Communication, Inquiring, Networking, Teaching, Applying (CINTA) as an Effective Learning Model to Improve Students' Critical and Creative Thinking Skills

Ida Ayu Made Sri Widiastuti, Ni Wayan Krismayani, Ni Made Wersi Murtini, Ida Bagus Nyoman Mantra, and Heru Sukoco

***Abstract*—COVID-19 outbreak has changed the education system worldwide including in Indonesia. Face-to-face learning must be transformed into online learning. This might not be difficult for those who were familiar with technology, but it became a big problem for those who were very poor in technology. Many things have been done by educators to overcome the problems they experienced during the pandemic because the distance between students and teachers in carrying out learning activities could not achieve optimal learning objectives. This study was conducted to design an effective learning model for both online and offline learning to improve students' critical and creative thinking skills by integrating the phases of learning which include Communicating, Inquiring, Networking, Teaching, and Applying (CINTA). This CINTA learning model was developed to enable teachers to coordinate and network during the learning activities. The results showed that the CINTA learning model could develop students' critical and creative thinking skills in the learning process. This model provides students with the opportunity to be creative in learning and to develop their critical thinking skills. Furthermore, this study implies that educators should consider implementing this learning model in the classroom to improve students' critical thinking skills.**

***Index Terms*—Critical thinking, communicative, learning model.**

I. Introduction

One of the things that can be done to prepare future generations is through education. Education is the spearhead of shaping students into individuals who are able to think critically and solve their problems wisely. Students are not only equipped with knowledge, but also critical thinking. The ability to analyze and adapt well to new situations is at the core of the skill to think critically. In addition, the learning process in the classroom should also explore critical thinking skills by giving students the opportunity to analyze and discuss the subject matter received and then be able to communicate it in writing or verbally [1]. Critical thinking is a systematic thinking activity that allows a person to formulate and evaluate their beliefs and opinions. Therefore, someone in critical thinking uses thinking that makes sense in deciding what to do according to their intellectual abilities [2]. Therefore, Critical thinking skills are important for students because they will become the future of the next generation [3]. In essence, critical thinking requires students to use their ability to reason [4]. In online learning during the COVID-19 pandemic, students need critical thinking skills to be able to improve their learning achievement. This is due to the distance that separates the teacher and students so that independent learning can achieve learning objectives. Critical thinking skills are essential for students to make decisions. Creative thinking is the expression of a unique individual in an interaction with his environment. The creative expression reflects the originality of an individual [5]. Students should be able to become critical thinkers, namely questioning the ideas and assumptions given rather than taking them for granted and sometimes not understanding them well. Students are expected to be able to identify, analyze, and solve problems systematically. Of course, critical thinking skills lead students to communicate well [6]. This is because of their curiosity about finding answers to all the problems they face. Learning models that motivate students to improve their competence need to be developed [7]. The ability to communicate of course is a bridge for students and teachers in channeling their ideas and participation in learning that takes place both offline and online [8].

Students in the 21st century need their own version of learning, where they can analyze and evaluate new information while at the same time they can organize and plan what they should do with the new information. Even so; critical thinking skills are not limited to the academic field. Critical thinking is an essential life skill [9]. Therefore, critical thinking will not only be useful for student learning at school but also for the sustainability of their future lives, both personally and in the social environment. Critical thinking is important in the education world [10]. Critical thinking helps students to evaluate themselves critically, including strengths and weaknesses. In addition, critical thinking will certainly indirectly teach various strategies and skills that are appropriate and in accordance with life's problems [11].

Critical thinking must be mastered by students at every level. By thinking critically, students can easily adapt to societal changes [12]. Considering that currently, they are starting to prepare themselves to enter the era of society 5.0 where students are expected to be able to use technology properly and wisely. Students must be able to think creatively and critically so that they can later become successful generation [13]. Critical thinking is considered a must-have ability to welcome global society. Critical thinking is a skill

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Ida Ayu Made Sri Widiastuti, Ni Wayan Krismayani, Ni Made Wersi Murtini, Ida Bagus Nyoman Mantra are with Universitas Mahasaraswati Denpasar, Bali, Indonesia (e-mail: idaayuwidia@unmas.ac.id, chrismayani@unmas.ac.id, wersimurtini@unmas.ac.id).

