

Blended Learning Management of WordPress Website Development Skill for Communication Design Undergraduates Using The ADDIE Model

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ABSTRACT

The purpose of this study was to identify a gap performance of website building skill for the undergraduates at the Department of Communication Design, Faculty of Architecture King Mongkut's Institute of Technology Ladkrabang (KMITL). The researchers applied the ADDIE Model (Branch,2009), a theory of instructional design process that starts from the beginning to an end. It contains five phases: 1) Analysis 2) Design 3) Development 4) Implementation and 5) Evaluation. Enable us to notice what cause the performance gap and how we solve that problem via instructional design and meet assessment learning criteria. This learning management has the following objectives: 1) To develop the Blended Learning instructional plan for Website Development Skill on Communication Design Undergraduates using the ADDIE Model through the short-time workshop training to build Portfolio Website with WordPress. 2) Student can build their own portfolio websites. The overall outcome of the Blended Learning management with the learners' satisfaction towards WordPress website training workshop, for the undergraduates according to ADDIE approach and Likert-Type scale (Likert,1932). It says 1. The learners are satisfied with Online Lesson at mean = 4.32, Instructor at mean = 4.56 and Facilitation at mean = 4.55. 2. The evaluation of the learners' portfolio websites that equal to rubric criteria at (0.00 - 3.00), which mean very good. The average score is 2.47

Keywords: ADDIE Model, Blended Learning, WordPress

1. INTRODUCTION

A website is a medium that is still popular on the internet and used widely in public including government agencies and private sectors. We can access from anywhere at any time. It is a necessary form of media for disseminating information and identity-creating on a virtual world remotely (Andrasari, 2016. Hu et al., 2014).

Currently, the Department of Communication Design at the Faculty of Architecture King Mongkut's Institute of Technology Ladkrabang (KMUTL), provide a website design instructional that aims student be able to create an alluring, contented and effectively communicate to the audience. However, the scope of instructional does not cover the Computer Programming Languages that fundamental to website building. Hence, a performance gap exists even student can design a website but cannot build effectively. Using Content Management Systems: CMSs (Ruth, 2013) in the semi-instant website builder are reduced problems from the previous traditional website builders. It enables the students to build a website without understanding/knowledge of Computer Programming Languages. Thus, WordPress is a choice and widespread use globally including Thailand. It is a free source software that developed using PHP, in conjunction with the database systems such as MySQL.

The WordPress training workshop, for the students at the Department of Communication Design using the ADDIE Model, a theory of instructional design process that starts from the beginning to an end. It contains five phases: 1) Analyze 2) Design 3) Development 4) Implementation 5) Evaluation. Consequently, to know what an actual problem is, occurs at the performance gap and enable us to design appropriate instruction for the learner characteristics at a maximum benefit, resulting in learning achievement that meets standard criteria.

Blended Learning (Curtis et al., 2005) is an integration of instructional containing educational technology and hands-on works, or a combination of teaching and learning strategies with a variety of teaching materials. In order to reach all varied learners background, should use differentiated and flexible instruction strategies: Online Lesson and Face – Face instruction.

Thus, a performance gap of website building from those students is a crucial point for us to investigate for blended learning underneath of the ADDIE Model to closure the performance gap. Those students can experiment and develop their website building skill for their portfolio website submitting their internship and career. This learning management has the following objectives: 1) To develop the Blended Learning instructional plan for Website Development Skill on Communication Design Undergraduates using the ADDIE Model through the short-time workshop training to build Portfolio Website with WordPress. 2) Student can build their own portfolio websites.

2. OBJECTIVE

1. To apply the ADDIE approach into Blended Learning Management, to develop web building skill for communication design students.
2. Using rubric score to compare students' e-portfolios which built by WordPress.

3. METHODS

The study applied the ADDIE approach into Blended Learning Management, to develop web building skill for communication design students that divided into five phases: Analysis, Design, Develop, Implement and Evaluation.

Phase 1 Analysis We conducted a population characteristics survey of students' at all levels, year one to year four in the Communication Design Department (Branch, 2009). Total of 82 samplings were selected base on the general questionnaires, met the Index of Item Objective Congruence: IOC (Leekitchwatana, 2016) by three experts of communication design and information technology.

With Cluster Sampling (Leekitchwatana, 2016), we found that the characteristics of the sampling group were similar. Therefore, we selected five participants from the 2nd year group who were willing to attend the pilot training workshop, and 20 participants at the actual training workshop. Then we specified necessary resources including textbooks and learning sheets, technology, facilities and personnel. Considered three teaching method plans for the training into three options below:

Option A: Long Distance Learning, online teaching and video conference (Online)

Option B: Face-to-Face Classroom Teaching in the Computer Laboratory (F2F)

Option C: Blended Learning Management (BL)

Phase 2 Design We set the objectives and the goals for learning management of the training workshop structured into a performance report and formulated a guideline for developing learning plan: content, learning medium and proper activities for the learners. Thenceforth, we designed three plans to compare concerning tools, methods, costs and effective outcome after the workshop.

