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Redefining the Practice of Teaching and Learning

E-PROCEEDING

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## **Designing Online and Distance Learning: AID Pedagogical Approach for Creative and Critical Thinking Course**

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### **Abstract**

The notion of delivering a module for a diploma program through an online and distance learning mode was to overcome the issue of accessibility to teaching and learning facilities. However, a more challenging problem in the design of such a class is to assure the course can successfully achieve the assigned course objectives for quality education. This project attempted to find the most suitable structure of a creative and critical thinking course, for 14 weeks of learning. It proposed the integration of the Active, Inquiry and Deep (AID) learning pedagogical approaches to shape the desired thinking skills among students. The project was conducted using 15 groups of students with a total of 308 working adults aged between 20 to 40 years old from 2011 till 2017 in UiTM Shah Alam campus. The online and distance learning mode is determined by 10 hours of face to face and 30 hours of online learning. In the beginning, class discussions were centred on developing communication and information-seeking skills. As the students were ready to share and listen, the teaching was directed to identifying problems critically, before they were allowed to take on creativity in finding potential solutions to selected issues. Students translated their ideas into tangible and intangible outputs based on scientific techniques applied in the process of thinking. Various activities were adopted to develop a set of skills for learning outcomes. Programmatic assessment tools were carefully selected to evaluate the progress. This project was successful as the students were able to present their innovative products at the end of the course; a small-scale innovation project.

Keywords: Active Learning, Inquiry Learning, Deep Learning, Online Learning.

### **Introduction**

The online education became increasingly accessible and allowed new pedagogical models to emerge. A paradigm shift in attitudes towards online education has been prevalent since the 1990s (Bates, 2005). Eventually, distance education as a multidisciplinary field has reacted to the changes in diffusion of ICT technology; it has and is still evolving and orienting itself to fulfill demand (Harasim, 2000). The critical difference between online learning and distance learning involved location, interaction and intention (Pahwa et al., 2005). While online learning can be conducted in a classroom with an instructor working through digital lessons and assessments, distance learning allows students to work online at home. Teacher assigns work and checks digitally.

This research project was conducted for the Creative, and Critical Thinking Course addressing the students of Diploma in Business Administration program offered by Institute of Continuing Education and Professional Studies (ICEPS, UiTM). ICEPS offers a distance learning program through iCLASS Learning Management System. The motivation in initiating the project was due to the constraints that the lecturer and students faced. The problems include access to teaching and learning facilities, the proximity of class members to the campus for possible meetings and difficulty of communication among students and with the lecturer. Majority of the students were working adults resided outside of Selangor, such as Johor, Kelantan, Penang and Perak. They need to travel and stay over the weekend near Shah Alam campus for attending the five-time two hours classes over alternate Sundays. The allocation of face to face class meeting is only 10 hours out of the total hours of 40 hours of student learning time for three credits. Thus, contributing to a minimal opportunity to active interaction among members. This project proposed an improved class structure of delivering a module for a diploma program through a combination of online and distance learning mode based on carefully designed pedagogical approaches. The purpose of the research project is two-fold:

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- To overcome the problems in realizing the objective of course through online and distance learning mode;
- To design a systematic structure for the delivery of the course for effective teaching and learning.

The following section presents some relevant literature in pedagogical approaches. The third section discusses the methodology and subsequently presents the result of the action research. The final section ends with some discussions, limitations and recommendations for future research.

### Literature Review

Online education as a way of paradigmatic shift from traditional education due to the diffusion of innovation, in particular of the Web technologies. Online education has increasingly become accessible, open, flexible; allowed new pedagogical models to emerge and reasoned the revolution in the digital knowledge age that enabled greater and faster human communication. At the same pace, education is not a standalone activity within the classroom. Collaboration is the central of education that led to fundamentally new forms of economic activity that produced the knowledge economy and required basic changes in education (Harasim, 2000). Our new understanding of the very nature of learning has affected the definition, design, and delivery of education. Paradigm shift in education has resulted in new modes of educational delivery, new learning domains, new principles of learning, new learning processes and outcomes and new educational roles and entities (Bates, 2005).

