Digital Media in the Teaching of Mathematics and Computer on Daily Basis

Boonchom Sudjit[1*], Manoon Chitsamroeng[2]

[1]Faculty of Engineering and Architecture,
Rajamangala University of Technology Tawan-ok : Uthenthawai Campus
Bangkok,Thailand
[*1]e-mail: boonchom_su@rmutto.ac.th
[2]Faculty of Engineering and Architecture,
Rajamangala University of Technology Tawan-ok : Uthenthawai Campus
Bangkok,Thailand
[2]e-mail: manoon_ch@rmutto.ac.th

Abstract— Education in Thailand is constantly remarkable evolving. Could be regarded as having the holistic importance of the Education. Government therefore emphasizes a policy to develop teaching and learning in another dimension based on the development of manpower in Information Technology, in which the subjects are important or related to Computer Science and Mathematics for Calculation of the sustainable way of National Development in order to drive the development of Digital Manpower in the future. This research has the objective to develop a Digital Integrated Teaching and Learning Model using Application Techniques to create prototypes to test on the Information Technology System for learning.

The researchers used two expert assessments to analyze the correlation of the development of the Digital Media Model in learning. The assessment results showed mean and standard deviation. And the criteria for user groups for the generated prototypes of digital media on research issues are of high importance. In conclusion, Digital Media in the Teaching of Mathematics and Computer on Daily Basis learners are eager to learn which is easy to study. Thus making it discoverable faster that all of these subjects are easier to study and thus a faster set for future educational development as well.

Keywords- Digital Media, Application Program Interface, educational concepts.

I. INTRODUCTION

Information technology becoming more and more active in Thailand's education system, which is driven by the development of digital manpower. [1] In order to keep pace with the digital needs that are quick to accelerate education It is therefore necessary for the development of education even more. Building digital skills and understanding of the application of tools, equipment, information technology or digital media such as computers, mobile phones, tablets, computer programs. And online media that can be accessed anywhere, anytime, every dimension and at any age of various forms. Factors and variables that occur are therefore essential to the development of education at all levels as well. As a result, the education system has to have a clear target movement. To make the most of the benefits or applications in digital media to support teaching and learning to be easy to access. And the speed of collaboration to develop proactive learning processes to be more modern and efficient in the digital age.

Therefore, the researcher came up with an idea of the form factors that differ in each science of the subjects. To integrate and develop the presentation of the integrated teaching and learning course, which searches all dimensions and key concepts in mathematics. And computer subjects That will enable the learner or teacher to understand the tools, techniques and methods, forms of integration that can be used in conjunction with applied computer programs, to attract the learner's speed in further educational development. Go

II. THEORETICAL BACKGROUND

A. Digital Media

Digital media technology has three major components as follows:

- Hardware means products used to read digital books. In addition to computers, currently not The product is designed to be portable, more shape, size and price available, with readable software that can be ordered or downloaded from the intranet.

- Software is a software program for reading digital books. That is used to read digital books, depending on the format that the company produces Most of them are downloaded for free from the internet like

Adobe Reader, Microsoft Reader, Plam Reader and DNL Reader, etc.

- Software for creating digital books This is a

program used to make digital books such as AdobeFrameMaker, Adobe PageMaker, Adobe InDesign, Adobe Acrobat, Adobe Acrobat Capture, The Read in Microsoft Reader add-in for Microsoft Word, The PlamEbook, Studio authoring tool, Desktop Author, Flip Album, etc. [2]

B. Digital Thailand [1]

Advertising Thailand (Digital Thailand) means a system to manage and utilize a complete data warehouse for the development of the subway, information, capital and other resources to drive the country's economic and social development towards stability and finance. An economic development plan for the economy and society has four general reasons as follows.

