Developing Hybrid Instruction of Creative University during the Flood Crisis and Normal Situations

Mayuree Suacamram[1,*]

Abstract

This study has two objectives: 1) to study hybrid implementation and the effectiveness of the hybrid instruction during the flood crisis and 2) to explore the development of the hybrid instructional prototype and its results of the model implementation during the normal situation. This is a longitudinal study. The respondents were divided into 4 groups: 1) teachers, 2) executives and supporting staff, 3) undergraduate students, and 4) university executives. Data were collected from a questionnaire survey, interviews and a focus group interview. Data analysis was carried out using frequency, percentage and content analysis. The findings revealed that during the flood crisis the hybrid instruction model comprised 4 activities – 1) classroom lectures, 2) small group review sessions, 3) online teaching, and 4) self-study – attracted learners' attention, reduced pressure from confrontation, and enhanced learning effectiveness and life skills of the learners. While in the normal situation, online learning was integrated with regular classroom instructions in some weeks. Moreover, student leaders were invited to design the classroom activities and arrange hands-on learning activities. The outcomes included the ability to apply knowledge gained from real practice and success in employment.

Keywords: hybrid instruction, creative university, the flood crisis, normal situations

[1] Research and Creative Activity Support Office, Bangkok University

* Corresponding author. E-mail: yingnoy20031@hotmail.com

ก

ารพัฒนาการจัดการเรียนการสอนแบบผสมผสานของมหาวิทยาลัยสร้างสรรค์ในช่วงวิกฤติการณ์น้ำท่วมและช่วงเหตุการณ์ปกติ

มยุรี เสือคำราม[1,*]

บทคัดย่อ

　　　　งานวิจัยนี้มีวัตถุประสงค์ 2 ข้อ ได้แก่ 1) เพื่อศึกษาการทดลองใช้การสอนแบบผสมผสานและประสิทธิผลที่เกิดขึ้นระหว่างช่วงเกิดวิกฤติการณ์น้ำท่วม และ 2) เพื่อค้นหาและพัฒนาต้นแบบการเรียนรู้แบบผสมผสานและผลของการทดลองใช้ต้นแบบในเหตุการณ์ปกติ งานวิจัยนี้เป็นงานวิจัยระยะยาว ผู้ให้ข้อมูลแบ่งเป็น 4 กลุ่ม ได้แก่ 1) ผู้สอน 2) ผู้บริหารและเจ้าหน้าที่สายสนับสนุน 3) นักศึกษาในระดับปริญญาตรี และ 4) ผู้บริหาร เก็บข้อมูลด้วยแบบสอบถาม แบบสัมภาษณ์ และแบบสนทนากลุ่ม และวิเคราะห์ข้อมูลด้วยค่าความถี่ ร้อยละ และการวิเคราะห์เนื้อหา ผลการวิจัย พบว่า ในช่วงวิกฤติการณ์น้ำท่วม รูปแบบการเรียนการสอนแบบผสมผสานแบ่งเป็น 4 รูปแบบ ได้แก่ 1) การบรรยายในห้องเรียน 2) การทบทวนกลุ่มย่อย 3) การสอนผ่านระบบออนไลน์ และ 4) การศึกษาค้นคว้าหาความรู้ด้วยตนเอง รูปแบบดังกล่าวสามารถกระตุ้นความสนใจของผู้เรียน ลดความกดดันจากการเผชิญหน้า และเพิ่มประสิทธิภาพการเรียนรู้และทักษะชีวิตของผู้เรียน ส่วนในช่วงเหตุการณ์ปกติ รูปแบบการเรียนการสอนแทรกการเรียนออนไลน์ในบางสัปดาห์ การจัดกิจกรรมในห้องเรียนให้กลุ่มผู้นำเข้ามาร่วมออกแบบและจัดกิจกรรมการเรียนรู้ผ่านการลงมือปฏิบัติจริง ผลที่เกิดขึ้นกับผู้เรียน คือ ความสามารถในการประยุกต์ใช้ความรู้ผ่านการได้ลงมือปฏิบัติจากโจทย์จริง และการได้งานจากองค์กรภายนอก

คำสำคัญ: การเรียนการสอนแบบผสมผสาน มหาวิทยาลัยสร้างสรรค์ วิกฤติการณ์น้ำท่วม เหตุการณ์ปกติ