Heru Sukoco is with Department of Computer Science, Faculty of Mathematics and Natural Sciences, IPB University, Indonesia.

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that students need to develop and succeed in the global economic era, in addition to creativity, innovation, problem-solving, communication, and collaboration [14]. Creative thinking is the ability of students to create new ideas to enhance their life [15].

Based on the observations made during online learning, most students became passive participants. This is because they were unable to understand the material being taught, and did not know how to obtain information about the learning being conducted. Communication between educators and students were not going well. Most teachers only provided learning materials and asked students to do assignments without providing a broader explanation of the material being taught. Students were bored and had difficulty in participating the learning activities. It was not common for parents to experience difficulties when accompanying their children to study. This is because many teachers only gave assignments without providing material or explanations about the topics they taught. Indeed, a creative educator should always create ideas in designing new learning systems that enable to make students to achieve their learning goals with full satisfaction. Therefore, to solve the problems mentioned above, the development of learning models is expected to overcome the learning gap between students and teachers through both offline and online learning.

Several studies have been conducted on learning models and their effectiveness in improving students' learning achievements [16]-[18]. To develop a learning model, it is necessary to have an adequate understanding of concepts related to learning, the meanings of which can vary depending on the underlying learning theory. The design of learning models is a systematic process for designing learning models. Preparation is performed by describing the stages that will be passed in the learning process [19]. In general, the stages in question are presented in the form of flowcharts or activity schemes [20]. The flow chart or activity scheme in this learning design system is called a learning model. Thus, what is meant by a learning model is a flow chart or activity scheme that describes the learning process from goal setting to evaluation to determine its achievement [21]. Therefore, the preparation of this learning model is generally intended as a guide for students in learning and is an inseparable part of the activities in the preparation of learning designs [22]. On the other hand, creating communicative tests or teaching materials is an important factor in adjusting the characteristics of students with the material being taught [23]. The students' level of ability is a major consideration when developing a test. Learning models that provide opportunities for students to develop critical thinking patterns and independence is one of the most important factors in developing a learning model [24]-[26]. However, most of the investigated learning models were the learning models which had been previously designed by education experts or other researchers. However, in this study, the learning models designed by the researchers were based on the needs of the students and implemented in the experiment class to determine their degree of effectiveness. Therefore, this is considered a new learning model in the world of education called the CINTA learning model.

CINTA is an acronym for Communicating, Inquiring, Networking, Teaching, and Applying. It is a learning model developed to improve students' critical thinking so that they can communicate well. The learning model is designed to facilitate teachers to communicate the learning competencies to the students and discuss the learning topics properly. Then students are given the opportunity to ask questions about the topic presented by the teacher (inquiring), then the teacher gives a brief explanation of the topic and then gives a number of problems. Furthermore, students looked for answers to these problems/questions by networking on google online (networking). In this stage, students are given the freedom to obtain the widest possible information about the topics discussed so that they can increase their knowledge of science. At the next stage, students are given the opportunity to convey the answers they have learned from Google, and then the teacher gives a complete explanation of the topics discussed (teaching). In this case, the teacher played a role in providing points from the material discussed [27]. The knowledge that students gain through online media provides a broad view of the topics presented so that teachers can summarize and conclude the material so that students can easily understand it. In the last stage, students were given exercises to apply what they had learned (applying).

Furthermore, the present study showed that the CINTA learning model (Communicating, Inquiring, Networking, Teaching, and Applying) not only develops students' critical thinking but also improves their learning motivation and their willingness to gain more skills in learning. Moreover, students become eager to apply their knowledge and skills to be more productive and able to create products.

