

# Online-Based Collaborative Learning: Economics Teaching Innovation in Higher Education

11  
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23

## Abstract

The goal of this study is to assess student views regarding online-based collaborative learning in the context of economics classroom instruction. The term "collaborative learning" refers to learning that takes into consideration characteristics such as interaction with the subject matter, exploration, transformation, presentation, and reflection. The participants in this study were 221 undergraduate students who were enrolled in economics courses. The questionnaire was delivered through Google Forms, which served as the data collection method. The descriptive statistics were employed on the study instrument, which included as many as 53 questions, and the analysis was divided into five stages: the data distribution test, descriptive statistics, instrument validity and reliability, and hypothesis testing. Among the findings: the data is normally distributed, a large majority of students strongly agree with online-based collaborative learning, the instrument used passes the validity and reliability tests, and findings from hypotheses testing indicate that all five hypotheses were tested and found to be statistically significant. Future study options include the development of research variables and the use of associative statistics to analyze the data.

## Keywords

Online-based collaborative learning, economics teaching, microeconomics, macroeconomics

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## Introduction

The collaborative approach is widely used by educational institutions, particularly higher education in Indonesia, as a learning method. Collaborative learning was chosen because of its benefits. According to Chandra (2015) the benefits include strengthening students' thinking, communication, leadership, and social responsibility, as well as placing students at the center of learning. Collaborative learning, according to Le, Janssen, and Wubbels (2018), can boost student friendship and competence. Additionally, Abidin, Masitoh, and Bachri (2019); Ku, Lohr, and Cheng (2004) claim that empirically collaborative learning can promote student togetherness, experience, and mutual support to generate harmonization of teaching and learning processes and learning motivation. Meaningful learning is enhanced when utilized in the COVID-19 pandemic, where the traditional learning method is implemented simultaneously with the online media (Dharma, Sugihartini, & Arthana, 2018; Hijriati, 2017; Sulandari, 2020). Since new teaching strategies are needed in various parts of academia, especially in economics departments, e-learning is essential (Anugrahana, 2020; Hamid, SENTRYO, & Hasan, 2020; Maison, Niawan, & Anggraini, 2020; Pratama & Mulyati, 2020; Sadikin & Hamidah, 2020). To minimize face-to-face learning, this online-based learning was chosen (Abidah, et. al, 2020; Marini & Milawati, 2020; Rayuwati, 2020). On the other hand, online-based collaborative learning is not always successful when implemented in every institution and discipline. According to McInerney and Roberts (2002), collaborative learning in higher education, both online and face-to-face, is still underutilized due to the difficulties in maintaining control of the class and the lack of trust among students. While online collaborative learning is successful in some topics, such as mathematics, it is not successful in others (Nason & Woodruff, 2004). Despite the fact that the two studies mentioned above were conducted long before the covid pandemic occurred, this online-based collaborative learning method proved to be indispensable during the covid pandemic and helped students improve their achievement and enthusiasm for learning (Arief, 2020; Coman, Iru, Meseşan-Schmitz, Stanciu, and Bularca, 2020; Demuyakor, 2020; Soeryanto, Arsana, Warju, and Ariyanto, 2020; Learning was conducted online during the state-imposed epidemic in Indonesia (Handarini & Wulandari, 2020; Kristina, Sari, & Nagara, 2020; Sugiarto, 2020). Students appreciate the use of online-based collaborative learning since it helps them connect and enhance their collaboration abilities (Ku et al., 2004). This method is helpful when used in the context of university-level education, especially in economics courses. Previous research that supports the deployment of collaborative learning includes the findings of Stoytcheva (2017), which show that when considering distant collaborative learning in the classroom, economic difficulties can be solved. The same study was done in New Delhi to determine the effectiveness of online collaborative learning tactics in comparison to conventional learning strategies on 120 college students. Students had much better results while employing online-based collaboration tactics (Maulidah & Aziz, 2020; Mehar & Kaur, 2020). Online collaborative learning had a favorable and considerable impact on student performance in Malaysia, which led educational institutions to seriously investigate this method as a classroom teaching technique (Yin, Yusoff, Lok, & Zakariya, 2018). According to Stanley and Zhang (2020), online-based collaborative learning has a favorable impact on student involvement and performance in class at large public universities. In addition, Son (2016) admits student-centred collaborative learning innovation is critical in developing international economics learning courses that are relevant, engaging, and encourage students to participate actively in the classroom. Looking closely at the previous studies mentioned above, it is abundantly evident that collaborative learning is student-centred learning, as students are in control of their performance. Based on the conditions in Indonesia, such as the coronavirus epidemic, the deployment of online-based learning is very sensitive, so the achievement of student independence is critical in new learning models during the Covid 19 pandemic. Additionally, an understanding of economics courses demonstrates that online-based collaborative learning improves students' ability and performance by boosting their inventiveness and grasp of how economies work. Earning a high level of understanding in microeconomics and macroeconomics, often known as micro- and macroeconomics, involves integrating cognitive, emotional, and psychomotor domains. Economic theory is covered in two parts: microeconomics and macroeconomics. Microeconomics is explained in 13 sections and macroeconomics is covered in 36 chapters in this economics course (Mankiw, 2018). Meanwhile, in this study, web-based collaborative learning is separated into five variables, each of which corresponds to a