---

[1] สำนักสนับสนุนงานวิจัยและงานสร้างสรรค์ มหาวิทยาลัยกรุงเทพ

* Corresponding author. E-mail: yingnoy20031@hotmail.com

Introduction

Advancement in technology affects changes in education systems. Development of communication technology, the internet network, information technology as well as an integration of telecommunication and computers have brought about innovative tools which can be used in teaching and learning to achieve learning objectives. The technological devices allow human interactions without distance limit. The progress of communication systems and computer technology expands power and diversity of data transfer between teachers and learners as well as giving them access to the world outside the classroom (Majumdar, 2015). For the past three decades, academic environments have gradually been changing from traditional lecture-based instruction to IT learning and building networks. The focus has been shifted to a more flexible pattern allowing more hands-on experience. The educational system is changing progressively to implement hybrid instruction.

Creative University, a private academic institution located in the capital city of Thailand was affected by the flood crisis in 2011. As a result, the university needed to implement the hybrid instruction to accommodate the circumstances. This university has two campuses: the main campus and the city campus. The main campus was flooded so badly that the campus had to temporarily shut down its operation in some of its areas. Meanwhile, the city campus was not affected much. However, there were issues due to time and space limit for arranging instruction in both of the campuses. This situation called for an immediate transformation of the instruction in both campuses. The university decided to use hybrid technology tools or the Hybrid Instruction Model (HIM) to solve the problems.

The HIM combines classroom instruction and online learning. Replacing some classroom instruction with online learning allows flexible teaching and distance learning. Online learning also assists students in acquiring course content more quickly. This type of instruction enables teachers and learners to interact and exchange knowledge via technological devices. Therefore, the students feel less pressured since the instruction does not cause direct confrontation. Moreover, the students can save travelling time. They can learn the lessons by themselves. The number of students failing courses, being expelled, or retaking courses was reduced as well as the need for teachers to repeat the same lessons was lower (Marsh, McFadden & Price, 2003). Another benefit of online learning is that the instruction requires the learners to be active to seek knowledge. This method helps foster a self-learning habit among students leading to sustainable knowledge and life-long learning (Saltan, 2017). Branoff and Mapson (2009) made a comparison

between hybrid instruction consisting of voice-over content presentations, software demonstrations, and drawing VDO and traditional face-to-face instruction for Basic Computer Graphics Course. The results showed that 58 percent of learners preferred the hybrid instruction, and the learners used different strategies to search textbooks, complete assignments, and do engineering draft drawing. However, Saltan (2017) mentioned some problems of hybrid instruction regarding how to create a balance between face-to-face and online instructions when it comes to the course design since learners indicated that face-to-face instruction was more effective than the online instruction.

A shift in course development of the Creative University to the HIM first originated from a concept to change the world education system with a key motive to ease the flood crisis in 2011. During the crisis, the Creative University needed to prepare and establish cooperation among different departments in the university. Apart from the emergency need to switch to online instruction during flooding crisis, it is also important to consider implementing the HIM in normal situations for the sake of its various benefits as mentioned in many studies. However, there is a question regarding how to achieve a proper integration between face-to-face and online instructions. This study aimed to create guidelines for improving the instruction of the university, to explore the implementation of the hybrid instruction during the flood crisis when classrooms were not ready to be used. The study was carried out by assessing the needs and support for developing hybrid instruction as well as the efficiency of the instruction during the flood crisis. Apart from this, the study also investigated the implementation of the hybrid instruction in the Creative University after the university resumed classroom teaching. The researcher would like to explore the transition between those periods of time. The study aimed to investigate the instruction during the flood crisis when the classrooms were not ready to be used and the follow-up situations after the flood crisis when the classrooms were available for normal operations within five years (from 2013-2017). The findings of the study will shed some light on how to develop the hybrid instruction to correspond with the needs of the university instructors and the direction of the university's operations. Insights gained from the study could be guidelines for other universities that would like to implement hybrid instruction in the future.

Purpose of the Study

1. To study the implementation and the effectiveness of the hybrid instruction during the flood crisis in 2011.

2. To explore the development of the hybrid instructional prototype and its results of the model implementation during the normal situation from 2012-2017.

