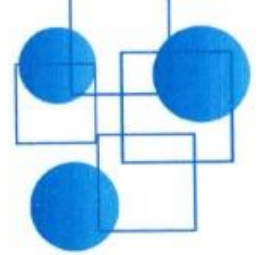




Universitas Lampung  
International Conference on Social Sciences

**The 3<sup>rd</sup> ULICoSS**



# CERTIFICATE OF APPRECIATION

Number: 3165/UN26.21/PM.01/2022

This is to certify that

**Neni Hasnunidah**  
**PRESENTER**

in the 3<sup>rd</sup> Universitas Lampung International Conference on Social Sciences  
"Social Adjustment for Global Resilience"

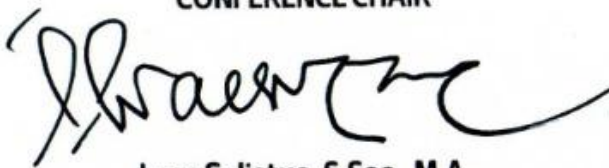
Institute of Research and Community Service Universitas Lampung

September 6-7 2022, Bandar Lampung, Indonesia

HEAD OF INSTITUTE OF RESEARCH AND COMMUNITY SERVICE

  
Prof. Dr./Ir. Lusmeilia Afriani, D.E.A.

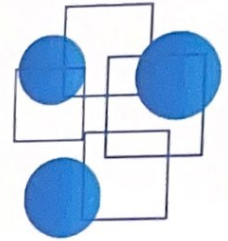
CONFERENCE CHAIR

  
Iwan Sulistyono, S.Sos., M.A.



Universitas Lampung  
International Conference on Social Sciences

**The 3<sup>rd</sup> ULICoSS**



# CERTIFICATE OF APPRECIATION

Number: 3165/UN26.21/PM.01/2022

This is to certify that

Neni Hasnunidah

**THE BEST PRESENTER**

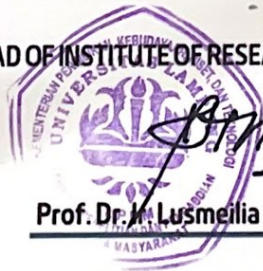
in the 3<sup>rd</sup> Universitas Lampung International Conference on Social Sciences

"Social Adjustment for Global Resilience"

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CONFERENCE CHAIR

Iwan Sulistyono, S.Sos., M.A.



Universitas Lampung  
International Conference on Social Sciences  
ULICoSS 2022

# ABSTRACT

# 3<sup>rd</sup> ULICoSS 2022

The 3rd Universitas Lampung  
International Conference on Social Sciences (ULICoSS)  
*“Social Adjustment For Global Resilience”*

Bandar Lampung, 06 - 07 September 2022



**The 3<sup>rd</sup> Universitas Lampung International Conference on  
Social Sciences (ULICoSS) 2022**

*“Social Adjustment for Global Resilience”*

**Tuesday-Wednesday, September 06-07 2022  
Universitas Lampung, Lampung, Indonesia**

**Scope of Conference:**

- Global Society
- Innovative Communication
- Economic Changes
- Climate Change
- Business and Management
- Social Welfare and Development
- Local Political Dynamics
- Bureaucracy and Administrative Issues

**Organized by:**



## **WELCOMING REMARK**

Dear Colleagues,

The Institute for Research and Community Services of Universitas Lampung was honoured to host the Third Universitas Lampung International Conference on Social Sciences (ULICoSS) 2022. On behalf of the 3<sup>rd</sup> ULICoSS 2022 Organizing Committee, I would like to extend my heartfelt congratulations to all participants in this event.

This is the third year for us to organize this conference. Despite the fact that world citizens are clearly confronted with the COVID-19 pandemic and continue to be endangered by its health consequences, we, as academics, researchers, and students must not stop voicing and disseminating our research findings to an international audience, either through conferences or publications in journals or proceedings. This is one of our contributions to the development of society and humanity.

We are aware that the COVID-19 pandemic has had a significant impact on the world, with the majority of study studies to date focusing on the virus's negative impacts on health. Consequently, social adjustment is necessary for resilience to adapt to and adapt to adversity. In other words, global resilience relies primarily on social adjustment, which consists of the distinctive behaviours and abilities that individuals employ to deal with everyday problems and adapt to changing conditions.

With a remarkable line-up of keynote speakers from the University of Szeged (Hungary), Masaryk University (Czech Republic), Kobe University (Japan), and Universitas Lampung (Indonesia), the 3<sup>rd</sup> ULICoSS 2022 promises to be both exciting and informative. This conference is a venue for the sharing of specific alternative and research findings in the social adjustments for global resilience, with a focus on, among other topics, global society, social welfare and development, as well as innovative communication. Therefore, scholars, academics, researchers, experts, practitioners, and university students are expected to share their perspectives, experience, and research findings at this event to obtain an enhanced understanding of global resilience issues and solutions.

We received a total of 170 abstracts, of which 104 full papers were submitted by authors from all around the world. Subject to the terms and conditions, we will also assist the authors in publishing their full articles in Web of Science (WoS) and/or Scopus-indexed conference proceedings.

We would like to thank the members of the organizing committee for putting in so much effort to ensure the conference's success daily, as well as the reviewers for their commitment to reviewing submissions. In conclusion, the conference would not be possible without the excellent papers submitted by authors. We value the participation and efforts of all authors in the 3<sup>rd</sup> ULICoSS 2022.

We wish all participants of the 3<sup>rd</sup> ULICoSS 2022 in Bandar Lampung, Indonesia, a pleasant scientific conference. We hope that the authors, participants, and the public in

general will benefit from this event. We look forward to seeing you at the 4<sup>th</sup> ULICoSS 2023 international conference next year.