stage in online collaborative learning, namely: engagement, exploration, transformation, presentation, and reflection (also known as stages in online collaborative learning). Students are given direct involvement in teaching and learning at the engagement stage, and they need to acquire responsibility, participation, and social concern in the economics class. Teachers believe that increasing student participation in the classroom will stimulate a desire in learning and a greater understanding of economics (Chou & Chen, 2018; Curtis & Lawson, 2001; Haqqi, 2017; Mulia, 2020; Panlumlers et al., 2017; Shabbir et al., 2021; Nazari et al., 2021; Stanley & Zhang, 2020; Sulistyawati & Zuchdi, 2016). Exploration, where students are allowed to discover together what problems the lecturer is concerned with, and everyone has to provide income based on the most up-to-date literature (Chou & Chen, 2018; Curtis & Lawson, 2001; Haqqi, 2017; Mulia, 2020; Panlumlers, Nilsook, & Jeerungsuwan, 2017; Rohmat, 2017; Sulistyawati & Zuchdi, 2016). Internal group talks become a criterion for collaborative learning success in transformation. This internal group debate teaches tolerance among group members by appreciating varied salaries (Haqqi, 2017; Laal & Laal, 2012; Nazeer, 2006; Panlumlers et al., 2017; Son, 2016). In many earlier research, the presentation aspect was done out following internal group talks. The lecture in question is about economics and how it applies to collaborative learning. Students learn not only by presenting but also by observing, analysing, and responding. To make presentations successful, students must be able to elaborate on the subject offered (Gleeson, McDonald, & Williams, 2009; Haqqi, 2017; Laal & Laal, 2012; Nazeer, 2006; Panlumlers et al., 2017; Rahmawati & Nurhidayati, 2016; Shabbir et al., 2020). Following the presentation, there was a period of reflection, which included questions and answers between groups, with the lecturer acting as a motivator and facilitator. It is envisaged that at this stage of reflection, students would provide feedback on the economic learning process in a specific semester, which is also a kind of teaching and learning responsibility (Gleeson et al., 2009; Haqqi, 2017; Manizar, 2015; Nazeer, 2006; Panlumlers et al., 2017; Sorensen, 2004).

**Table 1.**  
Literature Review Mapping

| Literature              | Variables  |             |                |              |            |
|-------------------------|------------|-------------|----------------|--------------|------------|
|                         | Engagement | Exploration | Transformation | Presentation | Reflection |
| Curtis & Lawson         | √          | —           | —              | —            | —          |
| Sulistyawati & Zuchdi   | √          | —           | —              | —            | —          |
| Panlumlers et al.       | √          | √           | √              | √            | √          |
| Haqqi                   | √          | —           | √              | √            | √          |
| Chou & Chen             | √          | —           | —              | —            | —          |
| Mulia                   | √          | —           | —              | —            | —          |
| Stanley & Zhang         | √          | —           | —              | —            | —          |
| Nazeer                  | —          | √           | √              | √            | √          |
| Sulistyawati dan Zuchdi | —          | √           | —              | —            | —          |
| Rohmat                  | —          | √           | —              | —            | —          |
| Jackson & Fagan         | —          | √           | —              | —            | —          |
| Laal dan Laal           | —          | —           | √              | √            | —          |
| Son                     | —          | —           | √              | —            | —          |
| Gleeson et al.          | —          | —           | —              | √            | √          |
| Rahmawati & Nurhidayati | —          | —           | —              | √            | —          |
| Sorensen                | —          | —           | —              | —            | √          |
| Manizar                 | —          | —           | —              | —            | √          |
| Putri                   | —          | —           | —              | √            | √          |
| Monaco                  | —          | —           | —              | √            | √          |
| Galarza & Johnson       | —          | —           | —              | √            | —          |
| Cohn                    | —          | —           | —              | √            | —          |
| Martinez et al.         | —          | √           | —              | √            | —          |
| Parker                  | √          | √           | √              | √            | √          |

This collaborative learning environment, which is based on the internet, is one of the more innovative options available in the learning strategy of economics courses at universities. The decision to employ this style of learning was made because it has been shown both theoretically and practically to be effective in boosting student competency in a variety of areas, including not only learning outcomes, but also social, psychological, and other academic characteristics.

## Research Questions

Based on the above thinking, this research is directed to answer the following five research questions:

- 1) How are students' attitudes towards online-based engagement learning in economics teaching?;
- 2) How are students' attitudes towards online-based exploratory learning in economics teaching?;
- 3) How are students' attitudes towards online-based transformational learning in economics teaching?;
- 4) How are students' attitudes towards online-based presentation learning in economics teaching?;
- 5) How are students' attitudes towards online-based reflection learning in economics teaching?;

## Methods

### Research Design

The quantitative method was used in this study, and the descriptive research style was used as well. The goal of this research is to optimize respondents' feelings towards online-based collaborative learning. This learning style was selected in order to accommodate the time that face-to-face education has been outlawed by the government according to COVID-19. Instead, classes are offered through the internet in a collaborative style. Group work, where students interact with each other to solve problems, offers the advantage of a collaborative approach. This is particularly effective, as it can eliminate the shortcomings of online learning, which tends to be limited to the student on his or her own. Students in this paradigm will develop by interacting with groups, which positions them as the subjects of others.

### Population and Sample

The participants in this study are students at the State Islamic Institute (IAIN) Tulungagung, Faculty of Economics and Islamic Business who are studying economics courses in the odd semester of 2020/2021 (microeconomics and macroeconomics). It was discovered that the total number of students taking this course was 229.

### Data Analysis Technique

The steps of doing a systematic analysis of research data are as follows: data distribution, descriptive statistics, instrument validity and reliability, and instrument validity and reliability (Ibe, 2014; Marshall & Jonker, 2010; Sarmah & Bora Hazarika, 2012; Valim, et. al, 2015). When dealing with large samples, data with normal distribution or normal distribution is essential, although descriptive statistics are meant to simplify a while also describing the factors under investigation (research variables). To assess the validity and reliability of the instrument, as well as the overall quality of the instrument or research statement items obtained through a questionnaire, respondents' views regarding research variables were assessed. Using the SPSS application, you may assess data distribution, descriptive statistics, instrument validity and reliability, and hypothesis testing among other things.

### Data Collection and Research Instruments

An attitude scale from Likert was utilized in the data collection process, and a questionnaire was created and delivered to respondents using a Google form. A research instrument can be

proposed based on the theoretical and empirical foundations, where each variable is reduced to a sharpened indication in the form of a questionnaire instrument that will be delivered to respondents. According to table 2, the study instrument was divided into 53 items, with 11 items for the engagement variable, 10 items for the exploration variable, 9 items for each transformation and presentation variable, and 14 items for the reflection variable.

