

# Development of Case-Based Methods in Learning Courses in Health Ethics and Law in the Era of the Industrial Revolution 4.0

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## ABSTRACT

The Health Ethics and Law course is a mandatory public course for FKM Unand students following the curriculum standards of the Public Health Undergraduate Study Program throughout Indonesia, which has been agreed by the Association of Indonesian Public Health Higher Education Institutions. So far, the standard learning method carried out by lecturers is Lecture Center Learning, where lecturers provide learning materials while students only listen. The formulation for the research problem is how the development of Case-Based Methode in the course of Ethics and Health Law. The purpose of this study is to find out the extent of the effectiveness of the application of Cased Based Methode, which has been developed in the courses of Ethics and Health Law based on the mindset of students. The method used in the development of this learning model is the ADDIE Research and Development Model (Analysis, Design, Development, and Evaluation). The subject of this learning model is students who take courses in Health Ethics and Law. Identification data collection techniques using brain domination and pre-test and posttest mindsets of students. From 7 meetings, at the first meeting, students were directed to discuss cases from the topics listed in the Semester Learning Plan with several supportive theories such as brain domain and mindset. Furthermore, students learn independently, in groups, communicate and collaborate. Lecturers concurrently become tutors in guiding students to develop. The position as a lecturer will be reactive in a problem discussed. The case-based method is very useful in learning so that students can think openly and critically to make the students with a growth mindset, not a fixed mindset.

**Keywords:** *Case-Based Method, Health Ethics, Growth Mindset, Fix Mindset, Brain Domination*

## 1. INTRODUCTION

In the 21st century, the skills that must be achieved are problem-solving skills and 4C, namely Creativity, Critical, Collaboration and Communication. In the Industrial Revolution 4.0 era, the expected learning achievement is Outcome-Based Education. The achievement of the Learning Process is not only limited to input but is an outcome that is implemented and has an impact on the competence of graduates needed in the field. In the Industrial Revolution, 4.0 requires good soft

skills, which is in line with the character education developed. This program is given in a variety of relevant courses, one of which is a related course to be developed is in the courses of Health Ethics and Law. Now the world has started preparing to enter the era of Society 5.0 were changing the fixed mindset into a growth mindset.

The Health Ethics and Law course is a mandatory public course for FKM Unand students following the curriculum standards of the Public Health

Undergraduate Study Program throughout Indonesia, which has been agreed by the Association of Indonesian Public Health Higher Education Institutions (AIPTKMI). It consists of bioethics learning, namely Public Health Ethics, Research Ethics, and Medical Ethics. Other learning is related to health law in the form of legislation related to the field of health that is very large and has its characteristics which are basically to know the science. Public Health Science consists of various fields of interest such as Health Policy Administration, Reproductive Health interest, Epidemiology, Occupational Health and Safety interest, Environmental Health interest, Health Promotion, Biostatistics, and Population. These last two interests are in the process of being developed at FKM Unand. The latest established is the Postgraduate Program in Epidemiology.

The purpose of this course for the student is to implement what has been learned about health law ethics, medical ethics, and health research ethics both in the world of research and the world of work later. Because health workers are in contact with humans, procedures are needed to follow the rule of law so that no violations and irregularities occur.

So far, the common learning method carried out by lecturers is Lecture Center Learning, where lecturers provide learning materials while students only listen. In addition, there is also Student Center Learning, where students are formed groups and presentations, and Q&A is only limited to it. There is no focus on the problems and cases discussed, so student understanding has not been optimal. In Industrial Revolution 4.0, the expected learning achievement is Outcome-Based Education. The achievement of the Learning Process is not only limited to input but is an outcome that is implemented and has an impact on the competence of graduates needed in the field. In the Industrial Revolution, 4.0 requires good soft skills, which is in line with the character education developed. The program is awarded in a variety of relevant courses.