Phase 3 Develop We selected the most appropriate teaching plan and applied to further development of content, learning medium, and activities for the learners.

Phase 4 Implement We conducted the preparation for instructor and the learners and then ran the workshop.

Phase 5 Evaluation We evaluated the result base on the pilot training workshop and the actual training workshop. Evaluation of learning management with the use of Learner Satisfaction Survey that divided to three subjects using Likert-Type scale (Likert,1932), 1) Lesson 2) Instructor 3) Learning Management (see table 1)

Table 1. Average score rate and result of knowledge and satisfaction survey using Likert-Type scale

Mean	Result
4.50 - 5.00	Highest
3.50 - 4.49	High
2.50 - 3.49	Moderate
1.50 - 2.49	Low
1.00 - 1.49	Lowest

Evaluation of teaching by the students' portfolio website. This form used One-Sample Test (Leekitchwatana, 2016) comparing the result with the Rubric assessment criteria measurement at four levels. Also met the IOC from the three experts, 1) WordPress website building skill and 2) Content design for presenting the portfolio on the website.

Table 2. Average score rate and result of student portfolio website assessment

Mean	Result
2.41 – 3.00	The students have a WordPress website building skill at excellence.
1.81 – 2.40	The students have a WordPress website building skill at good.
1.21 – 1.80	The students have a WordPress website building skill at moderate.
0.61 – 1.20	The students have a WordPress website building skill at low.
0 – 0.60	The students have a WordPress website building skill at lowest.

Table 3. Assessment criterion in knowledge and utilize of WordPress (W) and content design (C)

Criterion	Explanation	Objective
1. Theme	Learners can download and select theme in addition to the program provided. Be able to change a background other than the theme provided.	W
2. Header	Learners have own website name and logo.	W, C
3. Webpage	Use “page” to create and publish new webpages at least three pages.	W
4. Homepage	Learners can set the homepage from a newly created webpage. There contains of images and wordings.	W, C
5. Text	Use “blog” tool to insert a plain text, title, various text style.	W
6. Image	Use “blog” tool to insert image more than one with caption underneath the image.	W
7. Navigation	The Learner can add a navigation menu, to connect other webpages in the right orders.	W, C
8. Profile	Profile picture, short-bio, skills, contact information	C
9. Portfolio	At least of three pieces of works are shown.	C
10. Hyperlink	Learner can create two hyperlinks to other websites at least of two.	W

4. RESULTS

Phase 1: Analysis We surveyed target audience characteristics. Total 82 participants and Data were analyzed as below,

Table 4. Table of target audience characteristics (N=82)

Demographic		N	Percent	
1.	High school program / Vocational education and training graduation			
	● Sciences and Mathematics program	28	34.146	
	● Any Arts program (Languages / Mathematics)	49	59.756	
	● Other	5	6.098	
2.	Have you ever learnt or experienced in website building?			
	● Yes	47	57.317	
	● No	35	42.683	
Knowledge (rating scale)		Mean	SD	Result
3.	Basic computer skill	3.24	0.639	Moderate
4.	Content Management System	1.66	0.788	Low
Attitude (rating scale)		Mean	SD	Result
5.	Website development is difficult.	3.26	0.914	Moderate
6.	Knowing how to build a website is important.	4.28	0.790	High
7.	Portfolio website is necessity.	3.73	0.890	High
8.	Want to learn how to build a website without any computer code knowledge.	4.16	0.975	High

According to the survey of 82 target audiences at the Department of Communication Design show the students who graduated in arts program = 59.75%, science = 34.14% and others = 6.09%, have experience in learning and website building = 57.31%, Basic Computer Skill at moderate level = 3.24, but has website development skill with CMSs at Minimal level, mean = 1.66. Each attitude in relation to website development skill is difficult at minimal level, mean = 3.24. Design and website building skill is essential for work is at the most level, mean = 4.28. The necessity of having a portfolio website is at the most, mean = 3.73. If there is an instant website builder program that can assist without understanding of Computer Programming Language, is at the most level, mean = 4.16. This stage shows that the students thought, even with a lack of knowledge of computer programming language, and never use of CMSs. Website building is necessity.

Phase 2 Design Our objectives on this phase are 1) Designing instructional material for blended learning management. 2) Organizing a training workshop "Building a WordPress Website" for communication design at Faculty of Architecture King Mongkut's Institute of Technology Ladkrabang. 3) Enabling the students to gain more knowledge and website building for their portfolio using WordPress. Also, they can apply the knowledge and the skill into another subject.