Literature Review

Technology has played a vital role in every segment of society such as in trade, logistics, communication and education, particularly in higher education where learners are ready to employ technology for learning. This literature review is divided into three topics: 1) the use of technology in higher education, 2) definitions of Hybrid Instruction, and 3) component of Hybrid Instruction. The details of each topic are as follows:

1. The Use of Educational Technology in Higher Education

Educational technology involves using techniques, skills and/or many methods as tools to create systematic learning interactions with learners in the real world with an aim to achieve learning outcomes and a proper way to achieve those outcomes. According to Ahmad and Nisa (2016) and Murati and Ceka (2017), books also are commonly used as educational resources, and lectures play a pivotal role in teaching. However, educational technologies are changing how books are published and shared. It is also changing the nature of lectures. Newer technologies are allowing educators to use animation and simulation in class (Akbar, 2016).

Back in 2009 technology devices that were first integrated in teaching and learning were Web 2.0 tools, smartphones, and virtual reality (Brown & Green, 2009). Since then personal broadcasting, the integration of collaborative Web-based tools, and the employment of mobile devices continue to increase in instructional implementation at all levels (Brown & Green, 2011). Online education is growing steadily in K–12 and higher education, which dramatically increases the complexity of the media/methods debate. Nowadays media and/or methods being used consist of: 1) word processing; 2) podcast; 3) digital video; 4) presentation software; and 5) simulations/ interactives (Sickel, 2019).

Ahmad and Nisa (2016) listed the advantages of utilizing the educational technology as follows:

1) Equality: School districts across the country are not created equal.
2) Future: The world is moving towards technology at a breakneck pace.
3) Mobile: Using technology the classroom can be taken anywhere.

4)   Motivation: Technology tracks and reports students' progress instantly. Students who use technology are motivated to improve performance.

5)   Social aspect: This runs along the same lines as motivation.

6)   Savings: The savings which result from using technology can come in many facets.

7)   Updates: Updating textbooks can cost lots of money and do significant damage to budgets.

8)   Assessments: Assessing students' performance can be done instantly with technology.

9)   Global: Students and classrooms or even schools can be connected to anyone in the world instantly.

10) Convenience: Having children carry heavy backpacks, text books, and binders isn't very efficient.

Educational technology has been incorporated into teaching and learning in many ways. Hybrid instruction is one way of adopting this concept. Masrom, Alwi and Asshidin (2019) conducted a study about undergraduate students' satisfaction toward hybrid instruction. The study revealed that learners' satisfaction towards blended learning employed at their institution was positive. Blending instruction will be explained under the next topic.

2. Definitions of Hybrid Instruction

Hybrid instruction is the teaching concept which integrates face-to-face instruction and computer-mediated instruction (Martyn, 2003). Even though this type of instruction is diversified in its nature, educators pointed out that instead of taking classes in school, learners can distance learn from online material. They can control time, place, plan their traveling by themselves (Staker, 2011). The pattern of the hybrid instruction has been expanded to create a virtual learning atmosphere with an aim to become an educational innovation to assist learners to organize what they have to do each day (Powell, Rabbit & Kennedy, 2014).

Advantages of the hybrid instruction exist in time, space and location management to develop both asynchronous and synchronous learning. Asynchronous learning means communication between learners and instructors via web board messaging, emails or websites. While synchronous learning means communication between learners and instructors takes place simultaneously in real time via online chat or video conferencing (Sotillo, 2000).

3. Components of Hybrid Instruction

There are six points instructors should take into consideration when designing a hybrid instruction as follows: 1) Instructional design consists of pattern, strategies, best practices, designing process, implementation, environment and course structure; 2) Disposition – Learner characteristics consist of perception, attitude, preference, expectation of learners, preferred learning methods; 3) Exploration – Supported environment consists of nature, role, benefits, challenges, tends, situation, objectives and possibility in instructional paradigm shift; 4) Learning outcomes consist of competencies, learner's satisfaction, commitment, motivation, comfort, learning autonomy and drop-out rate; 5) Technology – Hybrid learning instructors should take in to account convenience, impact, type of technology, implementation of technology, and 6) Interactions consist of general interactions among learners, interactions between teacher and learners, community cooperation and the society's existence (Drysdale, Graham, Spring & Halverson, 2013; Halverson, Graham, Spring, Drysdale & Henrie, 2014; Spring & Graham, 2017).

Methods

This study was a longitudinal study. The data was collected in two phases: The first phase was during the flood crisis in 2011 and the second phase was during 2013-2017. This 2-phase data collection was to study the development of hybrid instruction and its outcomes.

