the guidelines for learning management to analyzed by descriptive statistical analysis including mean, and standard deviation in the result of guidelines levels, model of basic science learning management to analyzed by contents analysis in the result of factors and indicators, suitability to model to analyzed by descriptive statistical analysis including mean, and standard deviation in the



result of suitability levels, efficiency on learning management to analyzed by percentage in the result of efficiency according to criteria of 80/80, students achievement to analyzed by mean, standard deviation, and t-test in the result of student's achievement as a comparison between before and after, including the satisfaction to model to analyzed by descriptive statistical analysis, mean, and standard deviation in the result of satisfaction levels.

Results

In the results of developing a model of basic science learning management on universal World's to knowledge quest integrated for enhancing the achievement of 12 great students were followed:

a) Guidelines levels for learning management on universal World's for enhancing the achievement of 12 great students of the aspects include of learning model, learning management process, and evaluation to shown as table 1.

Table 1. Mean, standard deviation, and guidelines levels.

| No. | Guidelines for learning management | Guidelines levels | | Meaning |
|-----|------------------------------------|-------------------|-------------|----------------|
| | | Means | S.D. | |
| 1. | Learning model. | 4.56 | 0.68 | Highest |
| 2. | Learning management process. | 4.59 | 0.67 | Highest |
| 3. | The evaluation. | 4.54 | 0.70 | Highest |
| | Totals | 4.56 | 0.68 | Highest |

On table 1. Guidelines levels for learning management on universal World's for enhancing the achievement of 12 great students of the aspects include of learning model, learning management process, and evaluation at a level of highest levels (Mean of 4.56, S.D. of 0.68). When a considering of the sides with the highest mean, in descending the orders are to a learning management process (Mean of 4.59, S.D. of 0.67), inferior of learning model (Mean of 4.56, S.D. of 0.68), and the evaluation (Mean of 4.54, S.D. of 0.70), respectively.

b) Factors and indicators to the model of basic science learning management on universal Worlds to knowledge quest integrated for enhancing achievement to shown as table 2.

Table 2. Factors and indicators to model.

| Factors to a model of basic science learning management | Indicators |
|---|--|
| 1. Principles | Basic science learning management on universal World's to knowledge quest integrated to focus on the learners to be innovative and knowledge creators themselves, through the pursuit of knowledge, and learners play an important role in learning through learning media and technology media. |
| 2. Objective | Basic science learning management on universal World's to knowledge quest integrated for enhancing achievement |
| 3. Learning management process | Into 4 th Stages such as; Stage 1: - Preparatory and introductory. By stimulating the learners in presenting the learning material that the students will learn, and recording what they learned, along with asking questions from watching the video, teachers have questions to encourage students to think and gain more knowledge. |



| Factors to a model of basic science learning management | Indicators |
|---|---|
| | <p>Stage 2:- Activity.</p> <p>1) Analyze and find the cause after the students have to study by the videos, have them perform a specific learning activity, e.g., the students analyze each question, group the questions, and work together to come up with a solution.</p> <p>2) Planning and seeking the guidance by having the students together within the groups put the questions and answers in a first-come, first-order, and divide the task of searching the data, by designing tables and recording the results into a notebook (Searching for information such as from the Internet, knowledge sheets, textbooks)</p> <p>3) Collecting and examining the data and have the students bring the information obtained from the search together for analysis and examination within the groups to plan together.</p> <p>Stage 3:- Conclusion.</p> <p>Writing of the reports and explaining the data by having students take to the information of all the students to find together, analyze, and verify it together, and record it as a journal on the worksheet as well as for presentations and discussions between teachers and students.</p> <p>Stage 4:- Knowledge expansion.</p> <p>Students to presented and spreading of the knowledge gained from activities to connect with prior knowledge and experiences in students' daily life.</p> |
| <p>4. Measurement and evaluation</p> | <p>(1) Efficiency on learning management according to criteria of 80/80.</p> <p>(2) Students' achievement.</p> <p>(3) Satisfaction to model.</p> |
| <p>5. Success conditions</p> | <p>The ability and readiness to use and access technology by students require responsibility, honesty, discipline, and commitment to work, including learning materials that encompass learning management, and organizing, the conducive environment to learners' pursuit of knowledge.</p> |

On table 2. Factors and indicators to the model of basic science learning management on universal World's to knowledge quest integrated for enhancing achievement including 1) principles, 2) objectives, 3) learning management process to consists of 4 stages as preparatory and introductory, activity, conclusion, and knowledge expansion, 4) measurement and evaluation, and 5) success conditions.

In suitability levels to the mode of basic science learning management on universal Worlds to knowledge quest integrated for enhancing achievement to shown as table 3.