**Table 2.**  
Grid of Research Instruments

| Variable       | Indicator               | Descriptor   |
|----------------|-------------------------|--|
| Engagement     | Participation           | Direct involvement in the group;                           |
|                | Social care             | Discipline; Honest; Confidence;                            |
|                | Responsible             | Support each other; Interaction;                           |
|                | Cooperation             | Teamwork;  |
| Exploration    | Opinion                 | Actively express opinions;                                 |
|                | Literature tracking     | Ability to find literature; Ability to clarify literature; |
| Transformation | Discussion              | Exchange ideas; Ability to describe vocabulary             |
|                | Tolerance               | Appreciate differences;                                    |
|                | Presenting              | Ability in running presentation software;                  |
| Presentation   |                         | Ability to present material in writing;                    |
|                |                         | Ability to present material orally                         |
|                | Observing               | Ability to observe problems;                               |
|                | Analysing               | Ability to analyse data;                                   |
| Reflection     | Answering               | Ability to answer questions;                               |
|                | Lecturer as motivator   | Open; Empathy; Religious;                                  |
|                | Lecturer as facilitator | Understanding of differences; Understanding of competence; |
|                |                         |  |

## Hypothesis Testing

The study is guided by two basic premises: theoretical basis and empirical evidence. Here, the following hypotheses are examined: (1) Online-based learning in economics is not uniformly beneficial; (2) Online-based exploration in economics is not uniformly beneficial; (3) Online-based transformative learning in economics is not uniformly beneficial; (4) Online-based presentation learning in economics is not uniformly beneficial, and (5) Online-based reflection learning in economics is not uniformly beneficial. For the purpose of testing the null hypothesis ( $H_0$ ) and the alternative hypothesis ( $H_a$ ), the following statements of the null hypothesis ( $H_0$ ) and the alternative hypothesis ( $H_a$ ) are used:

- 1) There is no difference in students' attitudes toward online-based collaborative learning in economics teaching and students' attitudes toward traditional classroom-based collaborative learning in economics teaching.
- 2) Technically speaking, the One-Sample T-Test with Two Tail Test is used in this study hypothesis test, and the following parameters are followed. If the p value is less than five percent (0.025),  $H_0$  is rejected; if the p value is greater than five percent (0.025),  $H_0$  is approved.

## Findings

This study finds that one of the newer advances in teaching economics in higher education is the implementation of online-based collaborative learning. As many as 221 people were part in this research. This class has 229 students enrolled. In order to reach a goal of distributing questionnaires to 220 respondents within the time restriction (between December 1st and December 19th, 2020), those who completed the form received up to 96.5% of the submissions, whereas those who did not received up to 3.5% of the submissions. Students who missed this survey because of lack of Internet access, a busy schedule, they didn't know if they were study respondents, or because they had too much work to do skipped the questionnaire. The level of respondent involvement (LRP) in filling out research questionnaires is calculated using the formula  $LRP = \text{rate of participation} / \text{total response rate}$ .

$$LRP = \frac{\text{Completed Questionnaire}}{\text{Questionnaire Distribution}} \times 100 = 96,5\%$$

With an LRP of 96.5 percent, it can be inferred that respondents are highly engaged in the survey and that they believe it is vital to express their opinions about online-based collaborative learning in economics courses. Furthermore, the researcher's socialization of learning models during the COVID pandemic through learning innovations that integrate independence and information technology is considered successful, as evidenced by the fact that the participation rate of respondents has increased as a result of the research.

### Respondent's Gender

This survey shows that women predominate in it, which means that there are as many as 164 people responding. Male respondents can estimate the total number of respondents to be around 56, or around 26 percent of the total population. This data demonstrates that women's interest in choosing Islamic economics majors is greater than men's, because while answering research surveys, they are more likely to give a favorable response and these responses help with the research's success.

### Data Distribution

When the data is regularly distributed, the requirements for a One-Sample T-Test must be met. As a result, the five research variables must be examined for normalcy, and in this study, the kurtosis ratio and the skewness ratio are used in conjunction with the histogram normality test to accomplish this.

**Table 3.**  
Skewness and Kurtosis Ratio

| Variable       | Skewness Ratio | Kurtosis Ratio |
|----------------|----------------|----------------|
| Engagement     | -0,2586        | -1,8354        |
| Exploration    | -1,8536        | 0,7400         |
| Transformation | -1,9321        | -0,9412        |
| Presentation   | -1,6963        | 1,7547         |
| Reflection     | -1,2931        | -0,9936        |

5 If the value of the ratio of skewness and kurtosis is between -2 and 2, then the data is regularly distributed. The skewness ratio and kurtosis ratio are in the recommended value interval (Sujianto, 2009) derived from the research variable data.

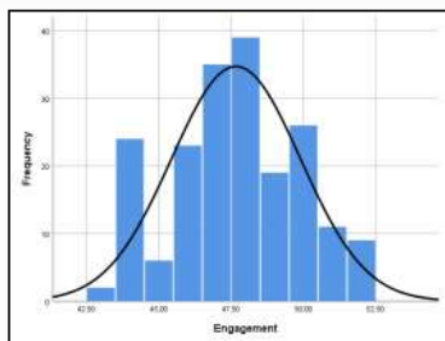


Figure 2a. Engagement

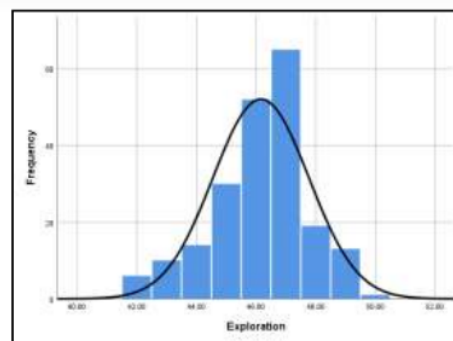


Figure 2b. Exploration

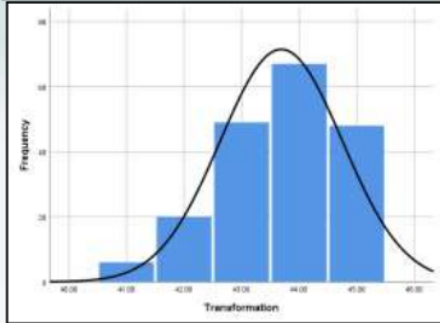


Figure 2c. Transformation

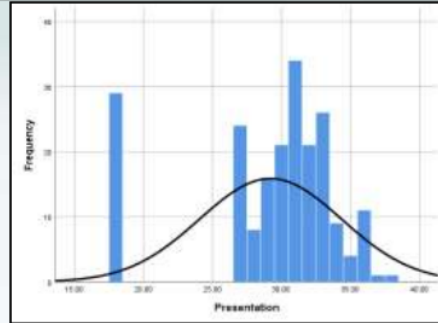


Figure 2d. Presentation

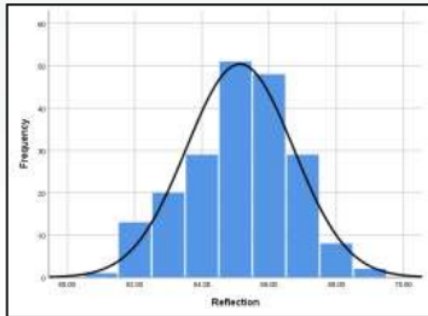


Figure 2e. Reflection

Figures 2a to 2e are histograms that reflect the distribution of research data. According to (Sujianto, 2009) data is called normal if the histogram curve is balanced on the left and right and is bell-shaped.