The population, samples and respondents were divided into 4 groups:

Group 1: The population was a total of 517 teachers working in 2011 from 10 faculties: Accounting, Business Administration, Communicative Arts, Humanities, Law, Economics, Science and Technology, Engineering, Fine Arts, and Language Institute. The researcher chose the quota sampling method to obtain 50 representatives from each faculty. As for any faculties that have fewer 50 teachers working in the faculties, all teachers were asked to participate in the questionnaire survey. The total of the questionnaire survey respondents was 192. Next, the total of 16 respondents were selected and divided into two groups to join the focus group interview sessions. The selection was based on their score results: high-low on the questionnaire and their field of study: Social Science and Science.

Group 2: The population was a total of 140 people consisting of executives and supporting staff from the office of quality assurance, computer center, educational technology center, library, academic affairs and the building department. From each of the departments, 2 people (both

executives and staff) were selected and invited to join the study. The total of the participants of this group was 12 people.

Group 3: The population was 12,843 undergraduate students from all faculties enrolling in the second semester of 2011. The sampling started with the multi-stage sampling method to select class sections and the purposive selection method to select classrooms that implemented all four types of activities: 1) classroom lectures, 2) small group review sessions, 3) online teaching, and 4) self-study. Then the researcher used a random cluster sampling method to select 2 class sections from each faculty and finally used the systematic random sampling to select 60 students according to their student identification numbers. There was a total of 414 students who were selected to be the respondents in the questionnaire survey. Twelve respondents were selected to join the focus group interviews conducted in the first semester of 2017 based on their high and low questionnaire results.

Group 4 consisted of 4 university executives who involved in the development of hybrid learning. They were Senior Vice President for Academic Affairs, the director of the Office of Quality Assurance, the Head of Learning Innovation Center, and the Head of General Education Unit.

The research instruments were divided into two sets according to their time of use in the study:

Set 1: The research instruments used during the Hybrid Instruction during the flood crisis in 2011 were: 1) A questionnaire asking the teachers to evaluate the needs prior to the implementation of the instruction, 2) Interview questions used with supporting staff who worked to support the hybrid instruction, 3) Interview questions with teachers regarding the supports provided for the hybrid instruction, 4) A questionnaire asking teachers about their opinions toward the hybrid instruction, 5) A questionnaire asking about the effectiveness of the hybrid instruction during the flooding crisis after the implementation, and 6) A questionnaire asking students about the effectiveness of the hybrid instruction during the flooding crisis after the implementation.

Set 2: The research instrument used for developing the prototype of the hybrid instruction during normal situation from 2012-2017 were interview questions asking the university executives about the hybrid instruction.

Data Analysis

Data obtained from the questionnaire survey were analyzed using frequency, percentage, mean score and standard deviation. The researcher interpreted the mean score based on 4 rating scales: 1) The mean score from 1.00-1.74 means the least, 2) The mean score from 1.75-2.49 means little, 3) The mean score from 2.50-3.24 means much, and 4) The mean score from 3.25-4.00 means the most. Furthermore, data collected before the implementation of the hybrid instruction during the flood crisis were used to assess the needs using Priority Needs Index: PNI (Wongwanich, 2005). Data from the interview and group discussions were analyzed using content analysis. After that the researcher analyzed all of the data to find the consistency and present the findings in response to the research objectives. As for the first research objective, the researcher took PNI into consideration to analyze the data and presented the data using frequency, percentage in a crosstab. For the second objective, the researcher dissected the content from data obtained from literature, interview and presented it in an essay format and tables.

Findings

The findings are presented in two parts in response to the research objectives: 1) The results of the hybrid implementation during the flood crisis, and 2) the implementation and the results of the activities during the development of the model in the normal situations. Details are as follows:

1. The results of the hybrid implementation and learning outcomes during the flood crisis. These findings were based on the results of the questionnaire survey obtained from the teachers, the students, the focus group interview with the teachers and the students, and the interviews with the executives and the supporting staff.

1.1 Exploiting technology to implement the hybrid instruction. The researcher divided the level of utilizing technology to conduct hybrid instruction into 3 levels by considering the system/program to be used. Details of each level are as follows: 1) Low-level hybrid instruction means using the system/program for two-way communication with students in different times only. The instructor provided instructional materials without sound and motion pictures such as basic Power Point files; 2) Medium level hybrid instruction means using the system/program for two-way communication with students in different times only. The instructor provided instructional materials with sound and motion pictures such as ODC Cam Studio, Microsoft Producer and

VDO clips, etc.; 3) High level of hybrid instruction means employing the system/program for two-way simultaneous communication with students. The instructor uses a teleconferencing program such as Webex, etc. According to Table 1 below, among 192 instructors, the majority (45.3%) implemented the medium level hybrid instruction. The results being categorized based on different majors showed that the majority of the instructors who used the high-level hybrid instruction were from the Language Institute (94.7%) and the department of Science and Technology (57.1%) respectively. As for the department of Fine Arts, the majority of the instructors used the low-level hybrid instruction. This is because almost all buildings which belong to the Fine Arts Department were opened for its operation as normal.

