

# The Effectiveness of The Blended Learning Method as A Learning Innovation During The Covid-19 Pandemic at Faculty Of Dentistry, Hang Tuah University Surabaya

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## ABSTRACT

**Background:** The covid-19 pandemic has an impact on many sectors include the education sector. Dental education students are not only given academic knowledge but also need to be trained for their dental practice skills. Various obstacles during covid-19 pandemic require educational institutions to make innovations to maintain the quality of graduates. One of the innovations that can be implemented is blended learning. Blended learning combines online methods for lecture substitution and face-to-face methods for clinical activities on phantoms. The indicator of success of this method is by getting pass in the National Competency Exam for Dentist (UKMP2DG). **Objective:** To determine the effectiveness of the blended learning method as a learning innovation during the covid 19 pandemic at the Faculty of Dentistry, Hang Tuah University Surabaya. **Methods:** This is an observational analytic study by comparing the percentage of UKMP2DG's passing rates during the period before the covid 19 pandemic (2019) and during the implementation of the blended learning method (2021 and 2022). Data analysed using one-way Anova with an error of 5%. **Results:** The results of oneway Anova showed  $p$  value =  $0.120 > 0.05$ . **Conclusion:** There is no significant difference between the number of UKMP2DG passing rates from 2019, 2021 and 2022 means blended learning method can provide the same number of pass rate as other previous methods.

**Keywords:** Blended Learning, Covid 19, Dental Education, Learning Innovation

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## INTRODUCTION

At the beginning of 2020 the whole world had to face the spread of a new virus called Corona. The virus that initially attacked in Wuhan, then spread throughout the world including Indonesia. This situation led WHO to established a pandemic condition throughout the world. The covid-19 pandemic has an impact on many sectors include the education sector.<sup>1</sup>

The government of Indonesia through Permenkes No.4 & 15year 2020 made a policy for the education sector during pandemic covid 19 that regulates online learning.<sup>2</sup> Problem arise when not all learning processes can be carried out effectively through online learning. There are many things in learning that cannot be replaced by online learning, such as the need for direct interaction between students and teachers. To overcome this problem requires an innovation during the learning process. Dentistry Faculty of Universitas Hang Tuah applies a blended learning system in the even semester of the 2021/2022 academic year. Blended learning is a formal education program that allows students to learn through mixed online and classical face to face learning<sup>3,4</sup>. Dentistry Faculty of Hang Tuah University combines online lectures using video conference technology and clinical practice with phantoms using face-to-face methods. The face-to-face method is carried out with due regard to health protocols. Students are divided into several small groups and clinical time is arranged, so that there is not much students gather at the same time. All students who will carry out clinical phase on campus must be declared free of covid 19 by the results of the swab antigen examination which is valid for 1 day. This is done to maintain safety and comfort during the face-to-face clinical process in during covid 19 pandemic.

One of indicator of success in learning process is exam. UKMP2DG is a Competency Test for Dentistry Professional Program Students which is carried out by Kemristek DIKTI every 4 times in a year. Students who are

entitled to become UKMP2DG participants are active students in the dental profession study program and have fulfilled 100% patient requirement and at least 80% non-patient requirement. This exam is an exit exam therefore the results of this exam are an indicator of the success of the education program at the faculty of dentistry.

This study aims to determine the effectiveness of the blended learning method as a learning innovation during the covid 19 pandemic at the UKMP2DG at the Faculty of Dentistry, Hang Tuah University Surabaya.

## MATERIALS AND METHOD

This research is a quantitative study with observational analytic research type. The study used secondary data from the UKMP2DG graduation results at the Faculty of Dentistry, Hang Tuah University in 2019, 2021 and 2022. 2019 was the period before the covid19 pandemic while 2021 and 2022 were the period of application of the blended learning method. UKMP2DG in 1 year is held for 4 periods with varying numbers of participants. Each period in each year will be calculated the percentage of graduation to be compared.

Percentage of graduation:

$$= \frac{\text{total graduate}}{\text{total participant}} \times 100\%.$$

Data analysis to determine differences using oneway anova after previously conducting a normality test and homogeneity test.

## RESULTS

The normality and homogeneity test show normality and homogeneity in the percentage of graduation's data. The normality test in Table 1 showed that the data has normal distribution ( $p>0,05$ ), so that it fulfills the requirement for parametric test. The

homogeneity test in Table 2 showed  $p > 0,05$ , which showed that the data does have a homogeneity variance.