### Descriptive Statistics

The table below is a description of the main research data based on the number of valid data (N), range, and standard deviation (SD) of the research variables.

Table 4.  
Descriptive Statistic

| Statistic | Variables  |             |                |              |            |
|-----------|------------|-------------|----------------|--------------|------------|
|           | Engagement | Exploration | Transformation | Presentation | Reflection |
| N         | 194        | 210         | 190            | 205          | 201        |
| Range     | 9.00       | 8.00        | 4.00           | 20.00        | 8.00       |
| SD        | 2.22936    | 1.60814     | 1.06079        | 5.15379      | 1.59160    |

Depending on the variable, the number of valid data points (N) fluctuates between 194 and 210 respondents. Due to the existence of data outliers in each variable, the amount of data that can be processed is less than the total number of respondents, which may be as high as 221 in this case. In research data, the range is defined as the difference between the maximum and minimum data, with the larger the range of data, the more diverse the research results. The findings revealed that the range of presentation variables was greater than the range of other variables, resulting in a greater degree of diversity. While the presentation variable has a larger standard deviation (SD), it has a smaller SD than the other four variables. While these findings show that the data is becoming increasingly diversified, the fact that the standard deviation of the presentation variable (5.15379) does not surpass the average (29.2146) indicates that there are no data outliers.



## Engagement Variable Overview

Using 11 questionnaires from Table 2, the researcher conducted a survey, which was then published. Using a 1-to-5 point scale, the responses to the research questionnaire were divided into five groups, which were as follows: never (1); rarely (2); occasionally (3); frequently (4); and always (5). Only 44.3 percent of those who answered the survey said they regularly attended group studies. 53.4 percent of participants expressed a strong conviction in the ability of groups to make decisions. The indicator of social awareness of discipline descriptions only contained two factors, showing up on time in a group study and travelling home together in a group study (59.3 percent often). One hundred and ninety-four (194) respondents say they frequently use honest descriptors, and of these, 48.3% claim to have positive views toward presenting information in accordance with reality. That percentage of people who indicated that they often express loyalty to the group agreement was around 45.7 percent. Only two self-confidence adjectives are left. They are both true (59.3 percent think often). As a group, the indicators of responsibility for descriptions support each other in situations where respondents think about respecting other people's perspectives as much as 68.8 percent of respondents think about it all of the time. when conversing with friends, be courteous (77.8 percent). ineffective (also known as ineffective) (often). It has been determined whether or not all instruments are valid (item validity value > 0.3) and reliable (item reliability value > 0.6) in cases where all instruments are valid and reliable in the same situation.

## Overview of Exploration Variables

Cooperation, opinion, and literature track were simplified to three indicators and subsequently expanded to ten measures. Among those who believe that students make a major contribution to the group's overall success, 54.6 percent (187 people) agree that students do so. The majority of 82.8 percent (183 persons) strongly believe that they should use their abilities to the greatest degree possible if they are given the opportunity. Respondents agree that children are aware of their role in achieving the targeted objectives in a whopping 98 percent (128 people) of their responses. The results of this poll show that together, people who responded were found to be accountable for 54.8% of the quality of their employment. 54.8 percent of poll respondents strongly agree that they actively seek solutions to problems with others. Over half of the participants claimed they are actively working on collaboratively fixing ideas. In a survey of 161 library visitors, 72.9 percent said they went to find literature. Nearly all (93.7%) agree they browse for books online. Moreover, 95.5 percent of respondents agreed that the material they encountered was produced by well-known book publishers and indexed journals. All valid and trustworthy instruments (item validity > 0.3) have been returned.

## Overview of Transformation Variables

The transformation variable was developed into nine instruments, where respondents agreed (48.9% = 108 people) that they felt happy during the discussion. Respondents also strongly agree (83.3% = 184 people) that the material discussed is relevant to the group assignment. A total of 188 people or 85.1% of respondents strongly agree that the discussion method motivates learning. Respondents also strongly agree (84.2%) if the discussion method increases interest in learning. Students responded strongly agree with 86.9% that the discussion method can improve understanding of learning. Around 82.4% of students strongly agree that students collaborate to learn. Moreover, students overwhelmingly agree (by an 89.1 percent margin) that the discussion method can help them form friendships. The results show that as many as 85.1 percent of students strongly support the discussion method since it helps to eliminate competitiveness within a group of students. As many as 203 people or 91.9 percent of students chose highly agree, which indicates that the discussion method can foster community building. Validity and reliability of all instruments filled out and returned by respondents have been checked, and all instruments have been found to be valid (item validity value > 0.3) and reliable (item reliability value > 0.6) according to the results.

## Presentation Variable Overview

Students were able to execute presentation software (PowerPoint) as many as 129 persons, or 58.4 percent if presentation variable was restricted to nine instruments. 101 students (or 45.7 percent)

strongly agree that they are capable of presenting the subject in written form, according to the survey results. In a similar vein, the oral presentation of the topic reveals that 85 percent of students agreed with the information presented. When asked if they agree or disagree with the instrument that allows students to observe difficulties by looking for data, 56.6 percent of students, or as many as 125 people, respond negatively. Additionally, students can find issues by tabulating data, which allows up to 98 individuals or 44.3% of the participants to respond in the negative. With the use of data processing software, the number of respondents who agree that they can undertake data analysis comes to 117 persons or 52.9 percent. Nearly 150 persons or 67.9% of respondents stated that they did not have the skills necessary to interpret the outcomes of the data analysis. As many as 93 persons or 42.1% feel that they can deliver answers if there are inquiries from the audience. Out of responders, 41.2% had expressed satisfaction with the responses. All instruments were valid and reliable when they were completed and returned by respondents.

