

A google classroom online lecture with the integration of concise learning method and electronics mind mapping

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Abstract. This research aims at describing the application and cadets' response to Google Classroom online lecture with the integration of Electronics Mind Mapping (EMM) and Concise Learning Method (CLM) in the Applied Mechanics course. This research employs a descriptive qualitative method with the research subject is Ship Machinery cadets who take Applied Mechanics course in even Semester of Academic Year 2019/2020. The main instrument of this research is the researcher himself and the supporting instruments are observation form and cadets' response questionnaires. The results of this study showed that: 1) Google Classroom online lecture with the integration of CLM and EMM including preview, participate, process, practice, and produce. 2) Cadets give positive responses to online lectures with CLM and EMM integration of 75.96%.

1. Introduction

The national education system and its Law No. 20/2003 have a basic requirement because it must be capable to guarantee equal education opportunity, upgrading quality also relevance, and efficiency of education management to cope with local, national, and global challenges and demand [1, 2]. One of the efforts to accomplish it is by performing a designed and continuous education reformation especially in the learning process to achieve the goal [3]. Regulation of the Head of the Human Resources Development Agency for Transportation PK.07/BPSDMP-2016 about Education Program Curriculum and Formation Training and Competence Improvement in Shipping[4]. Practically, the goal set in the curriculum cannot always be achieved. The frequent problem arisen is the educator's unpreparedness in the learning process. It results in the misconception of the curriculum[5]. Hence, the curriculum implementation is not as it is, but only limited to the educator's perception; in this case, is lecturers. It shows that there is a disruption between the designated target and the goal [6]. There must be attention to this issue due to the existence of a Diploma Degree in Ship Machinery which produces Engineer Officer Class III as an education organization providing employers in ship machinery. It acquires a big effort to achieve that goal.

Based on previous research [7] and the initial observation in the Associate's Program of Ship Machinery in Sekolah Tinggi Maritim Yogyakarta, there are some problems in the Applied Mechanics course; cadets' low response in the learning process, especially in the Applied Mechanics course. It resulted in a low outcome. The predicted reason is the cadets' less lesson mastery and their impassiveness in noting important concepts. Furthermore, the current learning process tends to apply the conventional learning process; a process initiated by an explanation including concept, exercise samples, and exercises by the lecturer. Cadets are given the opportunities to question after the lecturer's explanation or before the lecturer explains the next material. Lecturer's domination in the learning process with the lecturing model, in which the lecturer as single party giving information with the cadets as the listener, results in the inactive cadets and they are only dependent on the lecturer. As a result, this teaching method must be reconsidered. Supported by Circular Letter No 36962/MPK.A/HK/2020 about Corona Virus Disease 19 Dissemination Prevention in higher education, The Minister of Education and Culture recommends substituting the in-class meeting with an online one[8].

Based on the above issue, it is demanded to run the effective and efficient learning process also substantive online learning in which the cadets will experience and also being motivated. It will result in their comprehension of the lesson. The learning process must be effective and efficient not only for high ability cadets but also for the lower ability ones. CLM (*Concise Learning Method*) is a method that complies with this demand[9]. CLM is an effective and efficient learning method with a visual approach, flexible, substantive, and systematic through the cognitive, active, and constructive process with an inquiry base [10]. CLM is applicable in higher education, easy to implement, and systematic[7, 8]. This research integrated CLM with *Electronics Mind Mapping* (EMM). EMM is a student learning method in which students create a concept network or graph describing relevance between concept and material by an application [11]. In other words, Mind Mapping is created by an application. It is also stated by Buzan that Mind Mapping is a visual representation of a concept and its relevance[12]. Mind mapping techniques can be considered as an effective learning tool to improve learning achievement, student activity, and learning results [12, 13, 14]. When the students create mind mapping, they can express their ideas, relate the current studied topic with the previous one and also give a positive effect on the development of students' thinking abilities[15, 16, 17].

EMM is expected to aid cadets to relate the concepts in the Applied Mechanics course to improve their comprehension and memory. EMM and CLM integration is implemented in the third CLM stage in which the cadets are required to process the information related to the course lesson by Electronic Mind Mapping. While CLM is a visual mapping, the researchers integrated it with EMM in this research since mind mapping in the learning process supports students' achievement. The mind maps can be used as a guide to teach, and chart a way through the concepts of research methods and may help to produce more robust research[18]. Concise Learning Method and Electronics Mind Mapping integration are applied in the online learning process and Google Classroom is its media. Google Classroom is an internet-based server provided by Google which performs an e-learning system with a virtual base as e-learning performed virtually on the internet[19]. Google Classroom utilization employs multiplatform; computer and android. Hence, it facilitates the lecturer to properly and accurately manage the class and explain the lesson[20]. Google Classroom is capable to cope with time and room limit also facilitates the lecturer to evaluate every activity. Moreover, Google Classroom can also help in supervising activity to solve the problems and create an effective and efficient learning outcome and also google classroom showed to be friendly to the environment [21, 22]. Another study, states that the use of appropriate technology can increase positive responses to students [23].