**Iwan Sulisty, M.A.**  
**The 3<sup>rd</sup> ULICoSS 2022 Conference Chair**

# **CONFERENCE SCHEDULE**

**The 3<sup>rd</sup> Universitas Lampung International Conference  
on Sosial Science  
(ULICoSS 2022)**

## RUNDOWN 3<sup>rd</sup> ULICoSS 2022

Tuesday

6<sup>th</sup> September 2022

The 3<sup>rd</sup> Universitas Lampung International Conference on Social Sciences (ULICoSS) 2022  
taking place on 6<sup>th</sup> and 7<sup>th</sup> August 2022, the city of Bandar Lampung, Lampung Province, Indonesia

Day/Date	Time Schedule		Activity	Speaker/PIC	Place	Moderator
	Jakarta Time	Duration				
Tuesday, 6 <sup>th</sup> September 2022	08.30-09.00 AM	30'	Registration of participants	Participants		
	09.00-10.30 AM	60'	1. Greeting and Dance Performance (20')	Committee Sarah Salma Diyani (MC)	Radisson Hotel	
			2. Opening (10')	Sarah Salma Diyani (MC)		
			3. Indonesian National Anthem (10')	All participants		
			4. Welcoming address and opening speech. - Head of LPPM (15')	Dr. Ir. Lusmeilia Afriani, D.E.A.		
				- Rector of University of Lampung (15')		
			5. Praying (10'), using Arabic language	Muhisom, M.Pd.I.		
	6. Photo Session and Closing (10')	All participants				
10.30-11.15 AM	45'	Presentation 1	Prof. Beno Csapo (University of Hungary)	Radisson Hotel &		



The 3<sup>rd</sup> Universitas Lampung International Conference on Social Sciences (ULICoSS) 2022

Day/Date	Time Schedule		Activity	Speaker/PIC	Place	Moderator
	Jakarta Time	Duration				
	11.15-12.00 AM	45'	Presentation 2	Prof. Miroslav Mares, JUDr, Ph.D. (University of Crezh Republic)	Radisson Hotel &	Arif Darmawan, S.E., M.A./ Revista Devianti
	12.00-1.30 PM	90'	Break Session			
	1.30-2.15 PM	45'	Presentation 3	Rudy, LL.M., LL.D. (University of Lampung, Indonesia)	Radisson Hotel &	Arif Darmawan, S.E., M.A./ Revista Devianti
	2.15-3.00 PM	45'	Presentation 4	Prof. Yuka Kaneko (Kobe University, Japan )	Radisson Hotel & Zoom	Arif Darmawan, S.E., M.A./ Revista Devianti
	3.00-3.30 PM	30'	Photo Session	All Presenters	Radisson Hotel	

**Wednesday**

**7<sup>th</sup> September 2022**

**The 3<sup>rd</sup> Universitas Lampung International Conference on Social Sciences (ULICoSS) 2022  
taking place on 6<sup>th</sup> and 7<sup>th</sup> September 2022, the city of Bandar Lampung, Lampung Province, Indonesia**

<b>Day/Date</b>	<b>Time Schedule</b>		<b>Activity</b>	<b>Speaker/PIC</b>	<b>Place</b>	<b>Moderator</b>
	<b>Jakarta Time</b>	<b>Duration</b>				
Wednesday 7 <sup>th</sup> September 2022	07.30-08.00 AM	30'	Participants join zoom  (Link is sent by emails)	All Presenters	Radisson Hotel & Zoom	
	08.00-11.30 AM	210'	Parallel Session	All Presenters	Radisson Hotel & Zoom	
	11.30-12.00 AM	30'	Closing	Iwan Sulisty, M.A.	Radisson Hotel & Zoom	

## THE SPECIFIC SCHEDULE OF PARALLEL SESSION ULICoSS 2022

**(Wednesday, September 7<sup>th</sup> 2022)**

### ROOM 1

**Moderator: Fakhrisa Nabilla**

**Discussant: Prof. Bambang Setiyadi\***

**Time: 08.00 - 11.30 (210 minutes)**

No	Paper ID	Title	Presenter	Affiliation	Theme
1	PAPER ID-4	Descriptive Study Of Pedicab Driver Migrant Society In Bongki Sub-Village, Sinjai Regency	Andi Izal Fauzan	Hasanudin University	Social Welfare and Development
2	PAPER ID-13	Legal Review Of The Health Social Security Administering Body Card Made A Mandatory Administrative Requirement In A Notary Sale And Purchase Agreement	Dwi Rimadona	Lampung University	Social Welfare and Development
3	PAPER ID-15	Islamic Inheritance Law Review In Notary Practices In Indonesia	Eka Suci Indria Sari	Lampung University	Social Welfare and Development
4	PAPER ID-50	Teacher's And Student's Perception Toward Competency Of Undergraduate Medical Students During The Covid-19 Pandemic	Rika Lisiswanti	Lampung University	Social Welfare and Development
5	PAPER ID-51	Model Of Geographical Indication Development For Coffee In Local Area	Ria Wierma Putri	Lampung University	Social Welfare and Development
6	PAPER ID-54	Needs Analysis Of Android-based History Learning Media Development In Australian And Oceania History Courses	Yustina Sri Ekwandari	Lampung University	Social Welfare and Development
7	PAPER ID-55	Middleman Farmers' Social Network In The Agricultural Product Distribution	Ifaty Fadliliana Sari	Lampung University	Social Welfare and Development
8	PAPER ID-56	Study Of Indonesian Vaccine Diplomacy At Bilateral, Regional, And Multilateral Levels To Overcome Covid-19 Pandemic	Astiwi Inayah	Lampung University	Social Welfare and Development
9	PAPER ID-61	Law Enforcement Study Of Corruption In The Misuse Of Village Fund Allocations (Study In The Jurisdiction Of Polres, North Lampung)	Eddy Rifai	Lampung University	Social Welfare and Development
10	PAPER ID-62	Application Of Digital Literature Based On Video, Website And Peer Tutoring To Students' Academic Literature Skills	I Komang Winatha	Lampung University	Social Welfare and Development
11	PAPER ID-63	Optimization Of The Use Of Video Conference As An Efforts To Improve Critical Thinking Fkip Students University Of Lampung	Fanni Rahmawati	Lampung University	Social Welfare and Development
12	PAPER ID-64	Implementation Of Restorative Justice On Criminal Acts Of Parent Abuse Against Birst Children	Aisyah Muda Cemerlang	Lampung University	Social Welfare and Development
13	PAPER ID-196	Didactic Value In The Tradition Of Excise As A Lampung Folklor Inventory Strategy	Iqbal Hilal	Lampung University	Social Welfare and Development
14	PAPER ID-200	Development of Project-Based Argumentative Model with Blended Learning Approach for Junior High School Students	Neni Hasnunidah	Lampung University	Social Welfare and Development