There are learning models according to learning characteristics in online learning and suitable learning specifications. The current way of thinking is no longer linear but already radian from various points of view of the discipline. The ability to solve problems during difficult situations that move very quickly requires a learning model through the Case-Based method to answer problem-solving skills. The ability to do innovation is needed, and the learning model is also experiencing developments facing the modern era. The learning model is innovation and novelty using

methods, strategies, techniques, and tricks appropriate for innovation<sup>[1],[2]</sup>. One of the methods developed today is the Case-Based method. Carol S. Dweck (2003), PhD develops in changing thinking patterns for major changes in a person's life<sup>[3]</sup>. Buzan (2006) also creates models, methods, or techniques that change the linear way of thinking to radian thinking in all disciplines related to life. Buzan presents a whole main idea with a so-called mind map. If the main idea is a problem, it requires mapping the problem thoroughly to the details.<sup>[4]</sup> Edwards (1999) saw the way of thinking from a neurological point of view by developing the balance skills of the left and right brain, to be able to utilize the whole brain to create creativity and critical thinking, the ability to communicate and collaborate.<sup>[5]</sup>

At this time, they are also growing by adding Coputionallogic and compassion or persistence. Combining the findings of education experts can also be called Hight Ordinary Thinking Skill is training and developing methods called creative thinking, critical and growth mindset. A growth mindset is a mindset that believes that basic skills can be developed through hard work and dedication; intelligence and talent are only the initial capital. Growth Mind is convinced that a person has unlimited potential to learn and develop by practice, perseverance, and effort.<sup>6</sup> While Fixed Mindset is a mindset that believes that the basic qualities of self, such as intelligence or talent, are sedentary. It is very clear the difference between a growth mindset and a fixed mindset. When the growth mindset embraces and accepts challenges, a fixed mindset avoids challenges. When the growth mindset is persistent in facing challenges, a fixed mindset is easy to give up, and there are many more fundamental differences between a growth mindset and a fixed mindset.

The formulation of the problem in this research is how the development of Case-Based Methode in the course of Ethics and Health Law. The purpose of this study is to find out the extent of the effectiveness of the application of Cased Based Methode, which has been developed in the courses of Ethics and Health Law based on the mindset of students. The benefit of this research is that students can think critically and creatively, collaboratively, communicatively in problem-solving during learning and produce graduates with soft skills and hard skills that are adequate to create students who think growth mindset.

## **2. METHODS**

The method used in the development of this learning model is the ADDIE Research and Development Model

(Analysis, Design, Development, and Evaluation). The subject of this learning model is students who take courses in Health Ethics and Law. Data collection techniques using pre-test and posttest mindsets of students. The research procedure begins by conducting an initial survey to alumni about how important the learning of Health Ethics and Law and learning techniques provided by lecturers during lectures. Further designed questions related to Cased Based Method, student creativity in learning, and evaluation of student learning. Students will be asked at the beginning whether to enter the category of Growth Mindset or Fixed mindset by filling in some questions. In learning, students are directed to think creatively and critically independently of various theories using cases, using mind maps. Later at the end of the lecture to the student learning evaluation is given the same question again whether there is an increase in the number of students who have a growth mindset, growth mindset with several fixed mindsets, and fixed mindset with several growth mindsets. In particular, at the beginning of student work, students are explained about the method of studying the Learning Process Plan (RPS) and the output and outcome of the achievement of the course.

**3. RESULTS**

From 7 meetings, at the first meeting, students were directed to discuss of cases from the topics listed in the Semester Learning Plan with several supportive theories such as mind maps. Furthermore, students learn independently, in groups, communicate and collaborate. Lecturers concurrently become tutors in guiding students to develop. The position as a lecturer will be reactive in a problem discussed.

**A. Results of Brain Dominance Each Class**

**1. Class X1**

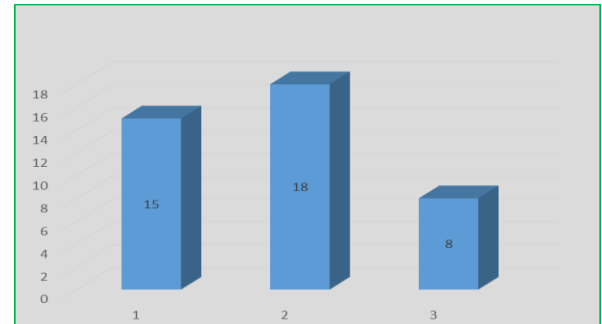


**Figure 1. Brain domination class X1**

Class X1, who filled out the questionnaire, saw the

dominance of 22 respondents could use the left brain, 12 right brain respondents, and balanced only 6 people.