### Overview of Reflection Variables

A total of fourteen instrument items have been generated from two indicators for the reflection variable, namely the lecturer as a motivator and the lecturer as a facilitator, and they are as follows: A total of 115 persons, or 52 percent of those who answered the survey, strongly agreed that lecturers should encourage students to express themselves. According to the survey respondents, teachers have so far encouraged students to maintain an optimistic outlook (120 people, or 54.3 percent). Respondents expressed strong agreement (53.8 percent) with the statement that thus far, lecturers have encouraged students to discover their skills. A total of 122 persons, or 55.2 percent of those who answered the survey, strongly agreed that, thus far, professors have encouraged students to have confidence in themselves. Approximately 73.3 percent of respondents (162 respondents) strongly agreed that lecturers had taught the attitude that learning is a form of religious worship so far. As many as 168 persons (or 76 percent) strongly think that lecturers are required to always please parents, according to their opinions. Sixty-two percent of respondents strongly agree that lecturers are required to always recall Allah SWT in the form of worship in addition to teaching and satisfying parents throughout this time. As respondents explained, instructors are not overbearing when it comes to expressing their own thoughts in class (111 people who answered strongly agree or 50.2 percent). Around 100 pupils, or roughly 63.3% of the class, believe that lecturers pay greater attention to their classmates. 166 individuals equal 75.1% (67.4 percent strongly agree). A large majority of respondents responded affirmatively, with as many as 154 individuals agreeing, stating that lecturers are tolerant of student faults (agreeing strongly, 68.7% of respondents). A lecturer additionally directs their attention towards their students, and that can improve how students feel about themselves, resulting in answers like "agree as many as 139 people or 62.9 percent answered, then strongly agree that lecturers value student accomplishments as many as 161 people or 72.9 percent. All instruments were found to be valid and reliable, and all items have been successfully filled out and returned by respondents.

### Hypothesis Testing

This study investigated five hypotheses, the findings of which may be found in Table 6, which shows the outcomes of the statistical tests. The decision-making process is directed by the comparison of the value of 0.025 with the value of (0.05) in the third column, Sig. (2-tailed), which indicates the significant value with a two-tailed test, as described in the method section above.

**Table 5.**  
Hypothesis Test Results

| Variables      | t <sub>statistic</sub> | Sig. (2-tailed) |
|----------------|------------------------|-----------------|
| Engagement     | 160.113                | 0.000           |
| Exploration    | 379.933                | 0.000           |
| Transformation | 515.728                | 0.000           |
| Presentation   | 70.049                 | 0.000           |
| Reflection     | 544.521                | 0.000           |

The first hypothesis, "student views towards online-based engagement learning in economics education does not necessarily reflect that the way economics is taught today remains unchanged" is examined.  $H_0$  (the higher) has an issue with Sig. (2-tailed)  $< 0.025$ , thus it is refused. Conversely,  $H_a$  (the lower) has no issues with Sig. (2-tailed)  $< 0.025$ , therefore it is accepted. In this instance, "students' attitudes towards online-based exploratory learning in economics instruction are not the same" is a hypothesis that is tested because  $H_a$  is accepted. The final hypothesis, "Students' attitudes about online-based transformational learning in economics courses are not the same," is supported by further investigation. The conclusion goes against  $H_0$  and agrees with  $H_a$ , in which case the hypothesis is proven false. The fourth hypothesis postulates that students' attitudes toward online-based presentation learning in economics class differs from their attitudes towards traditional lecture methods. According to the results of the test, the value of Sig. (2-tailed)  $< 0.025$ , which is less than  $0.025$ , so that  $H_0$  rejects and accepts  $H_a$ , which leads to the hypothesis being investigated. A final hypothesis, "student attitudes towards online-based reflection learning in economics instruction does not have the same results for both Sig. (2-tailed)  $< 0.025$  and Sig. (3-tailed)  $> 0.025$ ," is being investigated, with the additional benefit of a p-value of  $< 0.025$ .

## Discussion

According to the findings of research that has been combined with hypothesis testing, it can be concluded that students' attitudes toward online-based collaborative learning in economics instruction are not the same for every student. Student competency in economics courses, both microeconomics and macroeconomics, is improved as a result of this learning strategy, according to the findings of the study. This research, when viewed from the perspective of microeconomics, corresponds with previously conducted research, which found that the majority of students at Flinders University in Australia responded extremely well to collaborative learning for microeconomics courses. When compared to traditional learning, they believe that this learning is quite advantageous. Students can mingle while developing their skills through collaborative learning. Students believe that this strategy can help them gain a more in-depth understanding of microeconomics courses as well as other subjects (Gleeson et al., 2009). Students don't comprehend the concept and how it is implemented in the field. Students' talents and character can be built when this collaborative learning is implemented (Putri, 2016). It is also helpful to have collaborative learning techniques since they can motivate students to achieve their full potential, especially in microeconomics courses, where students are required to master mathematical concepts (Monaco, 2018). The demand, supply, and balance of the milk market is covered in detail even when offline and online-based collaborative learning is applied to students at institutions in the United States and Peru. Although students from both nations presented their findings at the conclusion of the semester, this collaborative learning experience motivates individuals to continue their studies in international classes (Galarza & Johnson, 2011). Collaboration outside the classroom in macroeconomics is widely used by universities to discuss topics such as international trade, interest rates, investment, consumption, government spending, inflation and economic growth. In the case of macroeconomics, collaborative learning outside the classroom is widely used by universities to discuss topics such as inflation and economic growth. The use of collaborative learning has a positive influence on student knowledge and is superior to traditional learning methods (Cohn, 1999). When discussing selected macroeconomics variables, such as GDP and inflation, it can be concluded that collaborative learning not only improves students' theoretical understanding but also contributes to improving skills in analyzing and searching for data related to macroeconomics variables (Martinez, Ferrandiz, Flores and Muoz, 2016). Collaborative learning provides a number of advantages, for example, students can grasp macroeconomics concepts more rapidly when they work together under the guidance of their professors. Not only does it contribute to final marks, but it also has the potential to encourage engagement and collaboration between students in the process (Parker, 2010).