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# **ABSTRACTS**

## **Development of Project-Based Argumentative Model with Blended Learning Approach for Junior High School Students**

**Neni Hasnunidah<sup>1</sup>, Dina Maulina<sup>2</sup>, Ismi Rakhmawati<sup>3</sup>**

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**Abstract:** The project-based argumentative learning model through blended learning emphasizes student involvement optimally to design and carry out investigations, argue, write, and review product from project implementation. This study used 4D research and development design (Define, Design, Develop, and Disseminate). The development produces a model with a syntax consisting of providing references, determining basic questions, producing arguments, argumentation sessions, designing projects, compiling schedules, implementing projects, compiling reports, testing results, and evaluating experiences. Implementation of the learning model according to the syntax that has been developed and used e-worksheet biotechnology. The results of the implementation showed that the learning model is quite effective in improving students' argumentation skills (61.92%). In addition, the significant difference between the experimental and control classes means that the project-based argumentative learning model with a blended learning approach can significantly improve students' argumentation skills.

**Keywords:** *argumentation skills, blended learning, learning models, project-based argumentative.*





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# Development of Project-Based Argumentative Model with Blended Learning Approach for Junior High School Students

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**Abstract**—The project-based argumentative learning model through blended learning emphasizes student involvement optimally to design and carry out investigations, argue, write, and review product from project implementation. This study used 4D research and development design (Define, Design, Develop, and Disseminate). The development produces a model with a syntax consisting of providing references, determining basic questions, producing arguments, argumentation sessions, designing projects, compiling schedules, implementing projects, compiling reports, testing results, and evaluating experiences. Implementation of the learning model according to the syntax that has been developed and used e-worksheets biotechnology. The results of the implementation showed that the learning model is quite effective in improving students' argumentation skills (61.92%). In addition, the significant difference between the experimental and control classes means that the project-based argumentative learning model with a blended learning approach can significantly improve students' argumentation skills.

**Keywords**—argumentation skills, blended learning, learning models, project-based argumentative

## I. INTRODUCTION

One way that can be done in carrying out the policies of the Ministry of Education and Culture of the Republic of Indonesia in dealing with the situation of the spread of Covid-19 is *blended learning*. This learning is web-based or commonly called *web-based learning* because it utilizes a computer connected to the internet as a tool / device that presents information, the content of subject matter, exercises, or both in the form of tutorials, drills, and practices (exercises), simulations, or instructional games presented on a website (internet site). The use of information and communication technology (ICT) in learning is currently developing. Nevertheless, many teachers have difficulty in packaging learning through strategies that can facilitate learning activities to take place properly [1].

The problem found especially in junior high school students in science subjects is that they feel bored with online learning which is often monotonous. Students only listen to the explanation of the material via zoom and get the task of reading the material from the internet. These barriers can cause most students to have difficulty in assimilating and elaborating concepts into their thinking, so that their argumentation skill ability is low and has an impact on their learning achievement. Argumentation skills are essential to be empowered in science learning. Argumentation skills improve critical thinking patterns so that they can increase a person's

deep understanding of an idea or ideas [2]. Argumentation skills can improve students' thinking and understanding of the material being studied because it improves logical and rational reasoning [3].

The argumentative-project-based learning model through a blended learning approach in junior high school is suspected to be effective in improving students' argumentation skill. However, research on the development of students' argumentation skill through this learning model has never been carried out, so this research needs to be carried out. The project-based learning (PjBL) model has revealed advantages in its application, namely being able to provide great opportunities for students to explore their creativity, increase motivation, problem-solving ability, critical thinking skills and improve collaboration skills [4][5][6]. The PjBL model has enormous potential to provide an engaging learning experience for students in studying science materials. However, student activities to solve problems by applying the skills of researching, analyzing, making, and presenting learning products based on real experiences are not accompanied by statements (theories) that are true or do not refer to the facts and evidence shown. Therefore, this learning model that uses project activities as a means of learning has not contributed to increasing students' understanding of concepts because students will only master one particular topic they are working on while other topics are neglected [7].

Another learning strategy is needed that is expected to be able to overcome the shortcomings of PjBL that effectively improves students' argumentation ability, namely Argument-Driven Inquiry (ADI). Student involvement in argumentation contributes to an increase in the understanding of the concept [8]. Argumentation activities are part of a social process that can develop scientific discourse in learning. Argumentation plays an important role in the construction of knowledge, because by arguing knowledge is communicated to obtain recognition and justification [9][10]. Argumentation can provide a strong foundation in understanding a concept as a whole and correctly. the object of the thought process in argumentation is the truth regarding the subject being argued [11]. Through argumentation one can show statements (theories) that are put forward to be true or do not refer to the facts and evidence shown.

Science subjects in strategic junior high schools are used to train students' argumentation ability. Through learning innovations with argumentative-project-based learning models through a blended learning approach that is in accordance with the characteristics of science, research to

improve students' argumentation skills is urgent to be carried out. To produce an argumentative-project-based learning model through a blended learning approach that is in accordance with the characteristics of science learning, it is necessary to carry out several tests that include material expert tests, educational expert tests, and learning model effectiveness tests.

## II. METHOD

This research design uses a 4-D model with modifications that include three research sequences, namely: define stage, design, develop (development and validation) [12]. The design of this study is broadly depicted in the research chart (Figure 1).