- Increase the country's economic competitiveness through spending step-by-step training principles
- Create social opportunities such as channels with information and services via media to enhance people's quality of life.
- The readiness of all groups of rooms has the knowledge and skills suitable for life and career in the era.
- Khom Ax, television, work and service of the government sector with information technology and utilization of information to make work more efficient and effective [1]

Socio-economic development through the method of achieving results and the national level of economic and social development has established the framework of six development areas as shown in Figure 1

Figure 1 : 6 Development strategies [1]

This makes them aware of the patterns and conceptual frameworks for the digital development process for the economy and society of Thailand. It also focuses on long-term sustainability towards rapid changes in national policies and plans on digital development.

C. Related Researches

Juliya Sapina, Vadim Konovalov, Vera V. Boguslavskaya (2018) [3] "Digital Platforms as a Tool for Transforming Mass Media Communication Strategy" Objective To use the digital platform to support strategic communications. By testing public and federal agencies And sports media Take a comparison of the use of digital platforms (Vkontakte, Odnoklassniki, Twitter, Facebook) in government agencies. The result can help close communication gaps. Viewers who endorse their opinions on communications. Know the problems and digital tools impacting the type of change in the composition, highlighting the elements. And the multifunctionality of text, sports media, is evident in the integration of different types

Based on this research by Juliya Sapina, Vadim Konovalov, Vera V. Boguslavskaya (2018) [3], "Digital Platforms as a Tool for Transforming Mass Media Communication Strategy", researchers have discovered an integrated process in a digital platform format. In order to be applied in testing and developing into the teaching and learning of suitable digital platforms.

Rory L.L Sie, Janine Delahunty, and Kenton Bell. (2018) [4] "Artificial Intelligence to Enhance Learning Design in UOW Online, a Unified Approach to Fully Online Learning" aims to provide a framework for design and support UOW Online. This is a totally new university strategy for online learning. To help support teachers in the learning design process, we strive to create greater awareness among teachers by defining the underlying learning model of the subject, acting as an input for artificial intelligence (AI) algorithms.), Which will use the model to automatically label learning activities. In addition to student demographics and behavior, learning design and course content will be used to enhance AI models that predict future student outcomes, focusing on compiling essential learning activities and self-coding. Of these learning activities, the effectiveness is even more acceptable.From the study of relevant research It was found that artificial intelligence can be applied to the development of teaching and learning models in the future in order to achieve further development.

III. RESEARCH METHODOLOGY

A. Methods

The description of the research methodology including dada collection as follows.

The 1st stage : Conceptual framework for relevant domestic and international research

The 2st stage:: Mobile digital media development and process

The 3st stage: Process design to develop application resolution for teaching and learning.

The 4st stage: Gathering information through questionnaires on digital media prototype design and development.

B. Population and sample

The sample consisted of 2 experts, and another sample group comprised 30 as shown in the figure 4.