Table 1 The number and percentage of the instructors in different degree of hybrid instruction

Level of Hybrid	Department										Total
	Law	Comm	Acc	Bus	Lang	Human	Sci	Eng	Art	Econ	
Low	4	16	1	9	1	5	2	4	16	3	61
	(36.4)	(45.7)	(5.9)	(52.9)	(5.3)	(21.7)	(9.5)	(23.5)	(66.7)	(37.5)	(31.8)
Medium	7	19	14	4	-	16	7	9	8	3	87
	(63.6)	(54.3)	(82.4)	(23.5)	-	(69.6)	(33.3)	(52.9)	(33.3)	(37.5)	(45.3)
High	-	-	2	4	18	2	12	4	-	2	44
	-	-	(11.8)	(23.5)	(94.7)	(8.7)	(57.1)	(23.5)	-	(25.0)	(22.9)
Total	11	35	17	17	19	23	21	17	24	8	192
	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)

1.2 The effectiveness and the guidelines for implementing the hybrid instruction.

The advantages can be explained in 5 aspects: 1) The hybrid instruction helped increase learning efficiency because the course content available online allowed the students to learn when they were ready and they could repeat the lessons when needed; 2) The hybrid instruction was able to grab attention from the students. They were excited to be engaged with the new ways of learning; 3) The hybrid instruction established a closer relationship between teacher and students by interacting via technological media instead of direct face-to-face confrontation; 4) The students gained life skills such as technology skills, teamwork skills, self-learning skills, self-discipline, etc.; and 5) The hybrid instruction saved cost for travelling. As for the disadvantages, 5 downsides are discussed: 1) Weak students or students who do not have strong background knowledge didn't

gain much benefit from the hybrid instruction. Their learning results dropped. This was because the students were not capable to learn and understand the online lessons on their own; 2) The hybrid instruction lacks direct interactions between teacher and students. They didn't get to see the facial expressions and engage the eyes of people with whom they were interacting; 3) Some of the students were not ready to adapt to the hybrid instruction. They were not mature enough to take responsibility of their own learning; 4) The system and supporting facilities were not quite ready; and 5) The evaluation of the practices and assignments lacked credibility and reliability. Finally, the guidelines for implementing hybrid instruction was dissected and summed up from the interviews with the instructors. There are three ways to design the instruction: 1) More emphasis and time should be given to classroom teaching than to online instruction; 2) To design the instruction, it is important to consider the nature of the course and the number of the students; and 3) The instruction should be designed in accordance with experience and expertise of the instructor.

2. Course implementation and the results during the development of the prototype in a normal situation. During the development of the prototype of the hybrid instruction started in the academic year of 2013, it was the time when the university's operation returned back to normal. The interview with the university executives concerning the university protocol and the results of the prototype development are discussed below:

2.1 The development of the prototype. This development of prototype involves developing learners, which requires more time to develop and it is different from other types of development. Therefore, the goal of the development can be divided into phases. The first phase is to prepare the teachers to gain knowledge and understanding about hybrid instruction. In this phase, 10 change agents were selected to be the leaders of the hybrid instruction teachers, and these 10 leaders were the ones who trained other teachers. The development and the implementation of the hybrid instruction were done gradually steps by steps. Each step involves setting up a particular goal and deliberating which step should be taken, analyzing problems, finding out a proper solution for each of the problems, and setting up a new goal. This process was created as an infinite learning development cycle gearing toward hybrid instruction.

2.2 Determining the desired skill sets. The goal or the learning outcome of General Education Courses is to cultivate students to become perfect human beings able to lead their lives happily in a global society with diversities and constant changes. The steps to develop a prototype

of the skill set are: 1) Exploring skills that the students will acquire from taking the General Education Courses of the World Economic Forum (WEF) and selecting only the skill set that is common. This skill set was generated based on perspectives of the human resources departments in oversea organizations; 2) Adjusting the skill set to match with the context of Thailand and the context of Bangkok University. This means taking Thai students, HR departments of organizations in Thailand, teachers, parents and student leaders into consideration; 3) Writing a plan for developing the skill set and using it as a goal for the project. To summarize, there were ten skills that were selected for implementation. They include Complex problem solving, Critical thinking, Creativity, People management, Coordinating with others, Emotional intelligence, Judgment and decision-making, Service orientation, Negotiation, and Cognitive flexibility.