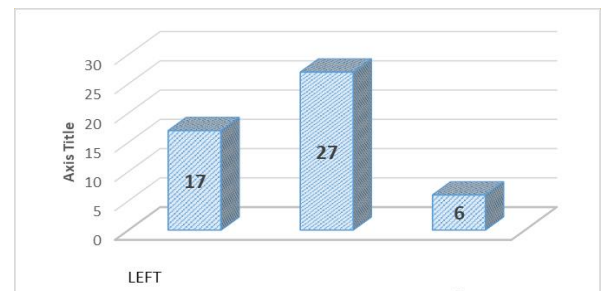
**2. Class X2**



**Figure 2. Brain domination class X2**

Class X2, who filled out the questionnaire, saw the dominance of 15 respondents could use the left brain, 18 right brain respondents, and balanced only 6 people.

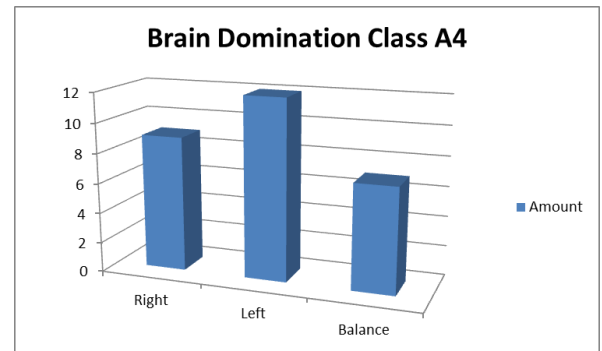
**3. Class X3**



**Figure 3. Brain domination class X3**

Class X3, who filled out the questionnaire, saw the dominance of 17 respondents could use the left brain, 27 right brain respondents, and balanced only 6 people.

**4. Class X4**

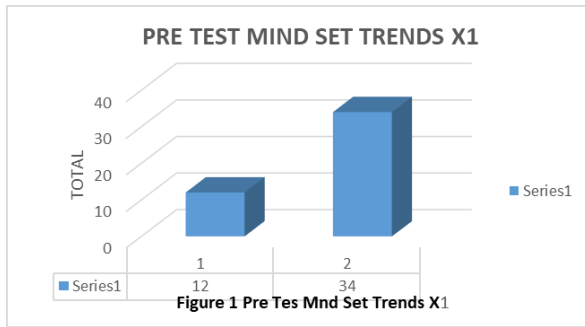


**Figure 4. Brain domination class x4**

From the figure, it can be seen that for X4 Most students are dominated by the left brain as many as 12 students, the dominant right 9 students and balanced 7 students.

**B. Results of Brain Mindset Pre Test**

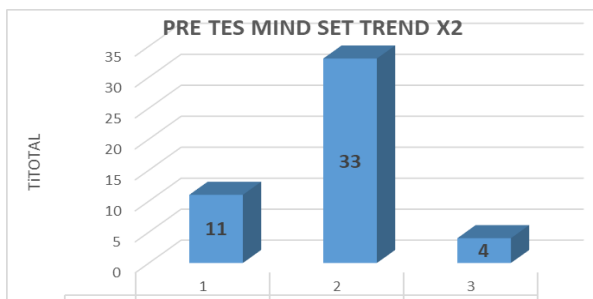
**1. Class X1**



**Figure 5. Pre-test mindset class X1**

From the results of the pre-test mindset respondents in class, X1 saw 12 people could grow mind set, 34 are dominant growth mindset and no one fix mindset.

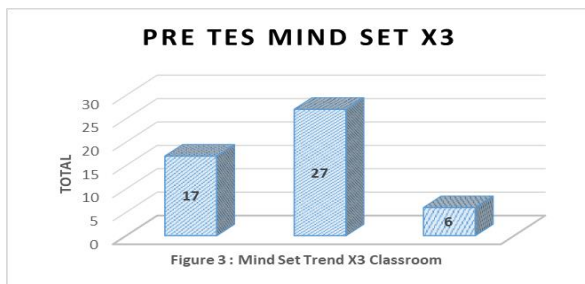
**2. Class X2**



**Figure 6. Pre-test mindset class X2**

minds with several fixed mindsets and 4 people fix mindset.