II. Research Method

A. Research Design

A mixed-method research design was employed in this study to answer the research questions previously formulated related to learning model development. There were two main data types in this study namely quantitative and qualitative data which were collected by conducting interviews, classroom observation, and questionnaires. The research instruments in the form of a questionnaire, observation sheet, and interview guide were validated by experts. The experts' judgment and their suggestions were thoroughly employed to design valid and reliable research instruments. The qualitative data were collected by conducting semi-structured interviews with the selected lecturers of the English Language Education Study Program. We selected classes and lecturers randomly as the sample of the study. The selected classes comprised of 32 students and a lecturer of each class. They were asked a series of questions to establish valid and reliable data. They were tested and interviewed in a relaxed atmosphere to ensure they were comfortable in giving the required information. Moreover, the qualitative data were also gathered through conducting classroom observation, where the researchers joined the class as observers. The qualitative data were collected through conducting experiments, and the sample was determined through a cluster random sampling technique, then class C was chosen as the experimental group and class F as the control group. Our research evaluated the sample mean and variance of both the two groups, the experimental and control groups, and then

evaluated them using the t-test analysis to determine if the results were statistically significant.

The experimental design can be elaborated in Table I below:

TABLE I: RESEARCH DESIGN

Class/group	Pre-test	Treatment	Post-test	t-Test Analysis
Control	L1	X	L2	Result1
Experiment	L1	Y	L2	Result2

L1 : Critical Thinking before treatment
X : Conventional Learning
Y : CINTA Learning Model
L2 : Critical Thinking after treatment
Result1 : mean, variance, and p-value of t-test for Control Group
Result2 : mean, variance, and p-value of t-test for Experimental Group

Moreover, during the experiments, there were two types of lesson plans made, namely lesson plans for the experimental group with the CINTA Learning Model and lesson plans for the control group with the conventional learning model. The observation sheet is used to determine the implementation of the learning carried out by the lecturers and learning indicators were made based on the steps of the learning model used, namely the CINTA learning model and the conventional learning model. Data on the critical thinking skills of experimental group students and control group students were critically analyzed and descriptively presented to establish valid and reliable findings.

III. RESULT AND DISCUSSION

A. Results of Analysis Phase

The section provides an explanation of the problems faced by students when studying offline and online and the effectiveness of the CINTA learning model in improving students' critical thinking and communicative skills in offline and online integration learning.

Table II shows the average pre-test score for critical thinking in the experiment and control class.

TABLE II: PRE-TEST RESULTS OF EXPERIMENT AND CONTROL CLASS

No	Aspects of Critical thinking	Pre-test	
		Experiment group	Control Group
1	Identifying ability	60	60
2	Evaluating ability	62	62
3	Concluding ability	63	61
4	Giving opinion ability	61	62
		61.50	61.25

In the table above, the average result of the literacy ability pre-test which consisted of aspects of identifying ability, evaluating ability, concluding ability, and giving opinion ability in the experimental group is 61.50, while in the control group it is 61.25.

TABLE III: THE FIRST POST-TEST RESULTS OF EXPERIMENT AND CONTROL CLASS

No.	Aspects of Critical Thinking	Post-test				
		Experiment Group		Control Group		p-value of t-test
		$\overline{X_1}$	σ_1^2	$\overline{X_1}$	σ_1^2	
1	Identifying ability	73.84	3.17	61.06	2.02	0.00
2	Evaluating ability	75.22	2.97	62.59	3.30	0.00
3	Concluding ability	77.91	1.78	61.97	3.75	0.00
4	giving opinion ability	75.59	3.49	63.13	3.75	0.00
		75.64	2.85	62.19	3.20	0.00

Table III below shows the average, variance, and p-value post-test scores of critical thinking in the experimental class and the control class.

In Table III, the average and the variance in average of the first post-test compared with the pre-test which consisted of aspects of identifying ability, evaluating ability, concluding ability, and giving opinion ability in the experimental group and the control group are 75.64 and 2.85 and 62.19 and 3.20, respectively. It showed that there were 13.45 of mean differences between the experimental group and the control group. This indicates that the critical thinking of the students in the experimental group is higher than the students in the control group. Moreover, p-values are very small in all aspects of critical thinking. It means that both are statistically significant.