Based on that problem, the researchers are concerned to do research related to A Google Classroom Online Lecture with the Integration of Concise Learning Method and Electronics Mind Mapping in Applied Mechanics course. This research aims at describing the implementation and cadets' response towards online learning with the integration of the Concise Learning method (CLM) and Electronics Mind Mapping (EMM) in the Applied Mechanics course.

2. Method

This research is a descriptive one. It is research to acknowledge the existence of an independent variable, either a single variable or more without constructing any comparison or relation to another variable aim at depicting the situation and issue[24]. This method is by the purpose of this research; describing the implementation of an online learning process using Google Classroom or Zoom Meeting with the integration of Concise Learning Method and Electronics Mind Mapping in the Applied Mechanics course and cadets' response towards it. This research was done in one semester with the object of the research was 26 cadets of the Ship Machinery department in even Semester Academic Year 2019/2020 who took the Applied Mechanics course. CLM was firstly developed by Toni Krasnic. Its levels include preview, participate, process, practice, and produce[10].

Data collection in this research uses observation form and cadets' response questionnaire. In this research, observation form is used to gain information related to the execution of the online learning process using *google classroom* with the integration of CLM and EMM as seen in table 1:

Table 1. Table of Specification

Level	Observed Aspects
<i>Preview</i>	Cadets firstly study by <i>Google Classroom</i> online learning and the material is uploaded in <i>Google Classroom</i>
<i>Participate</i>	Cadets actively participate in the online <i>Google Classroom</i> online learning.
<i>Process</i>	Cadets process the information related to the lesson in the form of EMM
<i>Practice</i>	Cadets actively do the assignments
<i>Produce</i>	Cadets produce a new idea

Cadets' response questionnaire is used to gain information about cadets' opinions on the implementation of online learning using *google classroom* and *zoom meeting* with the integration of *e-mind mapping* and *concise learning method*, cadets' ability to comprehend the concept and require cadets' suggestion to the future improvement. Table of Specification can be seen in this following Table 2:

Table 2. Questionnaire Responses Cadets

No.	Observed Aspect
1	Cadets' interest in <i>Google Classroom</i> online learning with the integration of CLM and EMM
2	Cadets' concept of comprehension ability
3	EMM utilization benefit in learning
4	EMM implementation and utilization ease

Data in this research is in the form of words (verbal) including the description of learning observation result and cadets' response questionnaire. Subsequently, data collected is analyzed using an *interactive model* including data reduction, data presentation, and conclusion[25].

3. Result and Discussion

This research was done during one semester, even semester in the academic year of 2019/2020. During one semester, cadets, and lecturers interact with each other online due to COVID 19 pandemic. The whole observation result about the implementation of the online learning process using *google*

classroom with the integration of CLM and EMM in the Applied Mechanics course conforms to CLM levels.

3.1 The Implementation of Google Classroom Online Learning Process with the integration of Concise Learning Method and Electronics Mind Mapping

In the first meeting, the lecturers explain the syllabus and learning contract by Zoom Meeting. Subsequently, the module of Applied Mechanics will be uploaded. This meeting is the first level of CLM; *preview*. It is the level in which the lecturer informs cadets about a lesson that will be studied in the next meeting and give a pretest about Statistics. Cadets will be required to formally study about that lesson. This level is done in the previous meeting. It aims at familiarizing the cadets about the lesson, thus they will be prepared on online learning. It is also stated by Krasnic, "Preview level develops cadets' mind about the information that will be discussed in the lecture process, produces participation, motivation and comprehension improvement during the lecture[10].

In the second level of CLM, *participate*, the lecturer encourages cadets to actively engage during the class, namely doing exercises as the main asset to comprehend cadets' preparation in the learning process. Subsequently, the assignment will be uploaded in Google Classroom.

The third CLM level is *a process*. It is a level in which cadets create EMM. They are required to relate the previously studied concepts since those of Applied Mechanics in Ship Machinery are related to each other. Those concepts are connected by creating EMM. It is also said by Brinkmann that mind maps help to connect the new information to the existing one substantively[14]. As a result, cadets' concept comprehension and mastery are outstanding. Furthermore, by creating a mind map, it will help cadets to memorize the concepts in a long period. It is by Brinkmann's research "mind map can be utilized as a memory aid: thus the learning process can be accelerated, information can be memorized faster and the received information can be durable" [14]. EMM trial is divided into three stages; the first stage is creating EMM related to Statistics. In this stage, cadets test some suitable applications to EMM, thus, the result is simple and cannot explain complex material. The second stage is creating EMM related to Dynamics material and the last stage is creating EMM related to Hydrostatics and Hydrodynamics.

