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The Effect of Online Collaborative Learning on Caring Attitude and Student Learning Outcomes

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Abstract

This research aims to analyse the influence of online collaborative learning on caring attitudes and student learning outcomes. This study employs a quantitative research approach with a Pre-Experimental Design using the one-shot case study method. The sample for this study consists of one class comprising 41 students from the Pancasila and Civic Education program, Faculty of Social Sciences and Law, Universitas Negeri Surabaya. The instruments used are self-assessment and peer assessment questionnaires to measure caring attitudes, which have been validated, and the data is confirmed to follow a normal distribution. Based on the results of the t-test analysis, it is found that the significance value is 0.000 < 0.05, indicating a significant difference in the mean scores. Therefore, implementing the Online Collaborative Learning (OCL) model influences student learning outcomes.

Keywords: *online collaborative learning, caring attitude, learning outcome.*

1. Introduction

In the era of the Industrial Revolution 4.0, characterized by the internet's widespread use in various aspects of life, including education, traditional face-to-face learning between teachers and students has evolved. In the current era of Industry 4.0, learning processes are not limited to physical classrooms but can also occur online, allowing learning to occur anywhere and anytime.

Online learning in this digital age demands preparedness from educators and learners alike. Amid the COVID-19 pandemic, all parties have been forced to utilize the internet for various purposes, including education, and learning has shifted entirely online. Online learning enables students to learn individually, in groups, and collaborate with peers, creating communities or study groups that can operate at anytime, anywhere, and under any circumstances.

A learning model is a set of plans or patterns to design learning materials and guide learning activities in classrooms or other learning environments (Martono & Salam, 2017). Learning models play a crucial role in education as they provide a framework that facilitates the learning process and helps achieve learning objectives for teachers and students. These models are implemented by school teachers, including at the primary level. One type of learning model is online collaborative learning.

Based on a preliminary study conducted through a questionnaire, students generally evaluated the implementation of online learning positively, although there were also

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various challenges. The results of the questionnaire provided to the students showed that 52.80% of the students strongly agreed, and 47.20% agreed that students actively engage in the learning process through online learning. Overall, the responses indicated agreement and strong agreement. This suggests that all students actively participate in the learning process through online learning. Accessing materials, completing assignments, and engaging in discussions can all be done through online learning. Students also perceive numerous benefits through online learning, as indicated by the questionnaire results. The responses showed that 35.80% strongly agreed, 62.30% agreed, and only 1.90% disagreed. Online learning can enhance higher-order thinking skills and improve ICT and media literacy. Indirectly, by utilizing online learning in their studies, students are encouraged to use the current advancements in information technology, whether they like it or not. Students can also learn independently at any time and from anywhere. The questionnaire results demonstrated that 26.40% strongly agreed, 64.20% agreed, and only 9.40% disagreed with this statement.

Overall, the student response is positive. However, there is a tendency for online learning to be teacher-centered, with students needing to be more actively engaged in the learning process. Through online collaborative learning, student participation in learning can be enhanced. Collaboration involves activities performed collectively. Therefore, online collaborative learning is an alternative that can be implemented in the online learning process. (Harasim & Linda, 2017) describes online collaborative learning as a learning model where learners are stimulated and guided to work together to construct knowledge in innovative and conceptual ways. The role of the online tutor is crucial, not only as part of the learning community but also as a connector between the learning community and subject-specific knowledge.

As a sub-dimension of distance education, online learning places greater emphasis on collaborative participation than individual participation (Pürbudak & Usta, 2021). The collaborative participation of students is crucial in implementing the online collaborative learning model. One factor that enhances the efficiency of education in an online learning environment is interaction. Creating knowledge in an online learning environment can occur through collaborative activities. Online collaborative learning contributes to diverse participant knowledge, gaining different perspectives, and creating shared understanding through group interactions (Pürbudak & Usta, 2021). A study conducted (Altowairiki, 2021a) titled "Online Collaborative Learning: Analyzing the Process through Living the Experience" revealed that proactive support (i.e., social, pedagogical, and technical support) plays a significant role in fostering meaningful collaboration. Therefore, it is also necessary to research the influence of online collaborative learning on caring attitudes.

This research aims to investigate the impact of online collaborative learning on enhancing caring attitudes and learning outcomes for students. This study aims to examine the influence of online collaborative learning on learning outcomes and explore its effects on students' caring attitudes.