TABLE IV: THE SECOND POST-TEST RESULTS OF EXPERIMENT AND CONTROL CLASS

No.	Aspects of Critical Thinking	Post-test				
		Experiment Group		Control Group		p-value of t-test
		$\overline{X_1}$	σ_1^2	$\overline{X_1}$	σ_1^2	
1	Identifying ability	83.28	2.90	62.16	3.50	0.00
2	Evaluating ability	82.00	3.16	64.06	1.85	0.00
3	Concluding ability	80.50	2.03	64.88	2.03	0.00
4	giving opinion ability	77.59	4.11	64.06	2.03	0.00
		80.84	3.05	63.79	2.35	0.00

In Table IV, the average and the variance in the average of the second post-test compared with the pre-test which consisted of aspects of identifying ability, evaluating ability, concluding ability, and giving opinion ability in the experimental group and the control group are 80.84 and 3.05 and 63.79 and 2.35, respectively. It showed that there were 17.05 mean differences between the experimental group and the control group. This indicates that the critical thinking of the students in the experimental group is higher than the students in the control group. Moreover, p-values are very small in all aspects of critical thinking. It means that both are statistically significant.

TABLE V: THE STUDENTS' MOTIVATION CHANGES TOWARDS THE LEARNING IMPLEMENTATION BETWEEN THE EXPERIMENT AND CONTROL CLASS

No	Aspects of Critical thinking	Post-test	
		Experiment group	Control Group
1	Strongly Agree	75%	10%
2	Agree	20%	15%
3	Undecided	5%	40%
4	Disagree	0%	35%

No	Aspects of Critical thinking	Post-test	
		Experiment group	Control Group
Total		100%	100%

The students' changes in their learning motivation as indicated in Table V showed that their learning motivation is much higher when CINTA learning models were implemented in the experiment group. This can be clearly seen from the table that 75% of students strongly agree, 20% of students agree, 5% of students are undecided, and there were no students who disagree. Meanwhile, in the control class, the student's learning motivation was not very strong compared with the experiment class. This can be clearly seen from the table that 10% of students strongly agree, 15% of students agree, 40 students are undecided, and 35% of students disagree.

The excerpts of the interviews conducted after the implementation of the CINTA learning model can be summarized as the following:

"When I applied the CINTA learning model, all my students were really active in engaging themselves in learning activities. They answered all my questions critically, and most of their answers are correct" (Lecturer A)

"CINTA learning model allows me to enrich my students' critically thinking. They actively participated in the class, and they were active in all processes of critical thinking such as identifying the problems, evaluating the possible answers, giving opinions, and concluding the lesson improved dramatically". (Lecturer B)

"Implementing CINTA learning model was such a good experience for me. My students were really active in giving opinions, whereas they were usually shy and they preferred to be quiet rather than give their opinion. But when the CINTA learning model was introduced through its five main phases of learning, my students were active in giving their opinion, this is because their critical thinking has improved" (Lecturer C)

"Well, the five phases of the CINTA learning model were really engaging my students to learn and develop their critical thinking skills. Most of my students were active in identifying, evaluating, giving opinions, and also concluding. Their active participant in learning improved significantly since the learning process was initiated by communicating phases, where all students were practiced to communicate their prior knowledge" (Lecturer D)

"For me, CINTA learning model is a very good learning model to be conducted in the millennial era because this model is very effective to improve students 'critical thinking. All my students love the five learning phases which made them really engage in the learning process and actively in finding solutions to all problems given to them to be solved" (Lecturer E)

The excerpts of the interviews indicated that all lecturers considered the CINTA (Communicating, Inquiring, Networking, Teaching, Applying) learning model as an appropriate learning model to be conducted in the classroom to improve students' critical thinking. Most lectures positively commend that the CINTA learning models improved their students' critical thinking and their students have actively participated in all phases of learning. Moreover, students were found to engage in all learning activities.

B. Discussion

Based on the experiment conducted on the experiment group and the control group, clearly showed that the CINTA learning model is more effective than the conventional learning model when viewed from the critical thinking skills. This clearly can be seen from the mean score of critical thinking of students in the first post-test in the experimental group is 75.75 while in the control group it is 62.25. Moreover, the result of data analysis for the first post-test should that the critical thinking of the students in the experimental group is higher than the students in the control group. This can be clearly seen from the differences in the mean figure between the experimental group and control group, that 13.50 differences.

Meanwhile, the mean score of the students 'critical thinking skills in the second post-test in the experimental group is 80.75 while in the control group it is 63.75. The analysis showed that there were 17.00 mean differences between the experimental group and the control group. This indicated that the critical thinking of the students in the experimental group is higher than the students in the control group.