Fig. 1. Research flow chart.

### A. Define: Need Analysis

Needs analysis is carried out through surveys using a *one-time method (Cross-Sectional Survey)*. The survey is aimed at revealing the needs of teachers and students in learning and the learning problems faced. Data mining in survey research through questionnaires, interviews, observations, and document data. The literature study is intended to find references regarding PjBL and ADI learning models, the ability to argue, and include the results of previous research related to science learning. The survey data were analyzed descriptively from questionnaires and interviews that had been conducted. The data from the audio-visual recording were analyzed descriptively qualitatively from the learning transcript.

### B. Design: Product and Instrument

The design stage aims to produce a learning tool design with an argumentative-project-based learning model through a *blended learning* approach that can improve the argumentation skills of junior high school students. The implementation of this stage consists of 4 steps, namely: preparation of test standards (*criterion-test construction*), media selection (*media selection*), format selection (*format selection*), and initial design (*initial design*). The preparation of the test standard is the first action that connects between the *define* stage and the *design* stage. The benchmark reference test is prepared based on the results of the formulation of learning objectives. The selection of media is carried out to identify learning media that are in accordance with the characteristics of the science learning material and the characteristics of students. Format selection in the form of lesson plans, interactive e-worksheets in accordance with the learning model. Format selection is carried out by reviewing existing device formats and adapted to the learning model

used. The initial design is a Syllabus, lesson plan, interactive e-worksheet, argumentation test sheets and observations and response questionnaires.

### C. Develop: Product Develop and Validation

At this stage, the goal is to produce a prototype of a learning tool with an argumentative-project-based model through a *revised blended learning* approach based on expert input. The initial stage carried out is the validity test of the results of the interactive e-worksheet design, lesson plan, test sheets and argumentation observations as well as response questionnaires through expert tests on aspects of content / material and design aspects. Revision I was implemented based on the corrective record of the validator. After the product is declared valid, it is then continued with a limited trial conducted on several students. The steps taken in conducting this test are determining the assessment indicators used to assess the product, compiling test instruments based on assessment indicators, carrying out tests for students who have studied the targeted material, and analyzed the test results and revised the products that are ready for use. The validated and revised learning tool products are then used in a wide-scale test which are two junior high schools in Lampung Province. The effectiveness of the product is reviewed from the ability to argue students.

### D. Data Collection and Analysis

The distribution of questionnaires is used at the stage of preliminary studies and product development. In the preliminary study, the questionnaire used contained written questions that revealed information about the needs of teachers and students in learning, learning problems faced, learning models that have been used, the availability of student's worksheets, the assessment used, and the obstacles found in the implementation of learning.

Validation questionnaires are used to determine the quality of learning tools developed and to get input. This validation instrument is in the form of a list containing a series of statements regarding pedagogical validity, content validity, and design validation. The validation results are processed in the form of a percentage of the score, then categorized and interpreted.

Instrumen tes digunakan untuk mengukur keterampilan argumentasi siswa. Soal pretest dan posttest berbentuk uraian yang dipergunakan terlebih dahulu disesuaikan dengan indikator pembelajaran pada 3.9 Menerapkan konsep bioteknologi dan perannya dalam kehidupan manusia dan KD 3.10 Tentang Teknologi Ramah lingkungan dan KD. Instrumen ini mengacu pada kerangka analisis argumentasi Toulmin's (*Toulmin's Argument Pattern/TAP*). Kerangka analisis argumentasi ilmiah siswa merupakan sejenis rubrik penilaian argumentasi berdasarkan kelengkapan komponen argumentasi. Rubrik penilaian argumentasi TAP diadaptasi dari Hazeltine [13] pada Tabel 1.

Observations are made to uncover students' oral argumentation skills during argumentative discussions. In addition, audio-visual recordings are also carried out to support the observational data. Through this observation, it can be known the complexity of the evolving pattern of argumentation discourse. The degree of complexity of the interaction path in argumentation discourse determines the quality of the student's argumentation. Each group and individual student were observed and recorded during the learning process of 3 meetings. The rubric used to analyze the

skills of students participating in oral (oral) argumentation in this study was a rubric of assessing the quality of argumentation according to conceptual and epistemic categories using the Sandoval and Millwood frameworks (Table I).

TABLE I. ANALYSIS OF THE QUALITY OF ARGUMENTATION OF CONTEXTUAL AND EPISTEMIC ASPECTS

	4	3	2	1
<b>Claim</b>	Claims are easy to distinguish and well written	Claim is well written, but could use some clarifications	Claims are not too good and need to be developed	Claims are indistinguishable or non-existent
<b>Grounds</b>	Ground clear, compact, and efficient	Ground is easy to identify, but needs some clarification	Ground is unclear and needs development	Ground is not displayed or is irrelevant
<b>Warrant</b>	Warrants are well written, easy to identify and connect claims and grounds efficiently	Warrants can be clearly identified, but need some clarification	Warrant is unclear, but there is something linking claim and ground	Warrants do not link claims to ground or are not easily identifiable
<b>Backing</b>	Backing supports warrants	Backing supports the warrant, but could use some clarifications to show the relationship as evidence	Backing in favor of the warrant, but the relationship should be clearer	Backing that supports the warrant, but cannot be identified or does not support the warrant

The data analysis method uses *triangulation mix-method design*, namely by simultaneously analyzing quantitative data and qualitative data as well as combined data. Furthermore, using the results of the analysis to understand the research problems. The rationale of this data analysis design is that the shortcomings of one type of data will be complemented by another type of data. In this case quantitative data provides a way to generalize, while qualitative data provides information about contexts and *settings*. Qualitative data (preliminary study data, expert test data, practicality test data, and student satisfaction data) will be analyzed using a descriptive qualitative approach. Through this analysis, an overview of the needs in the field, the needs of teachers and students in learning, problems faced by lecturers and students in learning, the availability of worksheets, worksheet components that need to be revised, the level of validity and practicality of learning tools in the form of lesson plans, interactive e-worksheets, and the level of student satisfaction with e-worksheets generated interactive.