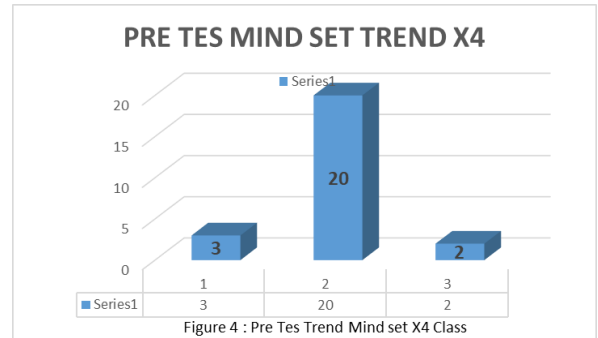
**3. Class X3**



**Figure 7. Pre-test mindset class X3**

In class, X3 obtained the results of 17 people with a growth mindset, 27 dominant growth minds with several fixed mindsets, and 4 people fixed mindset.

**4. Class X4**

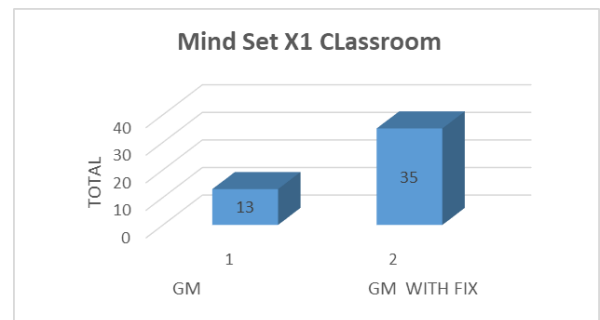


**Figure 8. Pre-test mindset class X4**

In class, X4 obtained the results of 3 people with a growth mindset, 20 dominant growth minds with several fixed mindsets, and 2 people with a fixed mindset.

**C. Result Post Tes Mind Set Otak**

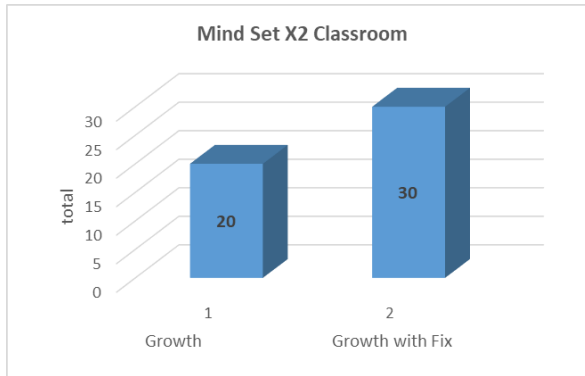
**1. Class X1**



**Figure 9. Post-test mindset class X1**

From the results of the mindset test post respondents in class, X1 saw 13 people have the ability to the growth mindset, 35 dominant growth mindsets with several fixed minds set and no one fixed mindset. The increase to the growth mindset is only 1 respondent or only about 8.3% of the total number of all growth mins set. The increased dominance of growth mindsets with multiple fixed mindsets remains relatively the same. Variations of the fixed mindset make the success of the change results.

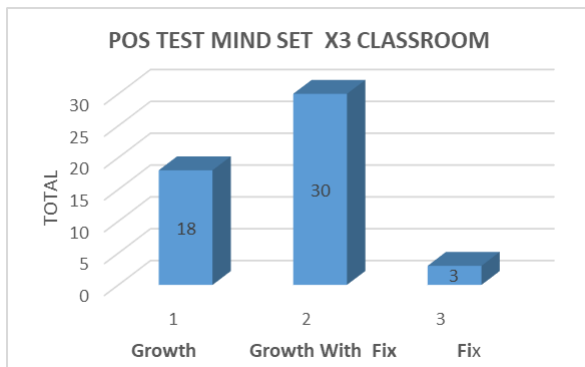
**2. Class X2**



**Figure 10. Post-test mindset class X2**

In class, X2 obtained a fairly good improvement result with an increase of 11 people who growth mindset to 20 people, 30 people who are dominant growth minds with some fixed mindset and no fixed mindset. Increase to growth mindset 45% from the initial amount—the dominant growth mindset with multiple fix mindsets, more to the growth mindset.