## Conclusion

In summary, the implementation of online-based collaborative learning in educational institutions is particularly relevant in the pre- and in-college level. This strategy is frequently referenced and used, especially during the Covid-19 pandemic, which was particularly hard on the economic

system. Undergraduate students taking a qualitative, quantitative, and graphical approach to microeconomics and macroeconomics courses will understand the material using collaborative learning techniques such as attention to the stages of engagement, exploration, transformation, presentation, and reflection. A large majority of students feel strongly in favor of introducing approaches that encourage students to conceive of themselves as social creatures in order to facilitate social interaction among their peers. It is evident that students are in high demand for collaborative learning opportunities that take place online. It has been demonstrated both theoretically and empirically that the application of this learning can have an impact on both the spirit of learning and the outcomes of learning. We urge that future researchers extend the study using an associative method. This means that they should explore the influence of collaborative learning on educational results while including the spirit of learning as an intervening and/or moderating variable in the study design.

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9  
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## References

- Abidah, A., Hidaayatullaah, H. N., Simamora, R. M., Fehabutar, D., & Mutakinati, L. (2020). The impact of covid-19 to indonesian education and its relation to the philosophy of "merdeka belajar." *Studies in Philosophy of Science and Education*, 1(1), 38-49. <https://doi.org/10.46627/sipose.v1i1.9>.
- Abidin, A. Z., Masitoh, S., & Bachri, B. S. (2019). Cooperative learning: method for improving students' motivation of post-earthquake in junior high school of east lombok. *International Journal of Education and Research*, 7(8), 41-48. <https://www.ijern.com/journal/2019/August-2019/04.pdf>.
- Abbasi, S. G., Shabbir, M. S., Abbas, M., & Tahir, M. S. (2020). HPWS and knowledge sharing behavior: The role of psychological empowerment and organizational identification in public sector banks. *Journal of Public Affairs*. <https://doi.org/10.1002/pa.2512>
- Al-Kumaim, N. H., Hassan, S. H., Shabbir, M. S., Almazroi, A. A., & Abu Al-Rejal, H. M. (2021). Exploring the Inescapable Suffering Among Postgraduate Researchers: Information Overload Perceptions and Implications for Future Research. *International Journal of Information and Communication Technology Education*, 17(1), 19-41. <https://doi.org/10.4018/ijicte.2021010102>
- Arshad, M. A., Shabbir, M. S., Mahmood, A., Khan, S., & Sulaiman, M. A. (2020). An exploration of EQ, spiritual quotient (SQ) elements in the human reengineering program (HRP) practices: A study on the drug rehabilitation Centre in Malaysia. *Journal of Human Sport and Exercise* 2020 Winter Conferences of Sports Science. <https://doi.org/10.14198/jhse.2020.15.proc2.32>
- Anugrahana, A. (2020). Hambatan, solusi dan harapan: pembelajaran daring selama masa pandemi covid-19 oleh guru sekolah dasar. *Scholaria: Jurnal Pendidikan Dan Kebudayaan*, 10(3), 282-289. <https://doi.org/10.24246/j.js.2020.v10.i3.p282-289>.
- Arief, S. (2020). Pembelajaran online dimasa pandemi covid-19. *Jurnal Sipatokkong BPSDM Sulawesi Selatan*, 1(4), 336-339. <http://ojs.bpsdmsulsel.id/index.php/sipatokkong/article/view/76>.
- Chandra, R. (2015). Collaborative learning for educational achievement. *IOSR Journal of Research & Method in Education (IOSR-JRME)*, 5(3), 2320-7388. <https://doi.org/10.9790/7388-052XXXX>.
- Chou, P., & Chen, H. (2008). Engagement in online collaborative learning: a case study using a web 2.0 tool. *Journal of Online Learning and Teaching*, 4(4), 574-581. [https://jolt.merlot.org/vol4no4/chou\\_1208.pdf](https://jolt.merlot.org/vol4no4/chou_1208.pdf).
- Cohn, C. L. (1999). Cooperative learning in a macroeconomics course: a team simulation. *College Teaching*, 47(2), 51-54. <https://doi.org/10.1080/87567559909595784>.
- Coman, C., Țiru, L. G., Meseșan-Schmitz, L., Stanciu, C., & Bularca, M. C. (2020). Online teaching and learning in higher education during the coronavirus pandemic: students' perspective. *Sustainability (Switzerland)*, 12(24), 1-22. <https://doi.org/10.3390/su122410367>.
- Curtis, D. D., & Lawson, M. J. (2001). Exploring collaborative online learning. *Journal of*