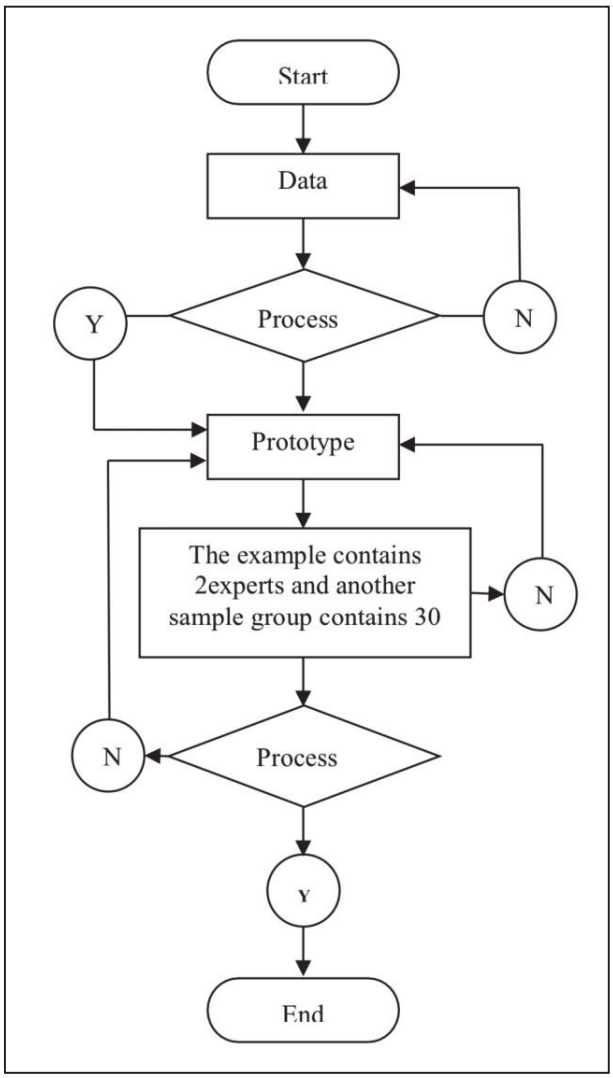

Figure 2 : Research process

C. Research Instruments

- The assessment questionnaire was made on the digital media in post-revision instruction. Obtaining data from this step, statistical analysis began later.
- The online test consists of 2 experts who take the assessment. The data was collected from an assessment of a second group of 30 online users, so the assessment questionnaire was compiled for further statistical analysis - mean and standard deviation - from both groups to provide an appropriate assessment of With digital media.

D. Data Analysis

The Analysis of Digital Media in the Teaching of Mathematics and Computer on Daily Basis According to a group of 30 participants using statistical packages The data were analyzed using descriptive statistics such as percentage, mean and standard deviation. The analysis results are shown in Table 1 Example .& 2. Another sample group contains 30 people.

TABLE I. EXAMPLE , PRIORITY FEATURE ANALYSIS

Question	Example		
	$\bar{X}$	*SD*	*Level of importance*
1. Framework	4.68	0.25	Highest
2. Content	4.44	0.15	Moderate
3. Layout	4.40	0.42	Highest
4. Review side	4.55	0.34	Moderate
5. Speed	4.44	0.25	Moderate
Total	**4.50**	**0.27**	**Highest**

a. Priority Feature Analysis

TABLE II. GROUP OF 30 PARTICIPANTS PRIORITY FEATURE ANALYSIS

Question	Example		
	$\bar{X}$	*SD*	*Level of importance*
1. Framework	4.80	0.43	Highest
2. Content	4.79	0.41	Highest
3. Layout	4.60	0.42	Highest
4. Review side	4.58	0.34	Highest
5. Speed	4.62	0.43	Highest
Total	**4.69**	**0.42**	**Highest**

b. Priority Feature Analysis

IV. RESEARCH RESULT

Research results for Digital Media in the Teaching of Mathematics and Computer on Daily Basis.

The results are as follows

Step 1: Conceptualization of Digital Media in the Teaching of Mathematics and Computer on Daily Basis

As in the picture

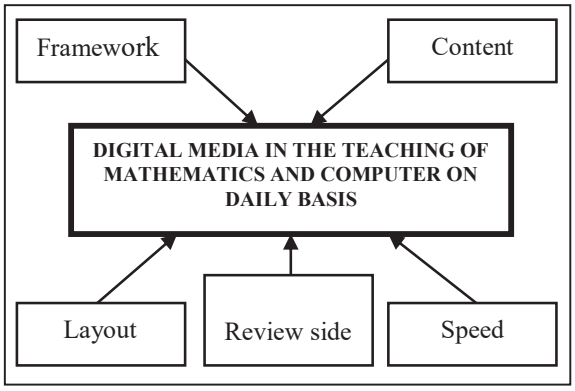

Figure 3 : Conceptual framework Digital Media in the Teaching of Mathematics and Computer on Daily Basis

Step 2 The results of digital media learning on smartphones (Smart Phone) with the Android operating system (App Inventor) [5] which results as shown in Figure 4.