Quantitative data in the form of student argumentation skills will be analyzed using descriptive statistics so that an overview of the quality of student argumentation is obtained. If the results do not meet the learning objectives until they reach certain criteria, the entire learning tool will still be improved. The argumentation skills data were tested for normality and homogeneity and then an independent sample t-test was carried out. The results of the statistical test are then analyzed and interpreted according to the statistical table.

### III. RESULT

The main results of the research on the argumentative-project-based learning model with a *blended learning* approach that can improve the argumentation skills of junior high school students are learning tools in the form of a

Learning Syllabus, lesson plans, interactive e-worksheets, argumentation skills assessment instruments, observation sheets for the implementation of learning syntax, and observation sheets for student activities. The entire learning device is generated through modified stages of the 4-D model [14] with modifications that include three research *sequences*, namely: define, *design*, *develop* (development and validation) stages.

#### A. Define: Need Analysis

At the define stage, needs analysis is carried out through a survey with a one-time method (*Cross-Sectional Survey*) to reveal about the needs of teachers and learning problems faced. Questionnaires are given to teachers in the form of open questions and checklists to find out the learning that is usually applied in schools which includes the use of teaching materials, learning models, and the empowerment of argumentation skills in schools. The results of the recapitulation of survey questionnaire data from 20 public and private junior high schools / MTs in Lampung Province showed that as many as 40% of teachers used worksheets as teaching materials in the learning process. However, 55% of the worksheets used by teachers still come from existing textbooks and no teacher has developed worksheets that are oriented towards improving argumentation skills. As many as 80% of teachers already know about the *PjBL* learning model, but teachers state that it has not been optimal in applying it to learning.

#### B. Design: Model, Product, and Instrument

At the design stage, researchers make initial designs, media selection, format selection, and preparation of test standards. The results of the needs analysis are used as the basis for creating an initial design syntax of a project-based argumentative learning model with a blended learning approach. The syntax of this model consists of providing references, determining basic questions, producing arguments, argumentation sessions, designing projects, drawing up schedules, implementing projects, compiling reports, testing results, and evaluating experiences. The syntax of the project-based argumentative learning model with a blended learning approach is applied to the lesson plan design of biotechnology materials and environmentally friendly technology consisting of 3 meetings to allocate time for pre-project, project implementation, and post-project.

In this learning, media is needed that can help students to carry out projects and argue, for that researchers design worksheets according to a learning model that is designed to be interactive and can be accessed online. Creating an e-worksheets using Microsoft Word which is then saved in pdf format, after which the worksheet is uploaded through *theliveworksheets.com* website so that it becomes an e-worksheets whose link can be shared with students and automatically corrected by the system. The e-worksheets design totaled 3 meetings. The e-worksheets-1 for the first meeting contains components, namely introduction, objectives, determination of research questions, argumentative production, interactive argument sessions, designing project planning, compiling schedules, and concluding. It is different from the design of e-worksheets-2 for the second meeting which contains instructions for preparing a project report. For the third meeting, e-worksheets-3 consists of components for project report presentation and peer assessment.

In addition to lesson plans and learning media, to determine the improvement of students' argumentation skills, researchers designed an argumentation skills test consisting of 6 questions with each equipped with essay questions with 4 criteria, namely claim, grounds, warrants, and backing.

### C. Develop and Validation

The syntax design further became the basis for developing a project-based argumentative learning model with a blended learning approach described in Table II. The learning model syntax is incorporated into the lesson plan which is then validated by the expert and revised according to the advice of the experts. The quality of worksheets can be measured by competent experts so that the results of the product can be accounted for [15].

TABLE II. SYNTAX OF PROJECT-BASED ARGUMENTATIVE LEARNING MODELS

No	Learning Model Syntax	Procedure
1	Providing Fundamental References and Questions	Offline
2	Production of Argumentation	Offline
3	Session of Interactive Argumentation	Online
4	Design Project Planning	Offline
5	Creating Schedule	Offline
6	Implementing Project	Offline
7	Writing Project Report	Online
8	Testing Results and Reflection Discussion	Offline

In the development of interactive e-worksheet products, there are 3 parts, namely the introduction, content, and closing which are also adapted to the project-based argumentative learning model with a blended learning approach. The introduction consists of core competencies, basic competencies, and achievement indicators, and learning objectives. The content section contains learning steps, namely providing references, determining basic questions, argument production, argumentation sessions, designing projects, compiling schedules, implementing projects, compiling reports, testing results, and evaluating experiences. The results of the development of interactive e-worksheets can be seen in Figure 2.



Fig. 2. E-worksheet products with project-based argumentative models with blended learning.

Interactive e-worksheet validation includes material, construction, and language validation by expert validators using the validation sheet instrument (Table I). Validators are 2 lecturers and 2 science practitioners (teachers) who also provide advice related to e-worksheets. The improvement of interactive e-worksheet validation based on expert recommendations is declared feasible to use, so the next stage is to conduct a limited trial stage. The e-worksheet validation results reached an average of 99% with valid categories and worthy of being implemented in learning with improvements for product perfection. Improvements are made in accordance with the suggestions and criticisms of validators. The achievement of content validation if it has fulfilled the relationship between the material and the content and basic competencies as well as the suitability of teaching materials and basic competencies that must be achieved by students [16].

TABLE III. INTERACTIVE E-WORKSHEET VALIDATION RESULTS

No.	Aspect	Percentage (%)		Average	Criteria
		Expert	Teacher		
1	Content	99	98	98	Valid
2	Construct	99	98	98	Valid
3	Language	100	98	99	Valid
All Average				99	Valid

Interactive e-worksheet construct validation gets an average percentage of 98% with categories valid and feasible to implement. The validity of interactive e-worksheet construction is reviewed from the aspects of conformity with the ideal format, appearance, the suitability of the e-worksheet with project-based argumentative syntax with a blended learning approach, and conformity with argumentation skills. The e-worksheet from the development has fulfilled the first aspect with an achievement indicator that already has a cover, foreword, table of contents, bibliography, availability of basic competencies and indicators, and has space to write answers on interactive e-worksheets in *liveworksheets*.