- Asynchronous Learning Network, 5(1), 21–34. <https://doi.org/10.24059/olj.v5i1.1885>.
- Demuyakor, J. (2020). Coronavirus (Covid-19) and online learning in higher institutions of education: a survey of the perceptions of ghanian international students in China. *Online Journal of Communication and Media Technologies*, 10(3), 1–9. <https://doi.org/10.29333/ojcm/8286>.
- Dharma, K. Y., Sugihartini, N., & Arthana, I. K. R. (2018). Pengaruh penggunaan media virtual reality dengan model pembelajaran klasikal terhadap hasil belajar siswa di TK Negeri Pembina Singaraja. *Jurnal Pendidikan Teknologi Dan Kejuruan*, 15(2), 298–307. <https://doi.org/10.23887/jptk-undiksha.v15i2.14481>.
- Galarza, E., & Johnson, M. (2011). Using internationally collaborative case studies to teach intermediate microeconomics. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.887960>.
- Gleeson, A., McDonald, J., & Williams, J. (2009). The effectiveness of collaborative learning tutorials: the views of introductory microeconomics students. *Australasian Journal of Economics Education*, 4(1/2), 85–100. <https://dspace2.flinders.edu.au/xmlui/handle/2328/12277>.
- Hamid, R., Sentryo, I., & Hasan, S. (2020). Online learning and its problems in the covid-19 emergency period. *Jurnal Prima Edukasia*, 8(1), 86–95. <https://doi.org/10.21831/jpe.v8i1.32165>.
- Handarini, O. I., & Wulandari, S. S. (2020). Pembelajaran daring sebagai upaya study from home (SFH) selama pandemi covid 19. *Jurnal Pendidikan Administrasi Perkantoran (JPAP)*, 8(3), 496–503. <https://journal.unesa.ac.id/index.php/jpap/article/view/8503>.
- Haqqi, A. (2017). Collaborative learning: model pembelajaran dalam upaya meningkatkan literasi informasi mahasiswa jurusan ilmu perpustakaan dan informasi melalui belajar secara kolaboratif. *Baitul Al 'Ulum: Jurnal Ilmu Perpustakaan Dan Informasi*, 1(September), 1–22. <https://doi.org/10.30631/baitululum.v1i0.13>.
- Hijriati. (2017). Pengembangan model pembelajaran pendidikan anak usia dini. *Bunayya: Jurnal Pendidikan Anak*, 3(1), 74–92. <https://jurnal.ar-raniry.ac.id/index.php/bunayya/article/view/2046>.
- Ibe, O. C. (2014). Introduction to descriptive statistics. In *Fundamentals of Applied Probability and Random Processes*. <https://doi.org/10.1016/b978-0-12-800852-2.00008-0>.
- Kristina, M., Sari, R. N., & Nagara, E. S. (2020). Model pelaksanaan pembelajaran daring pada masa pandemi covid 19 di Provinsi Lampung. *Idaarah: Jurnal Manajemen Pendidikan*, 4(2), 200–209. <https://doi.org/10.24252/idaarah.v4i2.16945>.
- Ku, H.-Y., Lohr, L., & Cheng, Y.-C. (2004). Collaborative learning experiences in online instructional design courses. In *Association for Educational Communications and Technology* (pp. 513–521). <https://files.eric.ed.gov/fulltext/ED485070.pdf>.
- Laal, M., & Laal, M. (2012). Social and collaborative learning : what is it ?. *Procedia - Social and Behavioral Sciences*, 31, 491–495. <https://doi.org/10.1016/j.sbspro.2011.12.092>.
- Le, H., Janssen, J., & Wubbels, T. (2018). Collaborative learning practices: teacher and student perceived obstacles to effective student collaboration. *Cambridge Journal of Education*, 48(1), 103–122. <https://doi.org/10.1080/0305764X.2016.1259389>.
- Maison, M., Kurniawan, D. A., & Anggraini, L. (2020). The Influence of Online Learning on Students' Awareness in Doing Assignments During Covid-19 Pandemic. *Ta'dib*, 23(2), 171. <https://doi.org/10.31958/jt.v23i2.2416>.
- Manizar, E. (2017). Peran guru sebagai motivator dalam belajar. *Tadrib*, 1(2), 204–222. Retrieved from <http://jurnal.radenfatah.ac.id/index.php/Tadrib/article/view/1047>.
- Mankiw, N. G. (2018). *Principles of Economics*, 8th ed. Harvard University. ISBN: 9781305585126.
- Marini, S., & Milawati, M. (2020). Distance learning innovation strategy in indonesia during the covid-19 pandemic. *Proceedings of the 5th Annual International Seminar on Transformative Education and Educational Leadership (AISTEEL 2020)*. <https://doi.org/10.2991/assehr.k.201124.085>.
- Marshall, G., & Jonker, L. (2010). An introduction to descriptive statistics: a review and practical guide. *Radiography*, 16(4), e1–e7. <https://doi.org/10.1016/j.radi.2010.01.001>
- Martínez, M. de los A., Ferrándiz, E., Flores, E., & Muñoz, M. del M. (2016). Macroeconomics in practice: using wikis for collaborative learning. *Conference: International Technology, Education and Development Conference*, 1, 8220–8225. <https://doi.org/10.21125/inted.2016.0925>
- Maulidah, U. N., & Aziz, I. N. (2020). The effectiveness of online collaborative learning on student

- writing skill. *EDUCATIO : Journal Of Education*, 5(2), 141–149. <https://doi.org/10.29138/educatio.v5i2.291>.
- McInerney, J. M., & Roberts, T. S. (2002). Online collaborative learning: have we overcome the obstacles?. *Proceedings - International Conference on Computers in Education, ICCE 2002*, 1327–1328. <https://doi.org/10.1109/CIE.2002.1186234>
- Mehar, R., & PrabhjitKaur. (2020). Effect of blended learning strategy on achievement in economics in relation to motivation to learn. *International Journal of Scientific and Technology Research*, 9(4), 779–789. <https://www.ijstr.org/final-print/apr2020/Effect-Of-Blended-Learning-Strategy-On-Achievement-In-Economics-In-Relation-To-Motivation-To-Learn.pdf>.
- Monaco, A. J. (2018). Exploring microeconomics: a collaborative learning project. *Journal of Economics Teaching*, 3(2), 185–205. <http://downloads.journalofeconomicsteaching.org/3/2/2-1.pdf>
- Mulia, N. A. (2020). Indonesian EFL students' engagement in online language learning platform. *Retain*, 8(2), 154–163. <https://jurnalmahasiswa.unesa.ac.id/index.php/retain/article/view/34159/30649>.
- Nason, R., & Woodruf, E. (2004). Online collaborative learning in mathematics: some necessary innovations. In *Online Collaborative Learning: Theory and Practice* (pp. 103–131). Melbourne: Information Science Publishing, eISBN: 1-59140-175-5.
- Nazeer, A. (2006). Teaching economics at secondary school level in the maldives: a cooperative learning model (Thesis, Doctor of Philosophy (PhD)). The University of Waikato, Hamilton, New Zealand. Retrieved from <https://hdl.handle.net/10289/2540>
- Panlumlars, K., Nilsook, P., & Jeerungsuwan, N. (2017). A synthesis of collaborative learning and virtual team to develop multi-user interactive learning. *International Journal of the Computer, the Internet and Management*, 25(3), 47–53. [http://www.ijcim.th.org/past\\_editions/2017V25N3/25n3Page47.pdf](http://www.ijcim.th.org/past_editions/2017V25N3/25n3Page47.pdf).
- Parker, J. (2010). An empirical examination of the roles of ability and gender in collaborative homework assignments. *Journal of Economic Education*, 41(1), 15–30. <https://doi.org/10.1080/01615440903382177>.
- Pratama, R. E., & Mulyati, S. (2020). Pembelajaran daring dan luring pada masa pandemi covid-19. *Gagasan Pendidikan Indonesia*, 1(2), 49–59. <https://doi.org/10.30870/gpi.v1i2.9405>.
- Putri, R. (2016). Implementation of collaborative learning process based on lesson study to introduction microeconomics. *International Conference on Education For Economics, Business, and Finance (ICEEBF) 2016*, 126–133. <http://iceebf.um.ac.id/wp-content/uploads/2017/06/13.-full-paper-Rizky-Dwi-Putri.pdf>.
- Rahmawati, A., & Nurhidayati, A. (2016). Improving learning achievement using effective mix and match learning model. *Proceeding of International Conference on Teacher Training and Education (ICTTE) FKIP UNS 2015*, 1(1), 304–311. <https://jurnal.fkip.uns.ac.id/index.php/ictte/article/view/7613/5454>.
- Rayuwati, R. (2020). How educational technology innovates distance learning pandemic crisis in remote areas in Indonesia?. *International Research Journal of Management, IT and Social Sciences*. 7(6), 161–166. <https://doi.org/10.21744/irjmis.v7n6.1032>
- Rohmat, I. (2017). Penerapan pembelajaran eksploratif untuk meningkatkan kemampuan pemahaman dan komunikasi matematis siswa SMP. *Seminar Nasional Pendidikan 2017, 09 Agustus 2017, Sukabumi*, 53–60. <http://eprints.ummi.ac.id/158/>.
- Sadikin, A., & Hamidah, A. (2020). Pembelajaran daring di tengah wabah covid-19. *BIODIK: Jurnal Ilmiah Pendidikan Biologi*, 6(2), 214–244. <https://doi.org/10.22437/bio.v6i2.9759>.
- Sarmah, H. K., & Bora Hazarika, B. (2012). Determination of reliability and validity measures of a questionnaire. *Indian Journal of Education and Information Management*, 1(11), 508–517. <http://www.i-scholar.in/index.php/ijeim/article/view/31302>.
- Shabbir, M. S., Siddiqi, A. F., Yapanto, L. M., Tonkov, E. E., Poltarykhin, A. L., Pilyugina, A. V., Petrov, A. M., Foroughi, A., & Valiullina, D. A. (2021). Closed-loop supply chain design and pricing in competitive conditions by considering the variable value of return products using the whale optimization algorithm. *Sustainability*, 13(12), 6663. <https://doi.org/10.3390/su13126663>
- Shabbir, M. S., Mahmood, A., Setiawan, R., Nasirin, C., Rusdiyanto, R., Gazali, G., Arshad, M. A., Khan, S., & Batool, F. (2021). Closed-loop supply chain network design with sustainability and resiliency criteria. *Environmental Science and Pollution Research*. <https://doi.org/10.1007/s11356-021-12980-0>