Moreover, there were significant differences in the mean figure of the post-test results in the experimental group between the first experiment and the second experiment. The mean figure of the experimental group in the first post was 75.75 and the second posttest was 80.75. It can be seen the difference between the first posttest and the second posttest was 5.00. Therefore, this is indicated that there was significant improvement of the students' critical thinking skills after implementing the CINTA learning model.

Based on the data analysis it can be clearly seen that students' critical thinking skills improved significantly after the implementation of the CINTA learning model, especially in a) identifying ability, b) evaluating ability, c) concluding ability, and d) giving opinion ability. These skills are highly important for the students both in learning and also for their daily life. It can be further discussed that a) identifying ability is the ability of the students in identifying the information, knowledge matter, and problems that they need to further comprehend to enrich their skills., and b) evaluating ability is the ability of the students in considering and judging the right and the appropriate things, c) concluding ability is the ability of the students in drawing conclusions based of the results of their analysis, and d) giving opinion ability is the ability of the students to share their opinions to enhance the other students' opinions.

Additionally, identifying ability is the ability of students to

recognize, analyze, and explain something clearly and precisely. In this case, students are expected to be able to identify everything that is learned to be analyzed and explained conceptually. Evaluating ability is the ability of students to collect information related to their abilities in solving problems they faced during learning activities so that they can determine the best alternative or solution for making decisions. Concluding ability is the ability of the students to describe and understand various aspects of learning and then gradually formulate a new formula or draw a conclusion. Giving opinion ability is the student's ability to be able to provide an opinion, response, view, or thoughts to the problems of something being discussed. At this stage, students are expected to be able to express their views critically.

This showed that the criticality of the students significantly improved after the implementation CINTA learning model in the experiment class, meanwhile the critical thinking skill of the students in the control class only had hardly any improvement.

The critical thinking skills of students who follow the CINTA learning model are better than those students who follow the conventional learning model. This is because, in CINTA learning, students are accustomed to active discussions, working together in groups, and presenting the results of discussion activities in front of the class so that students' critical thinking skills develop well. When students are given worksheets containing problems, students try to solve these problems with group discussions. Students actively discuss with group members to come up with ideas to solve the problem. Students who take part in CINTA learning are accustomed to expressing their opinions using their own sentences so that aspects of concern for students will develop. In addition, students carry out investigative activities such as seeking information from references (books, friends, teachers), planning problem solving, solving problems, and re-examining the results of their work. Investigation activities, seeking information, and solving problems will make students' abilities in the knowledge aspect develop. The solutions given by students in solving problems can hone students' abilities in the aspect of attitude. All of these processes can result in students playing an active role in learning so that students' critical thinking skills develop well.

The students' changes in their learning motivation as indicated by the table above showed that their learning motivation was much higher when CINTA learning models were implemented in the experiment group. This can be clearly seen from the table that 75% of students strongly agree, 20% of students agree, 5% of students are undecided, and there were no students who disagree. Meanwhile, in the control class, the students' learning motivation was not very strong compared with the experiment class. This can be clearly seen from the table that 10% of students strongly agree, 15% of students agree, 40 students are undecided, and 35% of students disagree.

Data analysis of learning motivation changes clearly showed that students actively participated in the learning process when the CINTA learning models were implemented by the lecturers. Students were actively learning and doing all the activities conducted in all stages of learning (communicating, inquiring, Networked learning, teaching, and applying. Moreover, during the application stage, students activity practiced their knowledge of realistic products and performances. This indicated that the CINTA learning model not only aroused students' motivation and learning but also helped students broaden their critical and creative thinking skills.

The data collected from the interviews also confirmed that CINTA (Communicating, Inquiring, Networking, Teaching, Applying) learning model is one of the learning models which really engages students in learning and improves their critical thinking. Lectures found that all their students were active in identifying, evaluating, giving opinions, and concluding the solutions to the problems provided by the teachers during the learning process. Moreover, students were also found to the active in participating in the five phases of learning which made the students really involved in learning from the beginning of the lesson. The lesson is started by communicating their prior knowledge in which students have the opportunity to communicate to share their prior knowledge with their classmates.