2. Literature Review

Online Collaborative Learning

Collaborative learning is an approach to learning that involves groups of students working together to solve a problem, complete a task, or create a product. Online collaboration is an online version of traditional in-class collaborative learning with the exception that group meetings in the online setting are held synchronously or asynchronously over the internet. In this approach, students are enabled to interact with each other even though there are limitations of time and location (Mapile & Lapinid, 2023). Collaborative learning in an online environment develops interaction among

learners and a sense of community that promotes improved student learning and their ability to adapt to different teaching techniques, as well as their motivation and satisfaction (Magen-Nagar & Shonfeld, 2018). Online collaborative learning is more than just an activity; rather, it needs to be understood as an overarching way of learning that promotes continuous knowledge development (Altowairiki, 2021).

Online collaborative learning as one of online learning model that focuses on discourse and collaboration to enhance learning. Online Collaborative Learning is a widely used distance learning and teaching approach that is comparable to face-to-face collaborative learning; however, group meetings are held asynchronously or synchronously via the internet (Gaad, 2022). The implementation point of online collaborative learning focuses on collaborative communication and knowledge development through the Internet, directing learners to work together in determining and developing understanding and also transferring it into action to solve problems and carry out their plans that have been developed (Ataş & Yıldırım, 2022).

The advantages of online collaborative learning are many because of the integration of the learning process with the internet. in online collaborative learning is able to increase active interaction with other group members, each member is responsible for their group, and there is positive interdependence, in small groups students are more active and perform better (Ajayi & Ajayi, 2020). Online collaborative learning from the students' perspective, the tools used to support collaborative learning, and the instructor's ability to respond to students' needs in their learning activities (Robinson et al., 2017). Online collaborative learning has tremendous potential to support learning. It not only gives all participants the opportunity to have an equal voice, but also reflects students' contributions and writings (Cheng et al., 2016). Ellis (2001) identified: 1) access to peers' knowledge, 2) availability of other students to provide feedback, and 3) opportunity to reflect on messages exchanged as positive elements of online collaborative work (Kumi-Yeboah et al., 2017). Online collaborative learning recognises that knowledge is created to fit reality, and that cognitive processes and learning are influenced by online socialisation, interaction and collaboration (Aquino et al., 2023).

Caring Attitude

A caring attitude is an attitude shown by a person in the form of actions or efforts to prevent things that can harm the order of life or the environment. Caring attitude refers to human attitude towards the environment in the form of a tendency to maintain and preserve it. The attitude of caring for the environment consists of indicators of hard work, respect for health and cleanliness, wisdom, and responsibility (Adawiah, 2019). The caring attitude towards the environment that is formed will be manifested in the form of behaviour. This is done repeatedly until it is internalised and becomes character. In other words, attitude is a person's tendency to take action. In the long run, it is expected to reduce environmental damage in the future (Sholahuddin et al., 2021). The development of caring attitudes in students can be done through the learning process in the classroom (Dewi et al., 2022).

The education students receive in the classroom should be able to trigger students to have a caring attitude towards the environment, so teachers must prepare everything to improve their caring attitudes. Instilling an attitude of caring attitude towards the environment is not an easy task, but it is not impossible (Amini, 2015). Differentiates caring attitudes into several categories, namely: caring bonds, caring relationships, caring occasions/moments, and caring behaviours (Pardede et al., 2020). Environmental care is an attitude that prevents damage to the surrounding natural environment and develops efforts to repair natural damage that has occurred. The attitude of caring for the environment can emerge when students are invited to learn to care by taking care of the environment (Wibowo et al., 2021). Students who have a caring attitude towards the environment believe that they must improve and manage the environment appropriately

and effectively. So that it can be enjoyed indefinitely without causing damage to its environment, and produce long-term benefits (Iwan et al., 2023). This caring attitude is expected to be able to change students' attitudes to have good knowledge about the environment.

Student Learning Outcomes

Student learning outcomes are the ability of students to understand, comprehend, assimilate and learn in each field of study that they participate it. Learning outcomes are the result of a person's learning process and are related to changes in the individual who learns, such as knowledge, understanding, attitudes, behaviour, skills, and abilities (Sailer et al., 2021). Student learning outcomes as a person's level of achievement in how a person is able to demonstrate his or her ability in the exam (Alonge et al., 2013). The learning outcome is the result obtained by the student after the learning process is shown by the test score given by the teacher after each end gives the learning material on a subject (Chase et al., 2019). (Gagne, 1983) mentions five types of learning outcomes are declarative knowledge, cognitive strategies, intellectual skills, psychomotor skills, and attitudes (Lena et al., 2022). Student learning outcomes are influenced by internal and external factors. Internal factors come from within the student, such as disability, health problems, psychological factors, and fatigue. External factors relate to things outside the student, namely the quality of teaching, such as classroom characteristics or climate, significantly affecting student learning outcomes (Lena et al., 2022).