Language validation of interactive e-worksheet languages with project-based argumentative models gained a percentage of 99% with valid and feasible categories with minor improvements. Validators make suggestions requiring sentence improvement, word writing, and proper use of punctuation. Good, precise, and easy-to-understand language for students is very important in the preparation of teaching materials and is the main requirement that must be met in making e-worksheets [17], [18]. Development products can be used after validation by experts who have met valid criteria on aspects of content, construction, and language.

The next stage of this study is a limited trial to find out the practicality given to learners outside the product implementation research sample with 15 respondents. The implementation of interactive e-worksheets on biotechnology materials and environmentally friendly technologies with project-based argumentative models implemented in blended learning was tested using observation instruments. The implementation of observations was carried out by 2 people as observers, namely 2 science teachers by filling out observation sheets in the form of questions related to the suitability of achieving learning achievement using e-worksheets. The results of the observation of the implementation of interactive e-worksheets implemented in learning have an average total percentage of 90% (Table IV). Therefore, the achievement of the implementation of the

syntax of the project-based argumentative learning model with a blended learning approach is appropriate.

Good implementation is seen in students who have enthusiasm in following the stages of learning in groups such as identifying problems, collecting research data, building tentative arguments, conducting argumentation sessions, compiling reports, holding peer reviews, and revising peer review reports. The learning process of students is carried out with zoom meeting activities and face-to-face activities. Zoom meetings are conducted by teachers in providing assessments, identifying tasks, collecting data, and making tentative arguments with discussions in breakout rooms according to their respective groups. In the task identification activity, obtained an average percentage score of 97%. It can be said that in the activities of students interested and actively participating in learning. Furthermore, at the time of the activity collecting data and the creation of tentative arguments obtaining a very high percentage average. At this stage, it is carried out by grouping students in breakout room discussions and guiding students in managing and analyzing data accompanied by explanations, evidence, and reasons. The learning process carried out using Zoom meetings has obstacles, namely students have difficulty in accessing the internet. This is due to limited networks for students who live in areas where internet networks are difficult.

TABLE IV. THE RESULTS OF OBSERVATIONS ON THE IMPLEMENTATION OF LEARNING

Observer	Percentage of Syntax Implementation							
	1	2	3	4	5	6	7	8
Observer 1	93	96	100	100	75	85	96	70
Observer 2	94	98	100	100	87	81	91	74
Average	93	97	100	100	81	83	94	72
Total	90							

The next activity is an argumentation session, students carry out activities directly providing their arguments in groups. In this activity, the percentage yields an average percentage of 92%. Furthermore, on the activity of preparing the report. Furthermore, the stage of preparing the report, at this stage students make a report based on the results of the investigation that has been carried out. The creation of the report is typed in a piece of paper. At this stage it acquires an average value with a percentage of 92%. The sixth stage is the review of the report, which is carried out by collecting the report and then the report is given an assessment by his peers. The process of reviewing the report is carried out with instructions and directions by the teacher. At this stage, the average value with a percentage of 90% is obtained. After the review is carried out, the next stage is the report revision process. In this process, students are asked to correct the report on the results of the investigation that has been made and assessed by their peers. This stage of learning gained a percentage of 72%. Next the last stage, which is the stage of reflective discussion at this stage concludes about what they have learned during the investigation. From several stages of the project-based argumentative learning model that has been implemented using this interactive e-worksheet of biotechnology material, all activities are carried out well with a total average percentage of 90% with a high category.

Students' responses to the e-worksheet are interactive by using a questionnaire that aims to find out the attractiveness, usefulness and readability of the e-worksheet developed by

the researcher. The results of the student questionnaire on the e-worksheet are concisely contained in Table II. Students feel more pleased with learning that uses worksheets in distance education so that they are more active in online learning and try better to complete tasks [19]. In the project-based argumentative learning model with a blended learning approach, interactive e-worksheets on biotechnology and environmentally friendly technology with a project-based argumentative model are interesting and easy to understand by students. In addition, the language used is clear and communicative.

TABLE V. STUDENTS' RESPONSES TO E-WORKSHEETS

No	Assessment Indicator	Persentase	Kriteria
1	Attractive	90	Very High
2	Usefulness	90	Very High
3	Readability	91	Very High
Average		90	Very High

#### D. Argumentation Skills Analysis

Field trials are the final stage of this development research. This test is carried out by applying a project-based argumentative learning model with a blended learning approach that uses e-worksheets interactive biotechnology and environmentally friendly technology to students. The field trial phase was carried out on students, which amounted to two classes each, namely experimental and control classes. Field trials are carried out to determine the effectiveness of the products that have been developed. The effectiveness of using e-worksheets is reviewed from student activities and assessment of argumentation skills in the form of student pretest and posttest scores. Then from the results of the pretest and posttest, a normality test, homogeneity test and independent sample t-test were carried out.

Before testing the hypothesis, prerequisite tests are first carried out, namely normality and homogeneity tests. The results of the normality test of the argumentation skill data with the Sig value.  $> 0.05$  indicates the study data is normally distributed. The effectiveness of interactive e-worksheets in improving argumentation skills is also seen from the results of obtaining pretest scores with student posttest. In addition, it is also seen from the n-Gain value and its percentage to find out the differences in the experimental class as a class treats the implementation of learning using interactive e-worksheets and control classes using learning that teachers usually apply. The data used to determine the improvement of argumentation skills through a project-based argumentative learning model with a blended learning approach is the n-gain percentage data of argumentation skills scores from the experimental class and the control class.