This learning model also develops students' 21st-century skills because it includes communicating, inquiring, a network working, teaching, and applying. All those skills are really important nowadays to be able to cope with the development of modernization and globalization which require students to have good critically thinking. By having the ability to communicate well, students should be able to encounter the problems they have to deal with in life. Moreover, by practicing their ability to make inquiries and network, students may have better knowledge and a broader understanding of the problems and find an appropriate solution. Additionally, the CINTA learning model allows students to apply their knowledge to develop their ability to create something useful for human life.

Based on the results of observations made, the lecturers in this study carried out several activities of implementing CINTA learning. During the core activities, the lecturer prepares psychological and physical student learning conditions to participate in learning activities and explains the learning objectives and learning competencies that must be achieved as well as the scope of learning. At this stage, students understand the learning objectives and the scope of learning delivered by the lecturer. By asking about the condition of the students before learning, the students stated that they were ready to learn. The next activity carried out is the core activity. In the early stages of the core, activities carried out Communicating activities. At this stage, the lecturer asks students about the topic being studied. Some students seem to answer the lecturer's questions. Furthermore, the lecturer communicates the subject matter well and in detail, provides opportunities to ask questions about the teaching material being studied, gives students/other students to answer their friends' questions, and provides additional explanations for emphasis and additions to the answers given by students. At this stage, students ask questions about the topics discussed.

The activity at the next core stage is the Inquiring stage. At this stage the lecturer performs several activities including; giving assignments in the form of problems that students must find solutions for, giving students the opportunity to ask their

friends about the problems given, and giving students the opportunity to ask other people, for example, other lecturers, experts, and others about the problems given. Students listen to the lecturer's explanation carefully then they do the tasks given by the lecturer. Students discuss some assignments with their peers. At this stage, students are expected to be able to improve their critical and creative thinking skills. By thinking critically, they can analyze the things needed to produce critical and creative thinking. Creativity can be defined as the students' ability in creating a product using a good way of thinking [28]. Creative thinking is an ability to think about how to create something new, where students can apply their skills in problem-solving, or their ability to know the relationship between existing elements to make new things [29].

In addition to critical thinking, creative thinking is needed in learning. because students are expected to be able to create something from the knowledge they have. Creativity is the ability to combine, solve or answer problems, and reflects the operational ability of creative children [29]. Creative thinking is to provide various possible answers or problem solving based on the information provided and spark many ideas on a problem [30].

Networked learning is the third stage of the core activities carried out by lecturers and students. At this stage, the lecturer gives assignments for students/students to discuss in small groups, provides opportunities for students/students to find solutions from available online sources, and provides opportunities for students/students to present the results of their discussions in front of the class, as well as providing opportunities to ask questions about student presentations. Students form small groups through a breakroom made by the teacher. They discuss the assignments given by the teacher through the available breakroom. This type of cooperative learning is very good for improving students' ability to exchange ideas and thoughts and find solutions to the learning they are facing.

Students seemed very enthusiastic in conducting discussions and doing the assignments given. Furthermore, the activity is carried out by presenting the tasks that have been discussed. Students present the work they have done. They then had a discussion and Q&A. Students who presented their assignments answered the questions of their friends and then add input and answers given by the lecturer.

The Teaching stage is the next stage carried out by the lecturer in the core activity. At this stage the lecturer performs several activities; provide opportunities for students/students to teach what they understand to their peers in the form of small groups, provide opportunities for students/students to teach what they understand to their peers in the form of presentations in front of the class, and provide additional emphasis and explanations to complete the explanations of students/students. In this activity, students are then given the opportunity to teach the material discussed. They also give emphasis to the material discussed.

At the Applying stage, the lecturer carries out several stages of activities including; providing exercises for students to apply what has been understood in the form of products/works (monologue/dialogue, products, for example, sentences, paragraphs, speeches, conversations, conferences, paragraphs, texts, pictures, designs, concepts, objects, etc., providing opportunities for students/students to present or demonstrating their work, providing opportunities for students/students to ask questions about the presentation of the theme, and providing additional emphasis and explanations to complete student/student explanations. On this occasion, students then make some work. in the form of writing or text about the material being studied.