Learning outcomes contain the meaning of student success in their learning activities, with good learning results being a hope and pride for someone. However, failures and successes are always present in student life, some succeed in learning satisfactorily and some fail. Getting a satisfactory learning outcome is not an easy thing, it requires a lot of effort from the people and the people around it (Rahmawati et al., 2019). Learning outcomes are achievements after learning process, learning outcomes show the quality of learning process (Gil-Jaurena & Kucina Softic, 2016). Learning outcomes are the abilities that students possess after they receive their learning experience. According to the opinion, teaching and learning activities are a series of activities that will also determine learning outcomes later (Muhamad et al., 2023). Learning outcomes are not the product of individual efforts or just one factor, but the result of various efforts that are interrelated together, and each side of the point has an important role in creating an optimal learning outcome.

3. Method

The research employed a Pre-Experimental Design with a one-group pretest-post-test design. The sampling technique used was random sampling. The sample for this study consisted of 41 students from the Pancasila and Civic Education program, Faculty of Social Sciences and Law, Universitas Negeri Surabaya, from the 2021 cohort. This study used a questionnaire with a Likert scale (1-4) to assess caring attitudes. The questionnaire included self-assessment and peer assessment, administered both before and after implementing the online collaborative learning model. The intended learning outcomes focused on knowledge acquisition. Pre-test and post-test questions were given to the students in the experimental class to evaluate their learning outcomes. The experimental class received treatment by implementing the Online Collaborative Learning model. Data analysis was conducted using paired t-tests with a significance level of 0.05, and n-gain calculations were performed using software such as SPSS Statistics and Microsoft Excel.

In the attitude assessment instrument, each statement item answered is always = 4, often = 3, rarely = 2, and never = 1. The caring attitude analysis uses a formula adapted from Campbell, 1999:

$$A = \frac{\Sigma S}{N} x\ 100 \qquad (1)$$

Note:

A = Caring attitude toward students

ΣS = Total score of respondents' answers

N = Maximum score

Reference criteria used:

Table 1 Gain score distribution category.

N-gain Score	Category
g > 0.70	High
0.30 ≤ g ≥ 0.70	Medium
g < 0.30	Low

In the attitude assessment instrument, each statement item answered is always = 4, often = 3, rarely = 2, and never = 1. The caring attitude analysis uses a formula adapted from Campbell, 1999.

4. Result and Discussion

Caring is treating others with politeness, acting courteously, being tolerant of differences, avoiding harm to others, refraining from taking advantage of others, being able to collaborate, being willing to engage in community activities, showing love and compassion towards humans and other creatures, being loyal, and promoting peaceful approaches to dealing with problems (Samani & Haryanto, 2012).

Caring attitudes in this study include 7 indicators, namely (1) respecting the opinions of others during discussions in online forums; (2) providing support to friends when working together in groups online; (3) showing concern for other people (friends) in carrying out group assignments; (4) helping other people who are experiencing difficulties in doing assignments; (5) can work together in doing assignments in online learning; (6) have initiative in completing group assignments; (7) show tolerance to others. Based on those indicators, self-assessment, and peer assessment instruments were developed. These assessments were conducted before implementing online collaborative learning and after implementing online collaborative learning. The results obtained from the administered questionnaires are as in Table 2.

Table 2 Measuring results of the caring attitude questionnaire self-assessment.

Aspect	Self-assessment (Start)	Self-assessment (End)
mean	66.55	88.33
max	71.95	91.46
min	62.80	84.76
N-Gain	0.65	

Table 2 shows that the average score of the caring attitude questionnaire for students, based on initial and final self-assessment, showed an improvement. At the beginning of the learning process, the experimental class obtained an average score of 66.55, while at

the end of the learning process, the average score increased to 88.33. The difference between the initial and final average scores is 21.78. The N-Gain value for the experimental class is 0.65, indicating a moderate improvement. When presented in a graphical format, the percentage comparison of self-assessment for each caring attitude indicator among students in the Pancasila and Civic Education program, 2021 cohort, is as in Figure 1.

