HYBRID LEARNING STRATEGY FOR FACILITATING LEARNING AND IMPROVING PERFORMANCE

Heni Jusuf*

Post Graduated Educational Technology,
Universitas Negeri Jakarta
Indonesia
Department Engineering Faculty of Engineering and Science,
Universitas Nasional
Indonesia

Nurdin Ibrahim

Educational Technology
Universitas Negeri Jakarta
Indonesia

M. Atwi Suparman

Educational Technology, Faculty of Teacher Training and Educational,
University Terbuka
Indonesia

*Corresponding author’s Email: HeniJusuf.tp15s3@mahasiswa.unj.ac.id

Author’s Biography

Heni Jusuf is currently undergoing doctoral education at Universitas Negeri Jakarta in the field of educational technology, she is also a lecturer in the electrical engineering department, Faculty of Engineering and Science, Universitas Nasional. The research that has been done so far is research in Social Sciences, Arts and Humanities, Software Engineering and Educational Technology.
Research Highlights
Researchers make observations, thoughts, experiences, and insights in the virtual learning environment at each learning. Qualitative and quantitative results show that students respond to hybrid learning strategy and they had increased their engagement and communication when compared to the traditional class. The results of the study found that sig.t = 0.03 <α = 0.05, it was concluded that H02 was rejected and resulted in the acceptance Ha2: µA > µB, this indicates that the average student learning outcomes that take hybrid learning are higher than students who take part in learning activities using traditional learning. The Students recognize the quality improvement in learning and using the class with hybrid learning strategy. Regarding academic performance, there have been significant changes shown between hybrid learning strategy class and the traditional learning class.

Graphical Abstract
The study’s results of eighty-one respondents of Informatics students in the OOP course are as shown in table 1 below:

Table 1. Results of the questionnaire on current OOP learning based on Percentage

<table>
<thead>
<tr>
<th>No</th>
<th>Items</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Like Programming courses</td>
<td>26.8</td>
<td>31.7</td>
<td>32.9</td>
<td>4.9</td>
<td>3.7</td>
</tr>
<tr>
<td>2</td>
<td>Programming courses are too difficult</td>
<td>9.8</td>
<td>19.5</td>
<td>45.1</td>
<td>18.3</td>
<td>7.3</td>
</tr>
<tr>
<td>3</td>
<td>Programming courses are not interesting</td>
<td>31.7</td>
<td>7.3</td>
<td>30.5</td>
<td>28</td>
<td>2.4</td>
</tr>
<tr>
<td>4</td>
<td>Programming courses are boring</td>
<td>30.5</td>
<td>13.4</td>
<td>30.5</td>
<td>24.4</td>
<td>1.2</td>
</tr>
<tr>
<td>5</td>
<td>Teaching Lecturers are not proactive</td>
<td>13.4</td>
<td>17.1</td>
<td>35.4</td>
<td>30.5</td>
<td>3.7</td>
</tr>
<tr>
<td>6</td>
<td>The teaching method is not interesting</td>
<td>28</td>
<td>11</td>
<td>36.6</td>
<td>6.1</td>
<td>18.3</td>
</tr>
<tr>
<td>7</td>
<td>The lecturer does not evaluate the</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>achievement of a material at each meeting</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>session</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Modifications and variations in learning at the higher education level are developed by developing computer and internet technology-based learning models (Heni Jusuf, 2018). In the world of higher education, the background of the learners is very heterogeneous, meaning that the learners do not only come from secondary school graduates but also those who have worked so that with a background of very varied learners, the learning needs and styles of learners also vary. Hybrid Learning is now a trend (Bernard, Borokhovski, Schmid, Tamim, & Abrami, 2014) which has been developed as a learning model in universities, and this model can be in the form of learning using the web, games, videos and more (McGloin, McGillicuddy, & Christensen, 2017) This model makes students engage with learning materials that depend on how they are designed and delivered (IUCEL, 2018).

Research Objectives
Programmer is someone who can solve problems using a programming language. They have many abilities consisting of various levels, they are good at writing code, understanding algorithms and often working alone (Permana, 2016) The need for programmers every year is increasing, along with technological advances, but this is not accompanied by graduates from the Informatics Department who intend to become programmers (Capgemini Digital Transformation Institute survey, 2017) The Informatics department is a department that attracts many students, but their enthusiasm decreases rapidly in the second year because they have...
difficulty in learning Programming, programming courses have a huge portion, so if they have problems in this course, students will fail.

Methodology
Collecting qualitative and quantitative data, this research uses the Action Science Research Design (Kevin R. Clark, 2015) to assess the impact of the learning process that uses Hybrid Learning class and traditional class. The qualitative data comes from interviews with students, observations, and discussion group sessions. The quantitative data comes from pre-test and post-test. According to (Creswell, 2012) the mix method approach is useful for getting a deeper understanding of research.

Results
Quantitative Results
The quantitative analysis result is to test whether hybrid-based learning is better than traditional learning. To do the analysis, the researchers tested the hypothesis as follows:

Mathematical hypothesis
Ha1: µA ≠ µB
Ha2: µA > µB
A: Hybrid learning
B: Traditional learning

This research used thirty-five of samples to test the hypothesis above that had been taken randomly and had followed the learning activities carried out in the experiment.

<table>
<thead>
<tr>
<th>Independent Samples Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levene's Test for Equality of Variances</td>
</tr>
<tr>
<td>F</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Value</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

![Fig. 1. Independent Samples Test](image1.png)

Testing the hypothesis that was used Table t in figure 1 is Ha2: µA > µB, the common value learning outcomes of students who take hybrid learning are higher than students who take traditional learning activities. Table t shown, it is obtained a significant value of t of 0.031, using the criteria of a Significant Level of Error that is α = 0.05, then it can be concluded that the Significant Value t is smaller than the limit value of error α = 0.05.

Qualitative Results
The statements of results, this was indicative of a satisfactory student perception with hybrid learning in compared the traditional learning

The following keywords found repeatedly in interviews and FGDs: the class is different from other class, actively engaged in learning, better learning in class, the content is easier, direct learning, helpful, interesting, learn to be independent, learning individually.

Findings
According to this research, the hypothesis is valid based on analysis results at the table above where the mean value of the Hybrid class is higher than the mean value of the traditional class, which is 74.19 ≠ 67.79
The hypothesis acceptance criteria in this research are H0 accepted if sig.t > α = 0.05. From the results of the research, it found that sig.t = 0.03 <α = 0.05, it was concluded that H02 was rejected and resulted in acceptance Ha2: µA > µB means that the average value student learning outcomes following hybrid learning were higher than students who followed traditional learning.

References