The last activity of CINTA learning is the closing activity. At this stage, the lecturer concludes the material being studied, provides an assessment of student understanding in the form of product-based tests, provides additional tasks related to learning/lecture materials, and closes learning/lecture activities. Students pay close attention to the conclusions conveyed by the teacher, ensure additional assignments are given and say thank you and goodbye for the material taught today.

All stages of the CINTA learning model comprising Communicating, Inquiring, Networking, Teaching, and Applying could develop students' active participation in learning because the activities require students to interact intensively in learning both with the teachers and their classmates. Teachers, however, should pay attention to all learning strategies and ensure that all strategies are appropriately conducted.

IV. Conclusion

Learning models that stimulate students' critical thinking processes are very well implemented in the classroom. Students participate actively to participate in the ongoing learning. Students can be more critical and creative in expressing their ideas and be able to develop their potential. This is in line with the revision of Bloom's taxonomy that students are expected not only to have the knowledge, understand the knowledge, and be able to analyze the knowledge they have but students are also expected to be able to produce a product from learning outcomes. Both products are in the form of critical thinking and learning outcomes. To develop critical and creative thinking skills, the CINTA learning model is a learning model developed to suit learning needs.

This learning model consists of several stages of activities, namely the preliminary, core, and closing stages. In the closing stage, there are five stages of interrelated activities so that they can create students' critical and creative thinking. The five stages are Communicating, Inquiring, Networking, Teaching, and Applying (CINTA) to improve students' critical and communicative thinking skills. the five stages of learning are carried out properly and in accordance with the stages [of learning], then the learning objectives will be achieved. Although learning is done online, the concept of this CINTA learning model can be adapted and implemented well in the classroom. therefore, the CINTA learning model can be implemented in offline and online learning well.

Conflict of Interest

The authors whose names are listed in the AUTHOR CONTRIBUTIONS section certify that they have NO affiliations with or involvement in any organization or entity with any financial interest (such as honoraria; educational

grants; participation in speakers' bureaus; membership, employment, consultancies, stock ownership, or other equity interest; and expert testimony or patent-licensing arrangements), or non-financial interest (such as personal or professional relationships, affiliations, knowledge or beliefs) in the subject matter or materials discussed in this manuscript.

AUTHOR CONTRIBUTIONS

The authors confirm their contribution to the paper as follows: Ida Ayu Made Sri Widiastuti conducted study conception and design (methodology), qualitative data analysis and interpretation of results, supervision, project administration, instrumentation design, and writing a draft manuscript preparation, Ni Wayan Krismayani contributed instrument (questionnaire) design and data collection, Ni Made Wersi Murtini contributed instrument (questionnaire) design, data collection, and other resources, Heru Sukoco conducted a formal statistical analysis to analyze data and used a qualitative method to synthesize the experimental results, and Ida Bagus Nyoman Mantra validated the questionnaire design and its data results. All authors validated and reviewed the results and approved the final version of the manuscript.

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Ida Ayu Made Sri Widiastuti is an associate professor in English language education. She currently teaches at Universitas Mahasaraswati Denpasar, Indonesia. Her research interests are learning strategies, language education, and language assessment.

Ni Wayan Krismayani is a doctor in the field of applied linguistics majoring in language learning. She currently teaches at Universitas Mahasaraswati Denpasar, Indonesia. Her research interests are learning strategies, learning media, and material development.

Ni Made Wersi Murtini holds a master degree in Language Education from Ganesha Education University. She is currently the head of the English Language Education Study Program and teaches English at Universitas Mahasaraswati Denpasar. Her research interests are learning methods, learning strategies, and language education.

Heru Sukoco received Doctor of Engineering from Department of Advanced IT and Department of Informatics, Kyushu University Japan in 2012. Currently, he works at the Department of Computer Science, IPB University. His research area focuses on Net-centric computing, Future Internet, IoT, Wireless and Mobile Technology, High Performance Computing, and Agro-Maritime 4.0 to support Modern and Smart Agriculture.

Ida Bagus Nyoman Mantra is a Doctor in Linguistics from Udayana University. He is a lecturer in English Language Education Study Program at Mahasaraswati University Denpasar, Bali. His study investigates the functions, values, and meanings of Balinese oral tradition including micro and macro linguistics.