The Effectiveness of Multichannel Learning Model at Higher Education

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Abstract. This research aims to know the effectiveness of Indonesian learning at university through a multichannel learning model. The multichannel learning model is a form of blended learning. The research method used is the survey research on 495 students who join Indonesian lecture through the multichannel learning model at Bina Nusantara University. The techniques of collecting data are questionnaire and student learning outcome in Indonesian. The questionnaire is used to assess student’s perception against the effectiveness of Indonesian learning in higher education through a multichannel learning model. While the learning outcome is tested by using the Paired Sample T-Test to find out whether there is an increase in student learning outcome in Indonesian language which is applied with a multichannel learning model. The result showed that student rated multichannel model learning with a combination of combined lecturer (at 69% index), lecturer (at 78% index), discussion forum, and guide self-learning class (on index 68.6%) as effective in improving Indonesian learning outcome in higher education. For the Paired T-test result, it is known that the Sig (2-tailed) value is 0.000 <0.005, so it can be concluded that the multichannel learning model can improve Indonesian learning outcome in higher education.

1. Introduction

The sudden pandemic condition has affected various lines of life, including education. The education world feels the impact of an epidemic disease caused by a virus called Corona or known as Covid-19 (Corona Virus Diseases-19). UNESCO states that the Covid-19 pandemic threatens 577,305,660 students from pre-primary to high school education and 86,034,287 students from higher education around the world (Tjandra, 2020). This thing has led the government and related institutions to present an alternative educational process for distance teaching and learning or online learning or learning from home with parental assistance.

The changes in learning process from face-to-face learning to virtual learning require an appropriate learning model and meet student needs so that learning objectives are achieved. Learning models are specific forms or designs that are systematically designed based on learning theory or the rationale for how students learn to achieve learning goals (Sari, 2019). One of the learning models that can be applied in distance learning is the blended learning model. In simple terms, blended learning means learning patterns that contain elements of mixing, or combining one learning pattern with another. Bonk cited the three most common definitions of blended learning: (1) A combination of instructional modalities (or delivery media); (2) A combination of instructional methods; (3) A combination of online and face-to-face instruction (Tayebnik & Puteh, 2013).
This study chooses the second learning model by combining various learning methods. The learning model is a Multichannel Learning Model (MCL). It is named as a multichannel learning model because this learning model utilizes many channels and applies various methods, that are: (1) Video Conference on Campus; (2) Video Conference off Campus; (3) Forum Discussion; (4) Guide Self Learning Class; and (5) Video Based Learning. All of these methods are integrated into one Learning Management System (LMS).

The previous research has tried to develop Mobile-Based Multichannel Model Learning on Mathematics learning. This MCL Mobile in mathematics learning is considered as an effective way to facilitate and smooth Mathematics lectures at the State University of Jakarta (Irzal, et al, 2019). The novelty in this research lies in the multichannel learning model which is applied to Indonesian language learning at university. Five multichannel-based learning methods applied in Indonesian language learning will be the main problems to be examined in this study. This research will answer research questions: (1) How is the application of the multichannel model to Indonesian language learning at university?; (2) What are the students’ perceptions of the implementation of the multichannel lecturing model at university?; and (3) How effective is the multichannel model in improving Indonesian learning outcomes at university? Thus, this research is expected to become a recommendation in the implementation of distance learning at university.

2. Literature Review

As previously explained, the multichannel learning model is one form of implementing the blended learning model. A blended learning approach facilitates optimal student engagement while still reducing teaching load and resource demand (Bastiaens, 2012).

The multichannel learning model is a learning model developed by Bina Nusantara University, Jakarta, Indonesia. This online learning model utilizes a variety of learning resource channels through Video Conferences, Discussion Forums, Assignments and Video Based Learning. The multichannel learning component consists of Combined Lecture/Laboratory and Lecture/Laboratory. For the Combined Lecture/Laboratory component, the courses that are run parallelly (more than 1 person teaching the same lecture) the Video Conference session is scheduled live from the campus represented by one of the lecturers/teaching assistants in the courses that have been determined by the program/study program. As for the Lecture/Laboratory component, the Video Conference session is scheduled from outside the campus and carried out by each lecturer/class assistant from non-parallel (regular) class (Nusantara, 2020).