TABLE VI. DESCRIPTIVE STATISTICAL TEST RESULTS

Group Statistics	Class	N	Mean	Std. Dev	Std. Error Mean
N-Gain	Experiment	60	61.924	8.656	1.117
	Control	60	22.960	9.560	1.234

In the calculation results of the experimental class statistics group (Table VI), the average value of the percentage of n-gain for the experimental class is 61.92 which is included in the category of quite effective. The results showed that the project-based argumentative learning model through a blended learning approach is quite effective in improving

students' argumentation skills on biotechnology materials and environmentally friendly technology. In contrast to the average n-gain percentage score in the control class, which is 22.96 which falls into the category of ineffective, it means that the conventional methods commonly used by teachers in teaching are not effective in improving students' argumentation skills. Thus, descriptively statistically there are differences in the effectiveness of project-based argumentative learning models with blended learning approaches with conventional methods commonly used by teachers in improving students' argument skills. The use of e-worksheets makes it easier for teachers to display teaching materials and assignments, and makes it easier for students to do assignments online anytime and anywhere so that it has a significant effect on student cognitive learning outcomes [20].

The increase in argumentation skills can also be seen based on the level showing that there is an increase in the level of student argumentation in the experimental class and control class, but the percentage of student skills in the experimental class is more at level 3 which is higher than the control class (Figure 3). The results showed that none of the learners in the control class could reach level 4. This shows that in the control class students have been able to give their opinions (claims) well, write evidence (ground / data) and provide justification (warrant) and provide support (backing), but still need to use some clarifications. In addition, argumentation skills are not only influenced by argumentation-based learning but also the level of student ability where students who have higher abilities are significantly different from students with low ability to complete arguments. [21]. However, argumentation strategies can improve learning outcomes in students with both high and low academic ability [22].

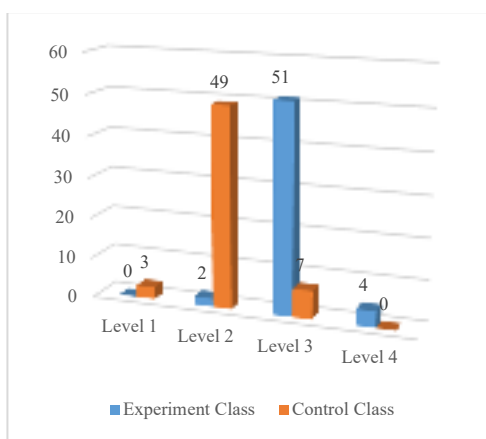


Fig. 3. E-worksheet products with project-based argumentative models with blended learning.

In the experimental class, the increase level of argumentation of learners reached level 4. This shows that students have been able to write claims well, write evidence (ground / data) clearly, concisely and easily identified, provide good justification (warrant) that is easy to identify and connect claims and warrants efficiently and provide backing that supports warrants. Project-based argumentation learning activities provide opportunities for students to make an argument through project activities. This activity equips the concepts of students which are used as a basis for arguing. This is in accordance with the results of other studies that state that this learning model is seen as being able to facilitate students to understand the concept of science well, because the learning activities of the argumentation learning model

emphasize the construction and validation of knowledge through investigation activities [23]. In addition, argumentation skills can develop well in students if students are able to interpret concepts well [24].

TABLE VII. INDEPENDENT SAMPLE T TEST RESULTS

Independent Samples Test	Levene's Test		t-test for Equality of Means			
	F	Sig.	t	df	Sig. (2-tailed)	Std. Error
Equal variances assumed	1.367	.245	23.401	118	.000	1.665
Equal variances not assumed			23.401	116.85	.000	1.665

The results of the independent sample t-test showed a significance value on the Levene Test of  $0.245 > 0.05$  which means that the data of the experimental class and the control class are homogeneous (Table VII). At the output value of t-test for equality of means it is known that the value of Sig.  $0.000 < 0.05$  which means there is a significant difference between the use of project-based argumentative models and conventional methods to improve students' argumentation skills. The results of the t-test also mean that there is a significant improvement in students' argumentation skills through a project-based argumentative learning model with a blended learning approach. Students' argumentation skills are influenced by the implementation of learning using interactive e-worksheet products of biotechnology materials with an argumentative model based on project development results. This is in line with research whose results show that learning with an argumentation model increases the level of argumentation from 1 to level 3 [25]. In addition, the argumentation of students using the ADI learning model is significantly higher than the average n-Gain of student argumentation ability using conventional learning [26].

The increase in the level of argumentation based on Figure 3 can be concluded that experimental class students get a higher increase due to the application of learning using interactive e-worksheets with a project-based argumentative model with a blended learning approach that has a learning syntax to train students' argumentation skills. The level of argumentation in the experimental class has a higher value due to the investigation process carried out with the argumentation model [27]. Learning by applying the Argumentation model has a significant influence on improving the argumentation ability of students [25]. Learning also becomes more interesting with the use of e-worksheets and makes students become more active during the learning process [28]. The application of this model in the experimental class allows students to write Claims well using several clarifications, arguments are easily identified through the presentation of data, can identify clearly and easily clarified (Warrant), and the backing created has supported the warrant by using several clarifications to show evidence (Backing).

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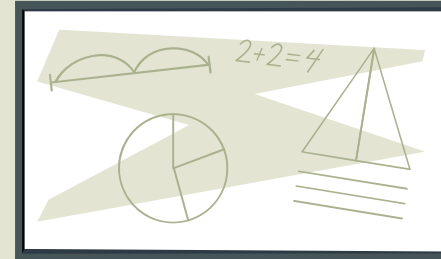
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# Development of Project- Based Argumentative Model with Blended Learning Approach for Junior High School Students



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# Introduction

Pandemic Situation

ICT for Learning

Students Response  
to Online Learning

Low of  
Argumentation  
Skills

Research on the development of students' argumentation skill through this learning model has never been carried out