       2.3 Designing learning activities. When designing learning activities, it is important to consider 4 elements. They include: 1) Designing activities to correspond with the learning goals; 2) Allowing student group leaders to be part of the designing team to design the learning activities. There are three steps for this process: 2.1) the student group leader collaboratively worked with the teacher to design the activities, 2.2) running the activities as designed and planned with hope that the leaders would be able to execute the plan successfully, and 2.3) summarizing the outcomes of the activities; 3) Focusing on having learners seek for knowledge through activities led by the group leaders; and 4) Reflecting on the acquired skill set.

       2.4 Outcomes and Impacts. Outcomes achieved by the students are the abilities to apply what they have learned through hands-on experience doing real assignments given by companies or organizations. This kind of outcome is different from the learning outcomes resulting from memorization and understanding. However, the type of instruction requires the students to complete more assignments than the traditional classroom instruction which emphasizes memorization and understanding of the knowledge. As a result, some groups of learners might be less satisfied with the hybrid instruction. As for the impacts, the students who have a greater chance to be recruited in a company or an organization are those who have done their assignments during their study. Moreover, the students will be more familiarized with the organization or the industry, which leads them to have higher chance of being employed after their graduation. According to the results of the group interview with the students who took a course using the hybrid instruction, the students provided some suggestions for future implementation as follows: 1) A clearer plan should be provided in advance; 2) Learning activities should be varied. The online lesson should be reduced; and 3) Assignments should be both group work and individual work. The assessment

and evaluation should be clear and reliable. Apart from this, the researcher has summarized the strengths and weakness for 3 subjects of Hybrid Instruction Model after implementation. The strengths include: 1) The teaching and learning styles suit teenagers' lifestyle nowadays, 2) Gaining knowledge and new experiences, 3) Online learning helps acquiring information-related skills, 4) Learning in this subject helps to develop artistic ideas, and 5) Each course activities lead to creativity. The weaknesses include: 1) The contents in some video clips are not in line with practicing lessons and should be concise, 2) The difficulty of the exercise should be suitable for the ability of learners, 3) Instructor should attract more students' attention which lecturing, and 4) Improve the system for delivery of assignment to be more convenient, such as sending an image file. There are still problems.

Discussion and Recommendations

The Creative University uses Hybrid learning techniques both during flood crisis and normal events. During the flood crisis, the Creative University used 4 types of Hybrid learning techniques: 1) Class lectures, 2) Small group review sessions, 3) Online teaching, and 4) self-study. As for the normal situation when the classroom can be used as usual, the teaching and learning style still has both online learning and in-class activities. Consistent with the integrated teaching and learning method of Staker and Horn (2012) there are 4 in 6 types: 1) Face to Face Driver; 2) Flex, which allow instructors to arrange many forms of learning activities for learners according to their interests and designing of activities together with leader group; 3) Self-Blended, which is the self-blended learning by learners; and 4) Online Driver, which has online lessons in which learners can access and study by themselves in their accommodation or anywhere. Whereas the study of Harrison, Saito, Markee and Herzog (2017) used only 2 patterns alternately. 1) They provided face-to-face instruction two times a week using a white board and a projector for a lecture as a two-way learning interaction between the teacher and the students. The face-to face lecture was recorded and uploaded on the website. 2) They provided the total of 170 online VDO lectures by specialists. Each VDO clip lasted for 15 minutes. The VDO clips were provided lay some background knowledge for students to watch prior to the classroom instruction to complete given assignments. They adopted the project-based learning. It is clear that Hybrid Instruction Model can be adjusted and incorporated with many teaching/learning methods depending on the appropriateness and relevancy of a particular classroom.

University executives should create infrastructure that supports an integrated teaching and learning system such as high-speed internet, education training and practice for hybrid learning

for both instructors and learners, teleconferencing program for learners and instructors that can be downloaded for free including providing other accessories such as microphones, headphones, video recorders, etc. This infrastructure is both for the instructors' side that can be used while organizing in-class activities and for the learners' side while studying online.