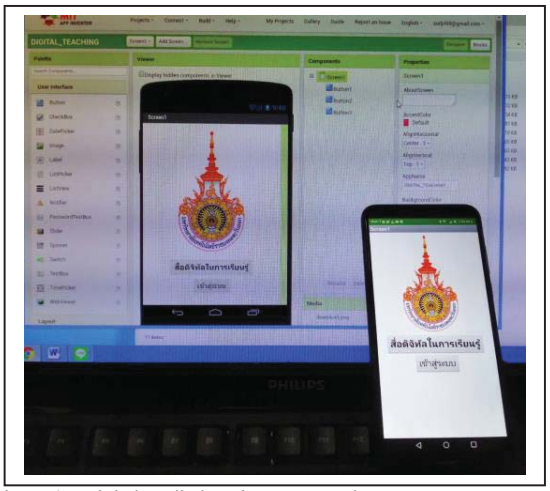

Figure 4 : Digital media learning on smartphones

V. DISCUSSION

The research results have shown that Prototypes are essential to the creation of digital media that will support this newly created teaching and learning. Interesting, using Digital Media in the Teaching of Mathematics and Computer on Daily Basis.

Important variables affecting user sample format selection. Providing high precision values from the prototype digital media. This shows how important variables affect Digital Media in the Teaching of Mathematics and Computer on Daily basis. Of a user-specific sample It was consistent with the results from multiple regression analyzes. It is therefore believed that the variables obtained from the development of the aforementioned digital media prototypes are considered acceptable at an acceptable level.

VI. ACKNOWLEDGMENTS

The success of this research was achieved by the grant of annual benefit budget of 2018 from Rajamangala University of Technology Tawan-ok. Also with the Grateful Thanks to Board of Directors, Management, Lecturers, Staff and sample groups who kindly devoted valuable time to advise and correct all troubleshootings and bugs fixed by which resulted from this research at the very beginning until the completion of this research.

REFERENCES

[1] Office of the National Digital Economy and Society Commission, (2018 – 2037) ,https://www.onde.go.th/assets/portals/1/files/620425-Government%20Gazette.PDF

[2] E-book รปศ. 02 ; (2020)., https://sites.google.com/site/ebookrps02/re/5-thekhnoloyi-sahrab-hnangsux-xilekthrxniks.

[3] Juliya Sapina ; Vadim Konovalov ; Vera V. Boguslavskaya. 2018. Digital platforms as a tool for transforming mass media communication strategy. Communication Strategies in Digital Society Workshop (ComSDS). Conference: 11-11 April . IEEE.

[4] Rory L. L. Sie, Janine Delahunty, and Kenton Bell. (2018). Artificial Intelligence to Enhance Learning Design in UOW Online, a Unified Approach to Fully Online Learning. Conference: 11-11 April . IEEE.

[5] MIT APP inventor (2020). https://appinventor.mit.edu/

[6] Saowalak Leelawongsaroj, Pongpisit Wuttidittachotti "The Development of the Database System for Facilitating the Readily Easy-to-use Digital Media," JInternational Journal of Applied Computer Technology and Information Systems: Volume 4, No.1, April 2014 - September 2014.

[7] N. Sakamoto ; K. Muguruma ; N. Koshino ; S. Chiba ; M. Sakurai. 2005. A digital HDTV receiver with home networking function and digital content storage. Digest of Technical Papers. International Conference on Consumer Electronics, 2005. ICCE.

[8] N. Sakamoto ; K. Muguruma ; N. Koshino ; S. Chiba ; M. Sakurai. 2005. A digital HDTV receiver with home networking function and digital content storage. Digest of Technical Papers. International Conference on Consumer Electronics, 2005. ICCE.

[9] Konstantin V. Kiuru ; Anna A. Morozova ; Alexey D. Krivonosov ; Alexandr A. Selyutin. 2020. Tainment-actors in the New Digital Media Environment. IEEE Communication Strategies in Digital Society Seminar (ComSDS)

[10] Sándor Forgó. 2013. New Media, New Media literacy, new methods in education. 63rd Annual Conference International Council for Education Media (ICEM)

[11] Qiuli Shang ; Wu Zhang ; Xiao Chen ; Xiuyan Guo. 2013. Storage performance evaluation of media server based on multi-core network processors. IEEE Wireless Communications and Networking Conference Workshops (WCNCW)