The choice of this multichannel learning model is not only caused by the need for online learning in the Pandemic Era but also assessed according to the characteristics of twenty-first century students: (1) preferring a multimedia environment; (2) enjoying connecting with their peers and most of the time via online; (3) requiring several consecutive stimuli (to avoid boredom), (4) requiring constant and observable feedback while performing tasks; (5) socializing and pragmatic; (6) focusing on team spirit, and (7) adapting learning to personal needs (Dias, 2014).

To achieve maximum results, there are several factors that need to be considered in designing a multichannel learning model: (a) Interaction: The learning model should be able to consider the interactions between individuals in learning; (b) Design: Considering the technology and applications used; (c) Materials: Considering the content and teaching materials used; (e) Integration: Considering a clear relationship between one method and another; (f) Evaluation: Considering the tools and forms of evaluation that are appropriate to the given method; (g) Context: Blended learning design must pay attention to the local context, including the needs, skills, expectations, and characteristics of students and teachers; (h) Teacher training: Training is the key to successful method implementation. Teachers need to understand the principles and be able to apply the combination between methods effectively; (i) Student training: Because the blended learning model is an independent learning, it requires some training for students (Nicky, 2010).

3. Methodology

This study uses a survey research method. Survey research designs are procedures in quantitative research in which investigators administer a survey to a sample or to the entire population of people to
describe the attitudes, opinions, behaviors, or characteristics of the population (Jhon W. Creswell, 2012). The research design is a cross-sectional survey design, in which data is collected from selected individuals at certain points in time (Geoffry E. Mills and Lorraine R. Gray, 2016). The study population is the students who take Indonesian Language lecture at Bina Nusantara University. As a General Subject, almost all students at Bina Nusantara University take this lecture, so that they can be considered to represent the population. The research sample is 495 students taking Indonesian course at Bina Nusantara University in the Even Semester 2020/2021.

The techniques of collecting data are questionnaires and learning outcomes. The questionnaire contains questions related to students' perceptions of the effectiveness of the multichannel learning model in Indonesian language learning in higher education. The questionnaire is measured by a Likert scale, ranging from 1 to 5, as shown in Figure 1.

![Figure 1. Likert Scale](image)

Then, the assessment interval is calculated by Index (%) = score / total score X 100%, where:
- Index 0% - 19.99% : Strongly Disagree
- Index 20% - 39.99%: Disagree
- Index 40% - 59.99%: Undecided
- Index 60% - 79.99%: Agree
- Index 80% - 100% : Strongly Agree

Meanwhile, Indonesian language learning outcomes are used to see the effectiveness of the multichannel learning model in higher education. This test uses the **Paired Sample T-test**, which is a test of the difference between two means for dependent samples. The essence of this dependent sample t-test is that the two data tested come from the same sample, the data is taken from the scores on the pre-test and the post-test. To test the difference between these two means, the samples are taken randomly (Kadir, 2015).

4. **Results**

4.1. **The Application of the Multichannel Model in Indonesian Language Learning in Higher Education**

In order to realize the mandate of the Law of the Republic of Indonesia Number 12 in 2012 about Higher Education, the Higher Education curriculum must contain Indonesian language course (RI Law, 2012); Bina Nusantara University holds 2 credits of Indonesian language learning. Since the Pandemic Era, especially entering the Even Semester 2020/2021, Indonesian language learning has been carried out using a multichannel learning model. In summary, the design of the multichannel learning model can be described as follows.