**Table 1.** Normality Test

|           | Statistic | df | Sig   |
|-----------|-----------|----|-------|
| Year 2019 | 0.795     | 4  | 0.093 |
| Year 2021 | 0.864     | 4  | 0.273 |
| Year 2022 | 0.867     | 4  | 0.285 |

**Table 2.** Homogeneity Test

|               | Levene statistic | df1 | df2 | Sig   |
|---------------|------------------|-----|-----|-------|
| Based on Mean | 0.656            | 2   | 9   | 0.542 |

The comparative test carried out in this research data is Oneway Anova because there are more than 2 unpaired groups with a normal data distribution and homogeneous data variance. The data is said having a significant difference between the group if the p value showed less than 0,05 ( $p < 0,05$ ). The comparative test of this research data (Table 3) showed  $p > 0,05$  so that can be interpreted that there is no significant difference between the number of UKMP2DG passing rates from 2019, 2021 and 2022.

**Table 3.** One Way ANOVA

| Sum of Squares | df | Mean Square | F     | Sig. |
|----------------|----|-------------|-------|------|
| 826.245        | 2  | 413.122     | 2.711 | .120 |
| 2197.842       | 11 |             |       |      |

**Table 4.** Post Hoc LSD

|      | 2019  | 2021  | 2022  |
|------|-------|-------|-------|
| 2019 | -     | 0.056 | 0.386 |
| 2021 | 0.056 | -     | 0.195 |
| 2022 | 0.386 | 0.195 | -     |

Post-hoc LSD test was conducted to analyze the difference between the number of UKMP2DG passing rates from 2019, 2021 and 2022. The results of the Post-hoc LSD further test show that the significance value of the difference in means between groups is more

than 0.05, so it can be explained that there is no significant difference between the number of UKMP2DG passing rates from 2019, 2021 and 2022, meaning that the blended learning method can provide the same number of pass rates as other previous methods.

## DISCUSSION

In this study, we found that the blended learning method could accommodate the needs of fulfilling student competencies. As we know, the condition of the Covid 19 pandemic has caused limitations in conducting face-to-face meetings between lecturers and students. These limitations have been tried to be overcome by online methods, but in the field of dentistry, not all learning materials can be done online.<sup>9</sup> The blended learning method has many advantages. Research from Bibi (2015) shows that there is an increase in the understanding of students who use blended learning when compared to conventional learning. One of the advantages of the blended learning method is that online learning can be done at a more flexible location and time. In accordance with the results of the interviews, it was found that most respondents, both lecturers and students, were happy with the flexible time and place.

In this study it was also found that according to the lecturer's opinion, the blended learning method can accommodate the needs of fulfilling student competencies at the professional stage. Faculty of Dentistry, Hang Tuah University is an educational institution that produces dentist graduates. Dentists are expected to have competency skills in treating patients. Online learning is completely unsuitable when applied to competencies that require skills. Blended learning can be an alternative during the Covid 19 pandemic where on the one hand it is required to implement health protocols by postponing face-to-face activities but on the other hand it must still produce graduates who have good competence. In the opinion of several lecturers, the blended

learning method cannot be applied easily. In the implementation of effective blended learning, the role of the lecturer is very important. Lecturers must have the ability to use information technology and could convey learning material.

Adequate facilities and infrastructure are needed to support the success of the blended learning method. Faculty of Dentistry, Hang Tuah University based on infrastructure data for 2020-2021 shows that it has prepared sufficient infrastructure to support the blended learning system during the Covid 19 pandemic. Video conferencing using the zoom application is provided for each batch of students which can be used unlimitedly to support learning activities during pandemic covid 19. During the pandemic, the skills of the patient directly could not be carried out optimally so that the Faculty of Dentistry, Hang Tuah University increased the number of phantom models in the practicum room.

One of indicator of success in learning process is exam. UKMP2DG is a Competency Test for Dentistry Professional Program Students which is carried out by Kemristek DIKTI every 4 times in a year. Students who are entitled to become UKMP2DG participants are active students in the dental profession study program and have fulfilled 100% patient requirement and at least 80% non-patient requirement. This exam is an exit exam therefore the results of this exam are an indicator of the success of the education program at the faculty of dentistry. There is no significant difference between the number of UKMP2DG passing rates from 2019, 2021 and 2022 means blended learning method can provide the same number of pass rate as other previous methods.

## CONCLUSION

Based on the results it can be concluded that the blended learning method is an effective learning method during the Covid 19 pandemic at Faculty of Dentistry, Hang Tuah University. Blended learning method can provide the same

number of pass rate of UKMP2DG as other previous methods.

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