- Shabbir, M. S., Abbas, M., & Tahir, M. S. (2020). HPWS and knowledge sharing behavior: The role of psychological empowerment and organizational identification in public sector banks. *Journal of Public Affairs*. <https://doi.org/10.1002/pa.2512>
- Shabbir, M. S., Bait Ali Sulaiman, M. A., Hasan Al-Kumaim, N., Mahmood, A., & Abbas, M. (2020). Green Marketing Approaches and Their Impact on Consumer Behavior towards the Environment-A Study from the UAE. *Sustainability*, 12(21), 8977. <https://doi.org/10.3390/su12218977>
- Siddiqi, A. F., Shabbir, M. S., Abbas, M., Mahmood, A., & Salman, R. (2021). Developing and testing student engagement scale for higher educational students. *Journal of Applied Research in Higher Education*, ahead-of-print (ahead-of-print). <https://doi.org/10.1108/jarhe-11-2020-0388>
- Soeryanto, Arsana, I. M., Warju, & Ariyanto, S. R. (2020). Implementation of online learning during the covid-19 pandemic in higher education. *Proceedings of the 3rd International Conference on Social Sciences (ICSS 2020)*, October, 632–636. <https://doi.org/10.2991/assehr.k.201014.139>.
- Son, B. (2016). Innovative collaborative learning strategies for integrated interactive e-learning in the 21st century. *Proceedings of the 13th International Conference on Cognition and Exploratory Learning in the Digital Age, CELDA 2016*, 315–318. <https://files.eric.ed.gov/fulltext/ED571395.pdf>.
- Sorensen, E. K. (2004). Reflection and intellectual amplification in online communities of collaborative learning. In *Online Collaborative Learning: Theory and Practice*, 242–261. <https://doi.org/10.4018/978-1-59140-174-2.ch011>.
- Stanley, D., & Zhang, Y. J. (2020). Collaborative learning in online business education: evidence from a field experiment. *Journal of Education for Business*, 95(8), 1–7. <https://doi.org/10.1080/08832323.2019.1703097>.
- Stoytcheva, M. (2017). Collaborative distance learning: developing an online learning community. *Proceedings of the 43rd International Conference Applications of Mathematics in Engineering and Economics AIP Conf. Proc.* 1910, 060009-1–060009-8, December 2017, 060009-1-060009-8. <https://doi.org/10.1063/1.5014003>.
- Sugiarto, A. (2020). Dampak positif pembelajaran online dalam sistem pendidikan keperawatan pasca pandemi covid 19. *Jurnal Perawat Indonesia*, 4(3), 432–436. <https://doi.org/10.32584/jpi.v4i3.555>.
- Sujianto, A. E. (2009). *Aplikasi statistik dengan SPSS 16.0*. Jakarta: Prestasi Pustaka.
- Sulandari. (2020). Analisis terhadap metoda pembelajaran klasikal dan metoda pembelajaran e-learning di Lingkungan Badiklat Kemhan. *Jurnal Pendidikan Indonesia*, 1(2), 176–187. <https://doi.org/10.36418/japendi.v1i2.16>.
- Sulistiyawati, N., & Zuchdi, D. (2016). Implementasi teknik pembelajaran kolaboratif dengan variasi media untuk peningkatan hasil belajar di SMPN 2 Kalijambe. *Harmoni Sosial: Jurnal Pendidikan IPS*, 3(1), 50–61. <https://doi.org/10.21831/hsjpi.v3i1.9694>.
- Valim, M. D., Palucci Marziale, M. H., Hayashida, M., Rossi Rocha, F. L., & Ferreira Santos, J. L. (2015). Validity and reliability of the questionnaire for compliance with standard precaution. *Revista de Saude Publica*, 49(87), 1–8. <https://doi.org/10.1590/S0034-8910.2015049005975>.
- Yin, K. Y., Yusof, R., Lok, S. Y. P., & Zakariya, Z. (2018). The effects of collaborative mobile learning using edmodo among economics undergraduates. *International Journal of Academic Research in Progressive Education and Development*, 7(3), 40–47. <https://doi.org/10.6007/ijarped/v7-i3/4283>.

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