We conducted a Task Inventory that logically organizes the content so that the students can construct the knowledge and skills necessary to achieve the instructional goals. The term inventory literally means a complete list of items. The items, within this context, refer to the performance tasks required by the student to achieve an instructional goal.

Phase 3 Develop We developed online lessons by WordPress that consist of content and proper explanation for those students.

1. Guidance of WordPress website building
2. FTP setting and file upload that necessary for WordPress setting
3. WordPress set up on the server
4. WordPress Login
5. Theme Choices
6. Webpage creating
7. Homepage Setting
8. Main menu and linking setting for the website

Phase 4 Implement The Training Workshop was processed on April 1st, 2019 at Computer Service Centre and November 19th, 2019 at Central Library's internet room. 46 students participated in our class to learn and build their own first e-portfolios.

Students were noticed in advance in order to receive information via the online lesson, must prepare the content with the media files that would be used to build a website on the training workshop day. One of the researchers was an instructor and he allowed the learners to interrupt and ask question during the session. On the actual training day, there was a problem caused by computer equipment in the initial computer laboratory. So the learners' group had to move to another lab, then again faced other pieces of equipment error occurrence, time waste. Also at the pilot training workshop, we found the performance gap caused the learners. That is the knowledge, differentiation of internal web building that made the

learner did not understand. Thus, we accounted this issue to enhance further instructional design for the actual training workshop.

Phase 5 Evaluation We conducted a satisfaction survey with the questionnaire of 11 questions to the learners that divided to three parts, online learning material, instructor and the training workshop. 20 students who responded our survey are very satisfied with the workshop. First of Instructor, Online Learning material is second and third is facilitation. (see table 5)

Table 5. Student Satisfaction Questionnaire Survey after workshop (N=20)

Online Learning Material	Mean	SD	Result
1 Suggestions given are proper to learn and understandable	4.50	0.827	Highest
2 The images on the online learning material are interesting. Consistent with the content and encouraging.	4.40	0.821	High
3 Characteristics, size and font colors are manifest and appropriate.	4.45	0.887	High
4 Use of appropriate symbols, information accessible without complex.	4.45	0.887	High
5 Connection of the chapters are responding to the need of learners.	4.55	0.826	Highest
6 The arrangement of artistic elements in the lesson are appropriate, attractive and clear.	4.30	0.801	High
The lessons are flexible responding to individual learners. The learner can do respectively and categories the content.	4.50	0.889	Highest
7 Language use is appropriate to the subject.	4.55	0.759	Highest
8 Content is compact, clear, and hierarchical. Understandable and connectable from existing knowledge to new knowledge.	4.50	0.827	Highest
9 Content is suitable for learners.	4.45	0.826	High
10 Teaching Preparation.	4.70	0.571	Highest
11 Information conveying.	4.75	0.550	Highest
12 Explanation-able and direct to the point.	4.80	0.410	Highest
13 Language use is appropriate to the subject.	4.70	0.657	Highest
14 Allow the learners to interrupt and ask questions and receive direct answers on the point.	4.80	0.41	Highest
Training Workshop/Facilitation	Mean	SD	Result
15 The workshop content is covered all the point and understandable.	4.50	0.607	Highest
16 The workshop duration is suitable.	4.35	0.587	High
17 The workshop atmosphere is convenient.	4.40	0.598	High
Summary	Mean	SD	Result
18 Online Learning Material	4.45	0.678	High
19 Instructor	4.75	0.449	Highest
20 Training Workshop/Facilitation	4.42	0.506	High

The results show that overall learners' satisfactions are above, moderate. The online learning material and training workshop/facilitation are high, and the instructor is the highest.

Table 6 Overall assessment results of the learners' portfolio website. (N=46)

	Mean	SD	Result
score	2.40	0.53	excellence

Base on Overall assessment results of the learners' portfolio website, 46 pieces using the Rubric assessment criteria measurement at four levels (see table 3). The average score is 2.40 at an excellence level. (see table 6)

5. DISCUSSION AND CONCLUSION

Blended Learning according to the ADDIE model that we applied to closure the performance gap and improve the effectiveness of website development skills, for the communication design students. The results of this study support previous finding that using ADDIE, have helped us to find out the learners' characteristic, enabled us to design instructional appropriately to the target audience. Also, use the framework is an approach to assist educators to operate learning management effectively. Moreover, the analysis stage is essential, and time needed. Although, online-learning is cost-effective as comparative to classroom, and engaging the millennial learners. This is one-way communication, the learners may feel isolated in the experience and not receive straightforward feedback from the instructor (Andrasari, 2016 and Aly, 2016). Blended Learning, F2F instruction with online content is a proper instructional for the learners' with two way communication who still need feedback from their lecturer in keeping with the research of Morton et al. (2016), and another evidence says, they do not want to see complete replacement of didactic teaching with online learning and the lecturer want to see the students. (Avila, 2016).