| Topic/Session | Material | Multichannel Model | Channel |
|---------------|----------|---------------------|---------|
| 1             | Function dan language variety | Combined lecturer | Vicon Off | Campuss, |
| 2             | History, position, and the function of Indonesian language | Lecturer | Vicon Off | Campuss, |
| 3             | General Guidelines for Indonesian Spelling | Discussin Forum dan GSLC | Vicon Off | Campuss, |
| 4             | Diction, term formation, and definition | Discussin Forum dan GSLC | Vicon Off | Campuss, |
| 5             | Effective sentence | Combined lecturer | Vicon Off | Campuss, |
|   | Academic paragraph | Discussin Forum dan GSLC | Video Based Learning, assignment, e-book, Ms-Form |
|---|--------------------|--------------------------|-----------------------------------------------|
| 6 |                    |                          |                                               |
| 7 | Plagiarism and scientific essay topic | Lecturer                  |                                               |
| 8 | Academic essay      | Discussin Forum dan GSLC |                                               |
| 9 | Scientific essay    | Discussin Forum dan GSLC |                                               |
| 10| Popular scientific essay | Combined lecturer       |                                               |
| 11| Research proposal   | Lecturer                  |                                               |
| 12| Citation techniques and the preparation of a bibliography | Combined lecturer       |                                               |
| 13| Academic communication | Lecturer                 |                                               |

*Combined Lectures / Laboratories are run in parallel (more than 1 person teaching the same subject).*  
This model is implemented through the Live Video Conference on Campus (Vicon on Campus) from the campus which is represented by one of the lecturers / teaching assistants in the courses that have been determined by the program / study program. This model utilizes the ZOOM platform with a capacity of up to 500 people. In this model, one of the lecturers from the teaching team will teach from the campus complete with learning facilities and infrastructure and the use of a PTZ logitech camera that can record in all directions, so that students feel as if they are studying in a classroom on campus. Meanwhile, other teaching teams joined ZOOM in parallel in collaborating on learning.

Meanwhile, in the *Lecture / Laboratory model*, the off campus Video Conference session is scheduled from outside the campus and carried out by each lecturer using the ZOOM platform. In this model, the lecturer teaches the class he or she is teaching. *Discussion Forum and Guide Self Learning Class* is a learning model through the Lecturer Management System (LMS) developed by Bina Nusantara University named Binusmaya. In this model, lecturers post materials, assignments, exercises, learning videos, quizzes, and so on through the forum menu available on Binusmaya. Students must respond to the discussion forum as proof of attendance at the session. The student's attendance will be recorded by the system if the student has responded to the lecturer's material or posts on the Binusmaya forum.

The Model Guide Self Learning Class is an independent learning model using the multichannel provided, such as: Video Conference, Discussion Forum, Assignment, Video Based Learning, e-book, and Ms. Form. All of these channels are integrated in Binusmaya. At Binusmaya, students can see what channels the lecturers use in certain sessions or topics.

### 4.2. Students' Perceptions of the Multichannel Model in Indonesian Language Learning

Based on the results of the questionnaire filled out by 495 Bina Nusantara University students who took Indonesian language courses in the Even Semester 2020/2021, the following results were found.

- **Combined Lecturer.** The total score of students' perceptions on the effectiveness of the *multichannel - combined lecturer model* on Indonesian language learning = \((3.64 / 5) \times 100\% = 69\%\). These results explain that students agree that the *multichannel - combined lecturer model* is effective in learning Indonesian.

- **Lecturer.** The total score of students' perceptions of the effectiveness of the *multichannel - lecturer model* in Indonesian language learning = \((3.9 / 5) \times 100\% = 78\%\). These results explain the students agree that the *multichannel - lecturer model* is effective in Indonesian language learning.

- **Discussion Forum / Guide Self Learning Class.** The total score of students’ perceptions on the effectiveness of the *multichannel model - Discussion Forum / Guide Self Learning Class* in Indonesian language learning = \((3.43 / 5) \times 100\% = 68.6\%\). These results explain that students agree that the *multichannel model - Discussion Forum / Guide Self Learning Class* is effective in Indonesian language learning.
The reason students agree that the multichannel learning model is considered effective in Indonesian language learning is because in terms of: learning methods, learning media, platforms used, evaluation tools, chatroom utilization, class management, and number of meetings, as can be seen in Figure 2.