A constructivist approach, emphasizing the principles of adult learning and placing emphasis on the student is advocated. In regard to the pedagogical approaches, there are three identified learning approaches that are relevant to creating critical and creative thinking. First, active learning has attracted considerable attention in higher education in response to concerns about how and what students are learning. There are many different forms of active learning, yet most of them are classroom based. Studies show that there is an alternative to active learning in the classroom through active learning outside of the classroom in the form of student projects (Heriot et al., 2008).

Second, while traditional learning is supposed to increase learners' outcomes and keeps them active during the learning process, it has been widely asserted that inquiry-based learning increases learners' knowledge and skills (Nedungadi et al., 2015). Inquiry-based learning is a pedagogy that supports student-centered learning and encourages them to think scientifically. It develops evidence based reasoning and creative problem-solving skills that result in knowledge creation and higher recall (Khalaf, 2018).

Third, in-depth learning instruction provides students with the advanced skills necessary to deal with a world in which good jobs are becoming more cognitively demanding. It prepares them to be curious, continuous, independent learners as well as thoughtful, productive, active members. Deep learning is less focused on teaching many topics and providing a breadth of information, and more focused on promoting meaning and understanding, on making connections and building relationships between relevant information and ideas, and on fostering advanced analysis, interpretation, and application. There are many opportunities for students to process information and images as they develop and use literacy and thinking skills. Students are less passive and more engaged in the learning process. Review of relevant literature found that formative is a key to deep learning (Rushton, 2009). In line with the paradigm shift, the assessment culture has emphasized the importance of formative assessment.

Therefore, the study decided to adopt the three approaches to address the issues of effectiveness in online and distance learning.

### Methodology

This is a project-based action research. As action research is essentially a collaborative, democratic, and participatory approach to systematic inquiry into a problem of practice within a local context. Action research has become prevalent in many fields and disciplines, including education. This prevalence can be understood in the way action research lends itself to action-based inquiry, participation, collaboration, and the development of solutions to problems of everyday practice in local contexts (Towns et al, 2000).

Copyright © 2020 Virtual Symposium on Teaching and Learning (VSTL2020) e-proceeding. It is an experimental type of project-based action research to find the most appropriate method of teaching creative and critical thinking skills. Multiple attempts were made to restructure the class delivery between 2011 to 2017. From 2011 till 2015, the location of classes allowed the tangible presentation of outputs and ample space for activities. However, between 2016 to 2017, the site was shifted to new learning facilities that provided limited sharing space for displaying the outcome of the course. Therefore, an online platform, such as WhatsApp and iCLASS LMS were highly dependent between 2016 to 2017.

The project was conducted using 15 groups for a total of 308 working adults aged between 20 to 40 years old from 2011 till 2017 in UiTM Shah Alam campus. The diploma classes were conducted during the weekend alternately; 5 meetings-2 hours on Sunday afternoon with a total of 10 hours face to face meeting and 30 hours online classroom using iClass LMS platform of 3 credit unit. Table 1 lists the class group and number of students participated in the project.

Table 1: List of students involved in the research project as participants

Semester	Number of Students
20172	18
20164	13
20162	18
20154	14
20152	27
20152	17
20144	12
20144	34
20142	27
20134	23
20132	24
20124	5
20122	26
20114	23
20112	27
<b>Total</b>	<b>308</b>

Source: LMS Record <https://iclass.uitm.edu.my/Group/default.php?type=course&cuserid=93926773>