The principle of design for all learning activity elements. The design of learning activities model during the development phase of blended learning and teaching consists of 4 components, namely: 1) Designing of activities that are in line with the learning goals; 2) Having the learner leader to join the learning design; 3) Focusing on learners to seek knowledge through activities carried out by the group leaders; and 4) Reflect on the skills acquired. The principles of the blended learning design of this creative university are consistent with a large number of research studies on blended teaching and learning. It was found that the combination of teaching and learning should consider 6 factors: 1) the design of teaching and learning (instructional design) that consists of strategy, design process, and course structure; 2) disposition and learner characteristics; 3) supportive environments; 4) learner outcomes; 5) technology; and 6) interaction (Drysdale et al., 2013; Halverson et al, 2014; Spring & Graham, 2017).

The instructor should use appropriate technology that suits the course characteristics. Some course content can be created as self-study online lessons for better efficiency while some course content should be created for in-class learning in order to allow knowledge to be exchanged through hands-on experience.

Classroom activities are used to create learning networks. The blended learning prototype of the Creative University focuses on learners to seek knowledge themselves through practice and through activities that allow group leaders to co-design activities with instructors. The group leader is the leader's learner for doing activities. By relying on technology to help exchanging knowledge among learners and instructors, this type of teaching and learning creates a learning network that allows learners to practice and learn together guided instructors. In accordance with Majumdar (2015), the trend of the educational environment has been changing from teaching that focuses on lecture to learning information using technology and networks. Learners play a more active role and become more flexible.

When deciding to use certain technologies in teaching and learning, instructors should ensure that technology can be equally accessible for all learners. Some learners may not have access to computers and internet in their accommodation. Even when using certain technologies

on mobile phones in the classroom, some students may not have a mobile phone that can access all technologies.

Online learning is used to create self-learning habits for learners. The instructor spoke of the benefits of online learning to students that it can stimulate their interest in new learning, can help increase efficiency of learning from repetitive review of contents, and can reduce the pressure of direct confrontation between learners and instructors. This online learning helps increase discipline and self-learning seeking skills. Marsh et al. (2003) found that online learning can replace in-class learning by allowing students to achieve content more quickly, reducing the pressure of learners who do not want to face the instructors and allow them to learn by themselves.

Instructors and university managers should create awareness of the importance of blended teaching and learning to learners. The success factors of hybrid teaching and learning are the learners. The learners must be enthusiastic and keen to learn and practice by themselves. The role of the instructors will be facilitators and creators of learning situations for learners.

Limitations

Data collection in this research study was carried out from the questionnaire survey asking the students to evaluate the effectiveness of the hybrid instruction. Even though the results were verified and confirmed by the results of the focus group interview with their teachers regarding their learning achievement/effectiveness, the assessment of the instruction was considered subjective and self-assessed.

Conclusion

During the flood crisis, the teaching and learning model was divided into 4 activities: 1) Class lectures, 2) Small group review sessions, 3) Online teaching, and 4) Self-study. These activities were used to support the blended teaching which happened unexpectedly due to the limited number of classrooms and the teachers' need for blended teaching and learning in teaching materials and for class interaction. Therefore, there was a need for training in technology on teleconferencing and the online teaching and learning management system during the period when the number of classrooms was limited. Teachers used technology to manage the learning of students for both communications at the different time (Asynchronous) and at the same time (Synchronous) with and without sound and motion pictures. The effect on learners was to stimulate learners' interest, relieve pressure of confrontation, and increase the efficiency of

learning and life skills. During the normal situation, the online learning format was added in some weeks when developing the blended learning. In summary, the principle of this hybrid instruction is explained as follows:

The learning goal is to have the students seek knowledge through self-study and practice. The desired learning outcome is life skills in the 21st century which consist of 10 skills: 1) problem solving skills, 2) critical thinking skills, 3) creativity, 4) people management skills, 5) collaboration skills, 6) emotional management skills, 7) decision/evaluation skills, 8) compassion skills for justice, and for common interest, 9) negotiating skills, and 10) thinking flexibility skills.

The principle of designing learning activities consists of: 1) designing activities that are in line with the learning goals; 2) having the learners' leader participate in design the learning activities; 3) focusing on having the students seek knowledge through activities managed by the leader's group; and 4) reflecting on the skills gained. The learning outcome is the ability to apply knowledge through practice from real situations and obtaining a job from a company from which the learners gain work experience.

References

Ahmad, R., & Nisa, M. U. (2016). The significance of educational technology in teaching learning process. *The International Journal of Indian Psychology*, *4*(1), 164-170.