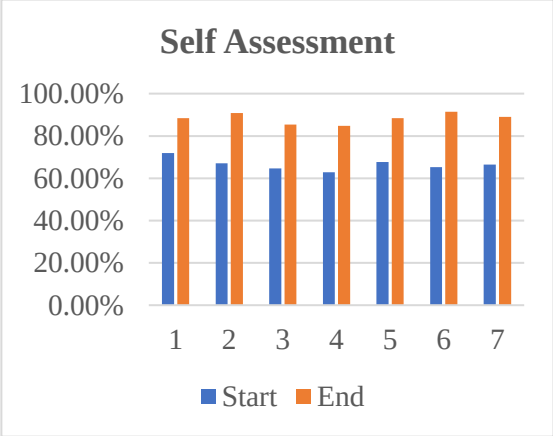

Figure 1 Graph comparison of self-assessment on caring attitude

Based on Figure 1, there was a significant increase after receiving treatment in the form of applying online collaborative learning to the self-assessment questionnaire on caring attitudes found in indicators; (2) providing support to friends when working together; (3) showing concern for friends; (4) likes to help others who are experiencing difficulties; (5) cooperate in carrying out group assignments; and (6) have initiative in completing group assignments, which achieve an increase in the range of 20.00-26.00%. In addition to conducting self-assessments about caring attitudes, students are also asked to conduct assessments of caring attitudes toward peers. The results of the self-assessment of caring attitudes toward peers in students are shown in Table 3.

Table 3 Results of measuring attitude questionnaire concerning peer ratings.

Aspect	Peer assessment (Start)	Peer assessment (End)
mean	67.25	88.07
max	70.73	91.46
min	64.02	83.54
N-Gain	0.64	

Table 3 shows that the mean score of the caring attitude questionnaire for students based on early and late peer assessments has increased. At the beginning of learning, the average obtained by the experimental class was 67.25. While at the end of learning, the average obtained was 88.07. The initial and final average difference is 20.82. The N-Gain value in the experimental class based on peer assessment is 0.64 with moderate criteria. If presented in a graphic image, the percentage comparison of peer ratings for each indicator of a caring attitude towards students is as in Figure 2.

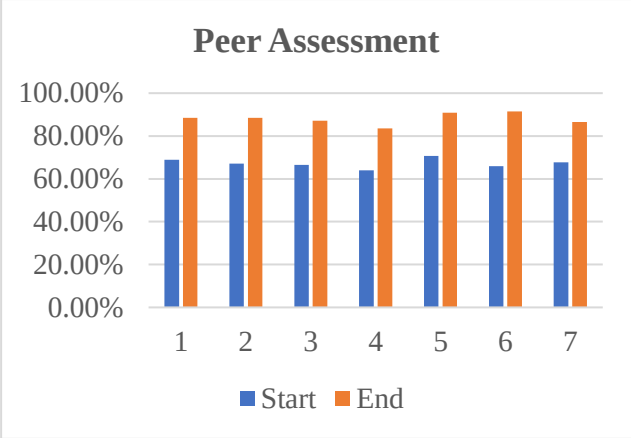

Figure 2 Graph comparison of peer ratings caring attitudes

Based on Figure 2, a significant increase after receiving treatment in the form of implementing Online Collaborative Learning based on peers' assessment of caring attitudes is found in indicators (2) providing support to friends when working together; (3) showing concern for friends; (5) cooperate in working on group assignments and (6) have the initiative in completing group assignments, which achieve an increase in the range of 20-25%.

To determine the increase in learning outcomes, tests were carried out at the beginning (pre-test) and end (post-test). From the data, it will then be seen testing the hypothesis using the normality test, and t-test, using a program assisted by the SPSS Statistics application. The results of research showing an increase in learning outcomes before and after using learning through online collaborative learning will be described in Table 4.

Table 4 Normality test results

Research Instrument	K.Smirnov	S.Wilk
Pre-test	0.20	0.46
Post-test	0.07	0.10

Based on Table 4, the data distribution is normal. This can be seen at the pre-test and post-test significance levels, more significant than 5% significance or > 0.05.

Table 5 . t-test results with the help of SPSS

Research Instrument	T_{count}	$_{table\ (41)}$	Sig (α=5%)	Note
Pre-test Post-test	11.60	1.68	0.00	H_0 rejected

Based on Table 5, the data testing through the t-test found a significance value of 0.00 <0.05, meaning that the average difference is different, so the application of collaborative learning online learning models is effective in learning outcomes. In addition, the t count value of 11.60 > t table of 1.68 is concluded to reject Ho, meaning that the statement that the average difference between before and after the Online Collaborative Learning model is applied is different, or it can be said that there is an influence/effectiveness of Online Collaborative Learning on learning outcomes. An increase in the average value of students evidence this. The use of Online Collaborative Learning in this study is significant and has a positive influence where this model develops self-care and peer attitudes.