## The Research Process

Action research generally follows a systematic and cyclical pattern of reflection, planning, action, observation, and data collection, evaluation that then repeats in an iterative and ongoing manner. The goal of action research is to inform local practice, engage in professional learning, build a community practice, solve a problem or understand a process or phenomenon within a particular context, or empower participants to generate self-knowledge (Dickens & Watkins, 1999; Elg et al., 2020). For this process, the project set 3 phases on learning approaches. The project integrated an innovative method on teaching and learning through 3 phases which has the Active, Inquiry and Deep (AID) Pedagogical Approach for Critical and Creative Thinking course delivered using the online and distance learning (ODL) mode. Table 2 summarizes the design of the class structure. The following section describes the process:

### a. Process

#### Steps 1 Active Learning

Active learning is any learning activity in which the student participates or interacts with the learning process, as opposed to passively taking in the information. In particular, for this project, active learning refers to learning activities conducted during the face-to-face 10 hours classroom setting. The class started with an understanding of the student profile, state of origin, position at workplace, and challenges in completing the course. Students were grouped accordingly by considering the ease of networking. Several active learning activities were discussed and planned with the students upon consensus.

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For every 2 hours class, a traditional lecture was conducted according to the course contents for an hour. Then, active learning activities such as guided group discussion, brainstorming, role play, and business issue review and guided information-seeking events using mobile technology (YouTube, Google Search). At the end of the class, class members planned for the following active learning activities for the next class meeting.

Apart from the face-to-face class setting, the online class platform iClass LMS and Whatsapp were utilized and updated regularly to provide smooth communication among members on the progress of their preparation for the active learning activities.

### Steps 2 Inquiry Learning

Inquiry learning is directed by questions, problems or challenges that student work addresses using online classrooms. It is a teaching and learning method that prioritizes student questions, ideas and analyses.

In this project, the Structured Inquiry was adopted to fit the level of thinking — application of business and management concept. Students were given an open question and an investigation method. They must use the technique to craft an evidence-based conclusion.

For in-class active learning, students conducted market surveys on existing products such as bottled juice, sardine, cornflakes and others. Students had to run a market survey by selecting one type of product. They had to bring samples and collect feedback for comparative product analysis using a simple matrix of decision-making factors (multi-criteria decision-making techniques) – to understand, rate and rank products for improvements.

While inquiry learning in the online classroom took about 30 hours, students were also guided on questioning techniques for critical information gathering. Some of the works that were assigned were conducting online discussion on current business issues such as sustainable development, e-marketing, Fintech, Industrial Revolution 4.0, IoT, Society 5.0 others.

### Step 3 Deep Learning

In this project, the in-depth learning process took place between physical classes. At the same time, the students were assigned to complete their small-scale innovation project outside the classroom, instead of sitting for the final examination. Some of the small-scale innovation projects conducted were Innovative Packaging, New Product Design, and Eco-friendly Product Development. The groups were guided at every step and needed to continuously develop their projects throughout the course by conducting a few inquiry learning activities beforehand. Some of the compulsory activities are brainstorming, market survey, analysis using techniques (factor rating method, product comparative analysis matrix), drawing and creative presentation of ideas, and writing a full report. Students were also guided on presentation skills for the project proposal.

Table 2: Summary of Systematic Structure Designed based on AID pedagogical

<b>AID Pedagogical Approach</b>	<b>Application</b>	<b>Skills</b>	<b>Activities &amp; Assignments</b>	<b>Learning Outcome</b>
Active Learning Week 1-4	<i>Learning</i> which engages students as active participants in their learning during face to face class /online with class members.	Communication Information Seeking using Webs, whatsapp.	Creative Presentation Using White Board, Notice Board, Poster, Video, Mind Map, PPT Slides  *Presentation Kit	CO2 & CO4 Comprehension Application
Inquiry Learning Week 5-9	<i>Learning</i> directed by questions, problems or challenges that students work to address.	Critical Thinking using video, observation at site, youtube channel.	Market Survey and Comparative Analysis of Product Design.	CO3 Application Analysis



			*Factor Rating Method	
Deep Learning Week 10-14	<i>Learning</i> that allows a student to take what's learned in one situation and apply it to another.	Creative Thinking using video making, voice recording, infographic and prototype making	Small Scale Innovation Project  *Design Tools	CO1 Synthesis Evaluation

Source: Author's own work

## Results

This classroom technique of blending the online and traditional face-to-face lecture with AID pedagogical approach has allowed both students and the lecturer to achieve all the objectives that had been set for this course.