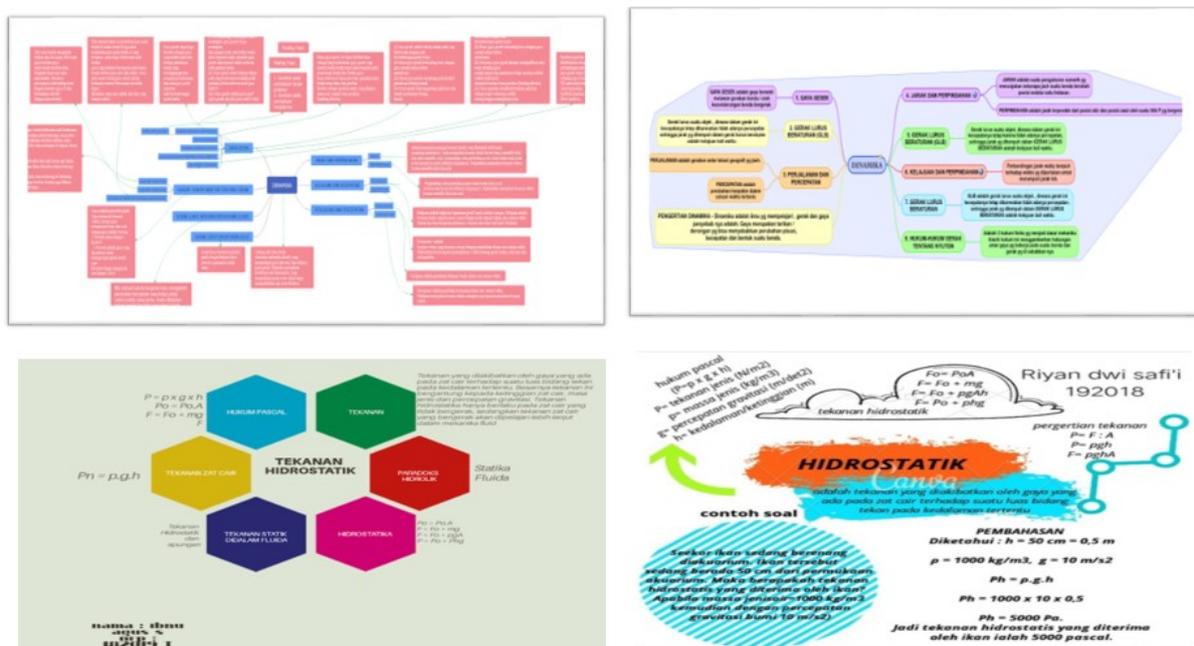


Figure 1. Sample of EMM created by cadets

In these stages, cadets will be more prepared in using EMM applications. It is described in Figure 1. The fourth CLM level, *practice*, cadets are required to frequently do the assignments. Most of those assignments are taken from the module of Applied Mechanics uploaded on Google Classroom. The lecturer's method in encouraging cadets to actively doing assignments is by giving assignments at the end of each online class. In this level, lecturers also remind the cadets to not only reading the exercise with its provided solution and solve the same case but also they are required to apply it in a new case especially that of previously developed. In this stage, the lecturer encourages cadets to do the assignments. In the fifth level, *produce*, from a total of 26 cadets, there are only three cadets that can produce new ideas. Cadets are required to critically think about new information, question, and problem. As a result, there will be a new knowledge integrated with the previous one at this level. The lecturer is required to encourage, motivate, and lead cadets to produce a new idea. It is also stated by Denman that when students learn new information, they must be lead in managing it with the existing one, organize information, and construct that knowledge as a part of their long-term memory [26].

3.2 Cadets' response to the implementation of CLM integrated with EMM

Cadets' response to the implementation of CLM integrated with EMM in the Applied Mechanics course can be interpreted from cadets' response questionnaires. Response questionnaires distributed to the cadets are open questionnaires gaining data related to their response toward CLM and EMM integration method. Based on the questionnaires, it is concluded that cadets give positive response toward CLM and EMM integration in Applied Mechanics. From a total of 26 cadets, 84,62% are interested in Google Classroom online learning with CLM and EMM integration, 73,08% cadets' ability to comprehend concepts are increasing, 65,38% cadets experience the ease of utilizing and creating EMM, 80,77% cadets experience the advantage of EMM in the learning process. Overall average of 75.96% expressed a positive response to A Google Classroom Online Lecture with the Integration of CLM and EMM. By the implementation of integrated CLM and EMM, cadets give a positive response and are motivated to study. It is by Lazuardini that students' activity in EMM can motivate them to study and improve creative thinking skills[26].

4. Conclusion

According to results and discussion, A Google Classroom Online Lecture with the Integration of Concise Learning Method and Electronics Mind Mapping can be concluded as follows: 1) online lecture utilizing Google Classroom with the integration of CLM and EMM including preview, participate, process, practice, and produce. 2) Cadets give positive responses; 84.62% are interested in an online lecture by Google Classroom with the integration of CLM and EMM, 73.08% cadets' ability is increasing after the lecturing process, 65.38% cadets experience the ease of utilizing and creating EMM, 80,77% cadets experience the advantage of EMM in the learning process, an overall average of 75.96% give positive responses to A Google Classroom Online Lecture with the Integration of CLM and EMM.

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