![Figure 2. The Causative Factors of Multichannel Learning Model Are Considered Effective](image)

Factors: 
1 = learning method  
2 = learning media  
3 = platform used  
4 = evaluation tool  
5 = chatroom use  
6 = interaction management  
7 = number of meetings  
8 = other

Of the several channels utilized in this multichannel learning model, students rated the Video Conference on Campuss (ViCon) and Video Conference Off Campuss (ViCoff) models as the most effective compared to Video Based Learning (VBL), Assignment, e-books, and Ms. Teams (shown in the Figure 3).

![Figure 3. Students' perceptions against the effectiveness of the Indonesian language learning channel](image)

4.3 Results of Paired T-test to examine the effectiveness of multichannel learning models in higher education

Paired T-test is conducted to test whether the multichannel learning model can improve Indonesian learning outcomes in higher education. The sample in this statistical test is taken randomly from 100 students. Based on the Paired T-test, the following results were found.

|   | Mean | N   | Std. Deviation | Std. Error Mean |
|---|------|-----|----------------|-----------------|
| Pair 1  
PRE TEST | 61.4500 | 100 | 17.23713 | 1.72371 |
| POST TEST | 78.5800 | 100 | 12.52406 | 1.25241 |
Based on the descriptive data table, it is known that the mean score of the students’ pretest in Indonesian was 61.45 and the average post-test score for students in Indonesian was 78.58. The number of samples is 100. From the data, it is known that the average pretest score is lower than the average posttest score, which means there is a difference between the pretest and posttest score in the average descriptively. The posttest score is better than the pretest score.

Table 3. Paired Samples Correlations

| Pair 1 | PRE TEST & POST TEST | N   | Correlation | Sig. |
|--------|----------------------|-----|-------------|------|
|        |                      | 100 | .287        | .004 |

Based on the paired sample correlations table, it is known that the Sig (0.004) <0.005; It can be interpreted that there is a relationship between the Indonesian language pretest and the Indonesian language postest.

Table 4. Paired Samples Test

| Paired Differences | Mean | Std. Deviation | Std. Error | 95% Confidence Interval of the Difference | t   | df  | Sig. (2-tailed) |
|--------------------|------|----------------|------------|-----------------------------------------|-----|-----|-----------------|
| PRE TEST - POST    | -17.13000 | 18.171 | 1.81718 | -20.73568 -13.52432 | -9.427 | 99 | <0.005 |

Before making a decision, it is necessary to know the basis for decision making, that is, if the Sig (2-tailed) value <0.05, then Ho is rejected. If the Sig (2-tailed) value> 0.05, then Ho is accepted. Based on the table of paired samples test, it is known that the Sig (2-tailed) value of 0.000 <0.005, it can be interpreted that there is a significant difference between the Indonesian pretest and postest data. Thus it can be concluded that the multichannel learning model can improve Indonesian learning outcomes in higher education.

Based on the result of this research, it can be concluded that the multichannel learning model is considered an effective learning model to improve Indonesian learning outcome in higher education, especially in the pandemic era and online learning model. Because Indonesian is a general subject that is followed by almost all 1st semester students (a total of 3360) from various departments and fields of study, this sample is considered to be representative of the population. In other words, the multichannel learning model is considered effective if it is applied to other courses in higher education.

5. Conclusion
Based on the research results, it can be concluded that the multichannel learning model is effectively applied in Indonesian language learning in higher education. This can be seen from the results of the questionnaire on students’ perceptions of the application of the multichannel model in Indonesian language learning. Students assess the multichannel model learning with a combination of combined lecturer (at 69% index), lecturer (at 78% index), discussion forums, and guide self learning classes (at index 68.6%) is effective in improving Indonesian learning outcomes in higher education.

The multichannel learning model is considered effective in learning Indonesian because of: learning methods, learning media, platforms used, evaluation tools, use of chatrooms, class management, and number of meetings. These results are also strengthened by the results of Indonesian language learning which were tested through the Paired T-test. Based on the table of paired samples test, it is known that the Sig (2-tailed) value of 0.000 <0.005, it can be concluded that the multichannel learning model can improve Indonesian learning outcomes in higher education.

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