Akbar, M. (2016). Digital technology shaping teaching practices in higher education. *Frontiers in ICT*, *3*, 1-5.

Branoff, T. J., & Mapson, K. (2009). Large course redesign: Moving an introductory engineering graphics course from face-to-face to hybrid instruction. *Proceedings of ASEE Southeast Section Conference*. Retrieved from http:// http://se.asee.org/proceedings/ASEE2009/papers/ PR2009024BRA.PDF

Brown, A., & Green, T. (2009). Issues and trends in instructional technology: Web 2.0, second life, and STEM share the spotlight. In M. Orey, V. J. McClendon, & R. M. Branch (Eds), *Educational media and technology yearbook* (pp. 7–23). New York: Springer.

Brown, A., & Green, T. (2011). Issues and trends in instructional technology: Lean times, shifts in online learning, and increased attention to mobile devices. In M. Orey, S. A. Jones, & R. M. Branch (Eds.), *Educational media and technology yearbook* (pp. 67–80). New York: Springer.

Drysdale, J. S., Graham, C. R., Spring, K. J., & Halverson, L. R. (2013). An analysis of research trends in dissertations and theses studying blended learning. *The Internet and Higher Education*, *17*(1), 90-100.

Halverson, L. R., Graham, C. R., Spring, K. J., Drysdale, J. S., & Henrie, C. R. (2014). A thematic analysis of the most highly cited scholarship in the first decade of blended learning research. *The Internet and Higher Education*, *20*, 20-34. doi:10.1016/j.iheduc.2013.09.004

Harrison, D. J., Saito, L., Markee, N., & Herzog, S. (2017). Assessing the effectiveness of a hybrid-flipped model of learning on fluid mechanics instruction: overall course performance, homework, and far-and near-transfer of learning. *European Journal of Engineering Education*, *42*(6), 712-728.

Majumdar, S. (2015). Emerging trends in ICT for education & training. Retrieved October 12, 2019, from http://www.stthomascollegebhilai.in/wp-content/uploads/2016/10/emergingtrendsinictforeducationandtraining.pdf

Marsh, G. E., McFadden, A. C., & Price, B. J. (2003). Blended instruction: Adapting conventional instruction for large classes. *Online Journal of Distance Learning Administration*, *6*(4), 1-11. Retrieved from http://www.westga.edu/distance/ojdla/winter64/marsh64.htm

Martyn, M. (2003). The hybrid online model: Good practice. *Educause Quarterly*, *26*(1), 18-23.

Masrom, U. K., Alwi, N. A. N. M., & Asshidin, N. H. N. (2019). Understanding learners' satisfaction in blended learning among undergraduate students in Malaysia. *Universal Journal of Educational Research*, *7*, 2233-2238. doi: 10.13189/ujer.2019.071023.

Murati, R., & Ceka, A. (2017). The use of technology in educational teaching. *Journal of Education and Practice*, *8*(6), 197-199.

Powell, A., Rabbitt, B., & Kennedy, K. (2014). *iNACOL blended learning teacher competency framework*. Retrieved from https://files.eric.ed.gov/fulltext/ED561318.pdf

Saltan, F. (2017). Blended learning experience of students participating pedagogical formation program: Advantages and limitation of blended education. *International Journal of Higher Education*, *6*(1), 63-73.

Sickel, J. L. (2019). The great media debate and TPACK: A multidisciplinary examination of the role of technology in teaching and learning. *Journal of Research on Technology in Education*, *51*(2), 152-165.

Sotillo, S. M. (2000). Discourse functions and syntactic complexity in asynchronous communication. *Language, Learning, and Technology*, *4*(1), 82-119.

Spring, K. J., & Graham, C. R. (2017). Thematic patterns in international blended learning literature, research, practices, and terminology. *Online Learning, 21*(4)**,** 337-361. doi:10.24059/olj. v21i4.998.

Staker, H. (2011). *The rise of K-12 blended learning: Profiles of emerging models*. Retrieved from https://files.eric.ed.gov/fulltext/ED535181.pdf

Staker, H., & Horn, M. B. (2012). *Classifying K-12 blended learning*. Retrieved from https://www. christenseninstitute.org/wp-content/uploads/2013/04/Classifying-K-12-blended-learning.pdf

Wongwanich, S. (2005). Alternative strategies for developing research and evaluation culture and capability of professional teacher. *Journal of Research Methodology*, *18*(2), 193-211.