Table 3. Mean, standard deviation, and suitability levels.



| No. | Suitability levels to the mode of basic science learning management | Suitability levels | | Meaning |
|-----|---|--------------------|-------------|----------------|
| | | Means | S.D. | |
| 1. | Principles. | 4.68 | 0.32 | Highest |
| 2. | Objectives. | 4.67 | 0.33 | Highest |
| 3. | Learning management process. | 4.72 | 0.28 | Highest |
| 4. | Measurement and evaluation. | 4.69 | 0.21 | Highest |
| 5. | Success conditions. | 4.65 | 0.25 | Highest |
| | Totals | 4.68 | 0.22 | Highest |

In table 3. Suitability levels to the mode of basic science learning management on universal Worlds to knowledge quest integrated for enhancing achievement including the principles, objectives, learning management process, measurement and evaluation, success conditions at a level of highest levels (Mean of 4.68, S.D. of 0.22). When a considering of the sides with the highest mean, in descending the orders (1-3) are to learning management process (Mean of 4.72, S.D. of 0.28), inferior of measurement and evaluation (Mean of 4.69, S.D. of 0.21), and principles (Mean of 4.68, S.D. of 0.32), respectively.

c) Effects a using model of efficiency on learning management, students' achievement, and satisfaction to the model was followed;

1. Efficiency on learning management of basic science learning management on universal World's according to criteria of 80/80 to shown as table 4.

Table 4. Efficiency scores to criteria of 80/80.

| Basic science learning management on universal World's | Efficiency Scores | | Efficiency to criteria of 80/80 |
|--|--------------------|-------------------|---------------------------------|
| | Process efficiency | Result efficiency | |
| | | 87.49 | 88.29 |

In table 4. Efficiency on learning management of basic science learning management on universal World's on process efficiency have to efficiency scores of 87.49, on result efficiency have to efficiency scores of 88.29. Efficiency on learning management of 87.49/88.29, which is higher than the specified threshold as criteria of 80/80. Learning management of basic science learning management on universal World's has to efficiency.

2. Student's achievement of basic science learning management on universal World's as a comparison between before and after by t-test to shown as table 5.

Table 5. Mean, standard deviation, and t-test.

| The scores | Mean | S.D. | Percentage | t | Sig. |
|---------------|-------|------|------------|---------|------|
| Before | 14.85 | 0.88 | 61.98 | 1.369** | 0.01 |
| After | 21.34 | 0.62 | 88.29 | | |

** Significance at the level of 0.01.

In table 5. Students' achievement of basic science learning management on universal World's by the students have to after score to higher than before to difference of Significance at the level of 0.01.

3. Satisfaction levels to the model of basic science learning management on universal World's to knowledge quest integrated for enhancing achievement include of learning management model and efficiency, knowledge content, application, learning management success to shown as table 6.



Table 6. Mean, standard deviation, and satisfaction levels.

| No. | Suitability levels to the mode of basic science learning management | Suitability levels | | Meaning |
|-----|---|--------------------|-------------|----------------|
| | | Means | S.D. | |
| 1. | Learning management model and efficiency. | 4.53 | 0.71 | Highest |
| 2. | Knowledge content. | 4.52 | 0.72 | Highest |
| 3. | Application. | 4.51 | 0.73 | Highest |
| 4. | Learning management success | 4.54 | 0.69 | Highest |
| | Totals | 4.52 | 0.71 | Highest |

In table 6. Satisfaction levels to the model of basic science learning management on universal World's to knowledge quest integrated for enhancing achievement include of learning management model and efficiency, knowledge content, application, learning management success at a level of highest levels (Mean of 4.52, S.D. of 0.71). When a considering of the sides with the highest mean, in descending the orders (1-3) are to learning management success (Mean of 4.54, S.D. of 0.69), inferior of learning management model and efficiency (Mean of 4.53, S.D. of 0.71), and Knowledge content (Mean of 4.52, S.D. of 0.72), respectively.