Table 3 Summary of the Outcome

No	Course Objectives	The Outcome of AID Pedagogical Approach
1	Demonstrate skills in creative and critical thinking	<b>Small Scale Innovation Project</b> helps to achieve all the required objectives through the development of ability and skills among students. Discussion on issues (CO1), fact-finding and selecting relevant information (CO2), critical and analytical thinking using appropriate decision-making techniques (CO3), display new product design and convincing the appropriateness of ideas for problem solving/solutions (CO4). Students are aware of plagiarism and infringement, the ethical issue related to innovation (CO4).
2	Use Information technology and communication skills to express critical thinking and innovation	
3	Justify ideas adequately in any study/work-related discussion/events	
4	Organize events that will show understanding of processes involved in ethical innovation	

Source: Adapted from course information of the Creative and Critical Thinking

### **Benefits of the AID Pedagogical Approach**

There are two benefits of AID pedagogical approach on innovative teaching and learning process.

First, it was proven that the support of online classroom technology, iClass LMS and Whatsapp were useful in the module. With the help of innovative education technology, the online and distance learning program was just as effective as traditional learning in achieving the objectives of creating critical and creative thinking. Online learning also allowed students to receive continuous guidance and supervision throughout their learning stages. It enabled students to learn at their pace systematically. The results of the project were recorded in the LMS iClass system.

Second, the AID pedagogical approach had significantly contributed to the teaching and learning process for the creative and critical thinking course. The AID pedagogical approach contributed to a new way of teaching for business students. The student-centred learning approach was a feasible way of learning for working adults. For a diploma program, a highly guided teaching approach is needed to help students acquire knowledge and enhancing skills for long life learning. At the same time, students will be able to pursue their studies from simple to complex tasks, and from individual competency to group networking. Records of students' work is kept in the LMS iClass system and confidential.

### **Conclusion, Limitations and Recommendation for Future Studies**

The AID pedagogical approach needs to be carefully designed, scheduled and planned many months ahead of the class, to assure the course objectives are achievable and doable. Clear instructions, guidance, supervision and appropriate duration of the time has to be given to students. The AID pedagogical approach was purposely arranged in sequence; shift from simple active learning activities to a more complex inquiry learning and deep learning at the end of the course. The study has been proven the effectiveness of the pedagogies in addressing the limitation of resources even in an online

Copyright © 2020 Virtual Symposium on Teaching and Learning (VSTL2020) e-proceeding. and distance learning setting and thus extend our understanding on practices as discussed by related studies in pedagogical approaches (Heriot et al., 2008; Nedungadi et al., 2015; Khalaf, 2018; Rushton, 2009).

Technological advancements are awe-inspiring and provide opportunities to expose students and lecturers to the efficient and effective online learning process. Educational technology should be wisely used as a tool to enhance personal learning, not to replace traditional learning methods completely in line with the concepts recommended by Harasim (200). The implementation of a variety of innovative classroom techniques, including critical analysis and creative presentation and product innovation, has made the class an exciting session to all. The project has extended the understanding on the conduct of project-based action research as described by Dickens & Watkins (1999), Elg et al. (2020) and Towns et al (2000).

However, there are some limitations of the project, it was found that only with the availability of platform and accessibility to the internet that the ODL teaching and learning would be possible and successfully conducted. Therefore, it is recommended the course manager to flexibly design the structure of the online and distance learning by understanding the profile of the adult students attending the course and flexibly design the delivery of the course in accordance to the three pedagogical approaches. It should be taken into consideration the availability of user-friendly online learning platforms, conducive infrastructure and ecosystem, facilitating and guiding the lecturer and students into the practice of online and distance learning in assuring the quality of education.

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