Table 6 N-gain test results with the help of SPSS

N-gain Test	Gain	Std. dev	Note
Pre-test Post-test	0.64	0.17	Medium

Based on Table 6, the experimental class obtained a score of 0.64 or is included in the medium category. In conclusion, the learning process using Online Collaborative learning can affect student learning outcomes in the Pancasila and Citizenship Education study program, or there is an effect/effectiveness of Online Collaborative Learning on learning outcomes. An increase in the average value of student's evidence this. The graph of increasing student learning outcomes can be seen in Figure 3.

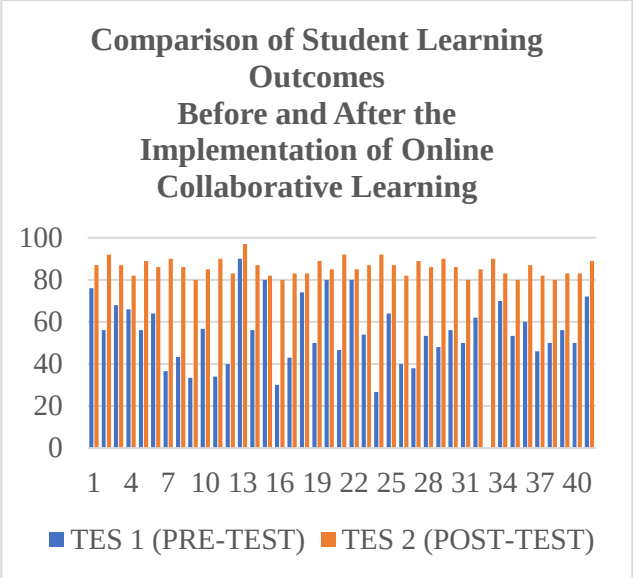

Figure 3 Graph of pre-test and post-test results for Pancasila education subjects

Figure 3 shows student learning outcomes during the pre-test and post-test; there was an increase in the scores obtained by students. In this study, 41 students took the pre-test and post-test questions, almost all of which showed an increase in the scores obtained by students. Several studies related to online collaborative learning show that online courses that ensure an effective collaborative online learning environment tend to achieve the best learning outcomes and are associated with higher levels of problem-solving (Lehman & Conceição, 2010) (Waugh & Su, 2016) . In addition, assessment is a driving force in online learning activities. Researchers have also found that successful online collaborative discussions are related to assessment (Hawisher & Pemberton, 1997) (Jiang, 2000) (Swan, 2001)(Swan et al., 2019). To encourage collaborative discussion, someone must exercise judgment. Collaborative learning will be more successful if it is valued (Swan et al., 2019).

Research on the effect of online collaborative learning on caring attitudes and learning outcomes shows an impact on improving learning outcomes because, in learning activities, students carry out both synchronous and asynchronous activities. Asynchronous activities are done through online discussions to complete a given project task. Discussion activities in this online space also receive an assessment for student participation. Student participation can be seen from the number of activities carried out and the quality of the arguments given in the comment's column. In addition, each task is also given an assessment. Collaborative activities in this online space will encourage students to be active and learn so that it will improve student learning outcomes.

Online learning cannot beat face-to-face learning even though it uses learning technology platforms and various learning methods (Sadeghi, 2019). In online learning, there are limitations to the activities carried out by students; students are less free when asking questions. These weaknesses of online learning can at least be overcome if students and teachers can perform optimally in the learning process (Ritonga et al., 2022). Therefore, online collaborative learning can be an alternative to online learning because this model will increase student activity in online discussion rooms. Online discussions conducted by students will affect caring attitudes and student learning outcomes.

5. Conclusion

The results of research on the effect of online collaborative learning on caring attitudes and learning outcomes show that there is an influence on increasing caring attitudes and learning outcomes. A caring attitude can be seen from 7 indicators, namely respecting the opinions of others during discussions in online forums; providing support to friends when working together in groups online; showing concern for other people (friends) in carrying out group assignments; helping others who are having difficulties in doing assignments; can work together in doing assignments in online learning; have initiative in completing group assignments; show tolerance to others with an average in the moderate category. Study results also show an increase in the value obtained for each student. Thus, online collaborative learning can be an alternative model to improve attitudes and student learning outcomes.

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