Discussion

In the results were guidelines for learning management of highest levels, model of basic science learning management on universal World's to knowledge quest integrated for enhancing achievement on the factors including principles, objectives, learning management process measurement and evaluation, and success conditions, also, suitability to the mode of highest levels. Learning management of basic science learning management on universal World's has to efficiency, the student's achievement to highest. Satisfaction levels to the model of basic science learning management on universal World's to knowledge quest integrated for enhancing achievement include of learning management model and efficiency, knowledge content, application, learning management success at a level of highest levels. As a result, teachers will rely on concepts or teaching styles that are suitable for students. Besides, giving importance to students by considering the roles and ideas is what makes this teaching style emphasize the role of students to participate in teaching and learning activities all the time and promote learners' opinions. Dreyfus, S. E. (2014), in the students can use questions to search for knowledge in various subjects by themselves and be able to analyze problems from cause to effect, have to creative and able to apply principles discovered rules by using scientific process skills (Bernstein, R., 2018). Scientific processes were able to promote research behavior to seek knowledge arising from thinking (Ferguson, 2007). Practice and systematically until it becomes proficient and can be applied to solve problems in daily life. Holm, M. (2017) learning management that has a variety of learning content for each unit For students to practice their study skills and assess their knowledge. A making student eager to learn as well. Scientific process skills are intellectual skills or thinking skills that use scientific methods to solve problems. McMillan, J. H. (2018) into the students' practice science process skills to maximize academic performance. Students can use questions to search for knowledge in various subjects by themselves and be able to analyze problems from cause to effect, have to be creative and able to apply principles discovered rules by using scientific process skills. Basic science learning management on universal World's to knowledge quest integrated to focus on the learners to be innovative and knowledge creators themselves, through the pursuit of knowledge, and learners play an important role in learning through learning media and technology media. In a learning management process of the preparatory and introductory by stimulating the learners in presenting the learning material that the students will learn, and to record what they learned, along with asking questions from watching the video, teachers have questions to encourage students to think and gain more knowledge. (Finley, F.N., 2019) In the activity to analyze and find the cause into after the students have to study by the videos, have them perform a specific learning activity, e.g., the students analyze each question, group the questions, and work together to come up with a solution. Planning and seeking the guidance



by having the students together within the groups put the questions and answers in a first-come, first-order, and divide the task of searching the data, by designing tables and recording the results into a notebook (searching for information such as from the Internet, knowledge sheets, textbooks). The students to presented and spreading of the knowledge gained from activities to connect with prior knowledge and experiences in students' daily life.

Recommendation

Model of basic science learning management on universal World's to knowledge quest integrated for enhancing achievement including 1) principles, 2) objectives, 3) learning management process to consists of 4 stages as preparatory and introductory, activity, conclusion, and knowledge expansion, 4) measurement and evaluation, and 5) success conditions. Suitability to mode at a level of highest levels. Efficiency on learning management of basic science learning management on universal World's on process efficiency have to the efficiency of 87.49/88.29. Students' achievement has to after score to higher than before to difference of Significance at the level of 0.01. Satisfaction to the model includes of learning management model and efficiency, knowledge content, application, learning management success at a level of highest. The ability and readiness to use and access technology by students requires responsibility, honesty, discipline, and commitment to work, including learning materials that encompass learning management, and organizing. the environment conducive to learners' pursuit of knowledge. Furthermore, apart from science, this model should be implemented expanded to employ for learning and teaching in other disciplines such as social studies, English, business study, etc.

References

- Abd- EI-Khalich, F., & N.G. Lederman. (2017). The influence of the history of science course on students' views of Nature of science. *Journal of Research in Science Teaching*, 37(10), 1057-1095.
- Bernstein, R. (2018). Arts foster scientific success. *Journal of Psychology of Science and Technology*: 1(2),51- 63.
- Bonnet, B & Keen, D. (2016). *Science Fair: Project the Environment*. New York: Sterling.
- Dreyfus, S. E. (2014). The Five-Stage Model of Adult Skill Acquisition. *Bulletin of Science, Technology & Society*, 24(3), 177-181.
- Ferguson. (2007). Effect of Student Team Achievement Divisions Cooperative Learning Technique on Upper Secondary Social Studies Student's Academic and Attitude towards Social Studies Class. *Dissertation Abstracts International*: 59(2), 121.
- Finley, F.N. (2019). " Science Process," *Journal of Research in Science Teaching*: 20(3), 47-54.
- Holm, M. (2017). Project-based instruction: Review of the literature on effectiveness in prekindergarten through the 12th-grade classroom. *River Academic Journal*: 7(2),1-13.
- Howick, T. S. (2016). " A Case Study of a Sixth-Grade Class Using Marine Science Project for Sea," in *Dissertation Abstracts International*: 52(10), 34283-A.
- Krajcik, J.S. (2014). "A Collaborative Model for Helping Middle-Grade Science Teachers Learn Project-Bases Instruction," *Elementary School Journal*: 94 (5), 483-497.
- Louise. (2018). "A Teacher Evaluation of Selected Method of In-Service Education", *Dissertation Abstracts International*: 51 (3), 62-67.
- McMillan, J. H. (2018). *Classroom assessment: principle and practice for effective standards-based instruction (5th ed.)*: Boston: Pearson.
- Ministry of Education. (2018). *Promotion of learning society and youth development*. Bangkok, Thailand: QLF.
- National Research Council. (2018). *America's climate choices*. Washington, DC: The National Academies Press.
- Office of the Chief Scientist. (2016). *Science, technology, engineering, and mathematics in the national interest*. [Online]
<https://www.chiefscientist.gov.au/sites/default/files/STEMstrategy290713FINALweb.pdf>.

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DOI: <https://doi.org/10.14456/jsasr.2022.3>

Van Cleave, J.R. & Minerals. (2016). Minerals: Mind-Boggling Experiments you can Turn into Science Fair Projects. New York: John Wiley.