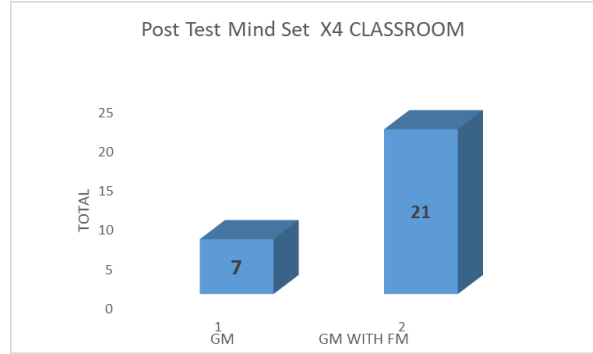
**3. Class X3**



**Figure 11. Post-test mindset class X3**

In class, X3 obtained the results of respondents who initially 17 people whose growth mindset to 18 respondents, 27 people who are dominant growth mind with some fixed mindset increased 27 respondents to 30 respondents, and 4 people fix mindset decreased 1 respondent. The weakness of calculations shows that the number of respondents who fill in at the pre-test with the test post is not the same because of several things. The signal is not good; students cancel college.

**4. Class X4**



**Figure 12. Post-test mindset class X3**

In class, X4 obtained the results of increasing the growth mindset of 3 people to 7 people, 20 respondents who are dominant growth mind with some fixed mindset to 21 people and 2 respondents fix mindset no longer exist.

**4. DISCUSSION**

This research was conducted in the eyes of the nationally mandatory porters, namely Ethics and Health Law. Courses include the learning of Ethics, particularly Public Health Ethics, Medical Ethics, Research Ethics, and Health Professional Ethics. From descriptive measurements, the results of the dominance of the work of the respondent's brain are seen.

From the above study results in 4 classes, the dominance of brain work is still relatively low for the balance between the left and right brain, with several 25 respondents out of a total of 178 respondents. Achieving the education era in the XXI century takes creative and critical thinking, communication, collaboration, information technology, and compassion or persistence. Achieving such an ability is not derivative but requires training. Creativity combines, shapes, enlarging or shrinking, and creating new things. Creative people don't necessarily produce innovation, but people who produce innovation must be creative. The era in the future known as VUCA, namely Volatility is unclear, uncertainty or uncertainty, complexity or very complex problems and ambiguity, sometimes yes at one time or not at another time.

Learning using the Cased Based method is a method that is powerful enough to be used in the learning model of Health Ethics and Law. This is following the results of the study or dissertation of Siswati, using a problem-based learning model using mind mapping managed to prove the increase in the gain

score of experimental class scores from pre-test 60.54 to 82.73. While in the experimental class, the score in the control class was from 58.10 to 69.51. The equations both use cases as topics discussed. The difference is that the study compares control classes and experiments and uses mind mapping that makes the human brain think radiantly. This requires ongoing training and in Case-Based method research that also uses education to change the minds of the student's mindset.<sup>[7]</sup>

Interesting from this study is that in one class X1, there were no students who had a fixed mindset. Despite a relatively low increase of 1 person to the growth mindset, the average student does not have a trend-fix mindset. This is a very good initial capital always to train students to the growth mindset way of thinking.

In class X2, encouraging results were obtained with an increase towards a high growth mindset of 45%. This can be due to the ability of students who have become accustomed to solving problems, thinking positively, creatively and following the characteristics of the growth mindset. Seeing the results of brain dominance work, the tendency to think creatively by utilizing the right brain is quite high and does not differ much from the left brain. Balance can be trained by always making the creativity possessed, persistence into a whole radiant brain.

In class X3, the dominance of the left and right brain is more dominant than the balanced. Results in the growth mindset are also dominant in the growth mindset rather than the fixed mindset. This shows the strong potential in utilizing this forward-thinking mindset.

In class X4, dominance in the right and left brain. However, on the mindset to think the tendency of growth mindset and growth mind with some fixed mindset. No student has a fixed mindset. It is excellent in synchronization, enhancing creative and critical thinking skills.

## 5. CONCLUSION

The case-based method is very useful in learning so that students can think openly and critically so they can make the students with a growth mindset, not a fixed mindset. Continuous training is needed from this Case-Based method pattern, further shifting the involvement of lecturers. The lecturer is only active in the first week of the current process. It is expected that lecturers are more dominant until the fourth meeting and gradually submit the overall involvement of students independently.

## AUTHORS' CONTRIBUTIONS

All authors contribute to developing case-based methods in health law ethics courses.

## ACKNOWLEDGMENTS

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