At the design and development stage, we carefully created an online lesson consisting of appropriate content and understandable, and the whole module is one continuous learning experience with an amount of proper content to that (Morton et al, 2016). This online-learning program was made using WordPress because its technology was applicable and could be applied to create online-learning lesson as referred in Adnini (2017). We are focusing on expected learning outcome for communication design students, by evaluating a workpiece of the portfolio website which is advanced and sophisticated and serve as a viable digital tool for created an electronic portfolio for them (Avila, 2016).

Criteria are WordPress website building skill and presentations. In the implementation process, we experimented a pilot training workshop with one sampling group. Found out that the learners required more videos and animated images put on the online lesson material at some subject area in consistent with Adini (2017) and Muruganantham (2015) said, the Audio, Video and textual information should be presented in such a way that it suits the pedagogical aspects of technology. Thus, we developed the material and teaching method on the actual training workshop. At the end of the learning process, evaluation, the outcome of the overall assessment results of the learners' portfolio website, 20 pieces scored at excellence. Their satisfaction is good. The learner's feedback is positive, and they will further apply this knowledge into their other websites.

From this study, it indicates that WordPress is easy to use, sufficient and handy tools for beginner and novice web developer (Adini, 2017. Hancock, 2017. Avila, 2016. Pantaweesak, 2015. Patel et al., 2011). Even so, the outcome met the criteria but still, most of the learners used “post a blog” tool instead of “create a page” tool which did not meet the researcher expectation. WordPress is originally web blog builder tool, so that if the course is focusing the other tool, add-on or plug-in rather than web blog tool, facilitators must clearly explain those differences (Avila, 2016. Patel et al., 2011).

Therefore, we encourage to use the ADDIE approach as a guideline to design Blended Learning instructional, create an online learning lesson using WordPress because of its cost- effectiveness and insert-able a variety of media. WordPress is easy even an art student can learn to do so. We recommend that further research from education in the concept of Blended Learning with this target audience, millennial learners that educators need to carry out more research to support this subject.

REFERENCES

- [1] Adini, M & Santana Purba, H & Ati Sukmawati, R. (2017). **Development of Blended Learning Model using wordpress**. Vidya Karya. 32. 10.20527/jvk.v32i1.4156.
- [2] Aly, I. (2016). **Comparison of students’ performance in a managerial accounting course taught in blended learning, traditional classroom, and online setting**. Quarterly Review of Business Disciplines 2(4)
- [3] Andrasari, Y. (2016). **Social Media and Social Change: self identity construction and self presentation in cybersociety**. Researchgate.
- [4] Avila, J. (2016). **Evaluation of the free, open source software WordPress as electronic portfolio system in undergraduate medical education**. BMC Medical Education 16:157.
- [5] Branch, RM. (2009). **Instructional Design: The ADDIE Approach**. Springer 140, 1–55.
- [6] Curtis J. Bonk, Charles R. Graham , Jay Cross , Michael G. Moore. (2005) **The Handbook of Blended Learning: Global Perspectives, Local Designs**, Pfeiffer & Company.
- [7] Ghani M (2018) **Adaptation of ADDIE Instructional Model in Developing Educational Website for Language Learning**. GJAT, 8(2).
- [8] Hancock, M. E. (2017). **The Use of WordPress in Online Focus Group Studies**. The Qualitative Report, 22(8).
- [9] Hu, Chuan; Zhao, Li; and Huang, Jiao. (2014). **Exploring Online Identity Re- Construction in Social Network Communities: A Qualitative Study**. PACIS 2014 Proceedings. 36.
- [10] Morton, CE, et al. (2016). **Blended learning: how can we optimise undergraduate student engagement?** BMC Medical Education, 16(1).
- [11] Pantaweesak, R. (2015). **The Development of Web-Based Instruction Lesson on Website Development**. The Institute for the Promotion of Teaching Science and Technology by WordPress. Journal of Industrial Education, 14(2), 125-131.

- [12] Patel SK, Rathod VR, Prajapati JB (2011) **Performance Analysis of Content Management Systems- Joomla, Drupal and WordPress**. International Journal of Computer Applications, 21(4)
- [13] Leekitchwatana, P. (2016). **Research methods in education**. Bangkok: Meen Service Supply.
- [14] Muruganantham, G. (2015). **Developing of E-content package by using ADDIE model**. International Journal of Applied Research, 1(3), 52-54
- [15] Ruth, C. (2013). **Content Management Systems: Trends in Academic Libraries**. Information Technology and Libraries: Valparaiso University, Valparaiso, IN.