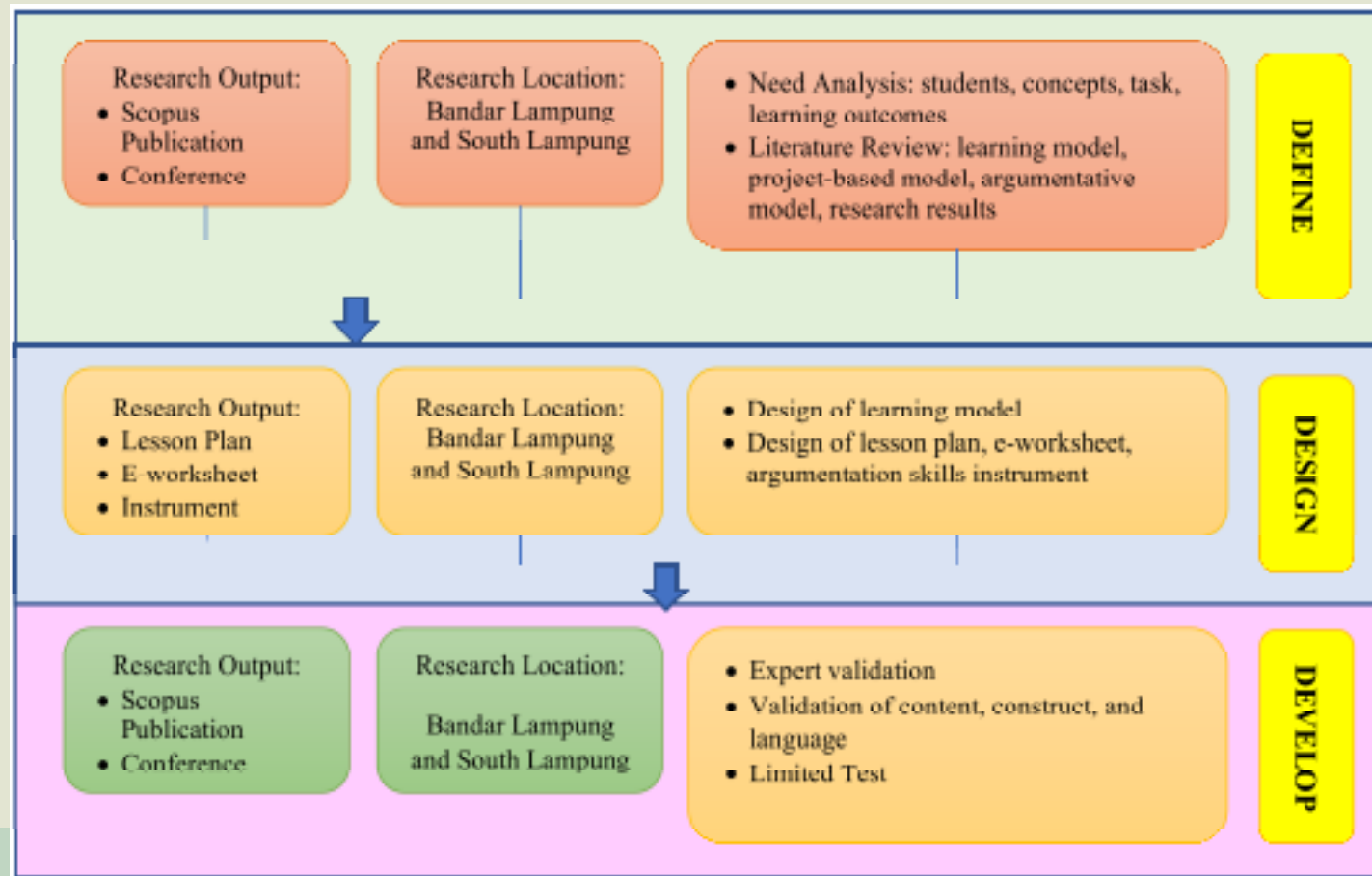
Student activities to solve problems by applying the skills of researching, analysing, making, and presenting learning products

Argumentation activities are part of a social process that can develop scientific discussion in learning

To produce a project-based argumentative learning model through a blended learning approach that is in accordance with the characteristics of science learning, it is necessary to carry out several tests that include material expert tests, educational expert tests, and learning model effectiveness tests

# Method

## 4D model South Lampung



# Result

**Table 1. Syntax of Project-Based Argumentative Learning Models**

No	Learning Model Syntax	Procedure
1	Providing Fundamental References and Questions	Offline
2	Design Project Planning	Offline
3	Creating Schedule	Offline
4	Production of Argumentation	Online
5	Implementing Project	Offline
6	Writing Project Report	Online
7	Session of Interactive Argumentation	Offline
8	Testing Results and Reflection Discussion	Offline

**Table 2. e-Worksheet Validation Result**

No.	Aspect	Percentage (%)		Average	Criteria
		Expert	Teacher		
1	Content	99	98	98	Valid
2	Construct	90	98	98	Valid
3	Language	100	98	99	Valid
All Average				99	Valid

# Result

The screenshot displays the LivenessWorksheets website interface. At the top, the logo 'LIVWORKSHEETS' is visible on the left, and a search bar with the text 'Search interactive worksheets' is in the center. To the right of the search bar are links for 'Advanced search', 'English', and 'Español'. Below the search bar is a navigation menu with items: 'Home', 'About this site', 'Interactive worksheets', 'Make interactive worksheets', 'Make interactive workbooks', 'Community', and 'Help'. On the left side of the page, there is a button labeled 'Students access'. On the right side, the user's name 'ismirakhmawati' is displayed with a dropdown arrow. The main content area shows the user's profile page for 'My workbooks > e-LKPD Bioteknologi'. Three identical worksheet covers are displayed in a row, numbered 1, 2, and 3. Each cover features a collage of images related to biotechnology, including a DNA double helix, a petri dish with bacteria, and laboratory equipment. The text on each cover reads 'e-LKPD SMP/MTs BIOTEKNOLOGI'. The covers are set against a light green and white background with geometric patterns.



# Result

**Table 3. Students' Response**

No	Assessment Indicator	%	Criteria
1	Attractive	90	Very High
2	Usefulness	90	Very High
3	Readability	91	Very High
Average		90	Very High

**Table 4. Students' Response**

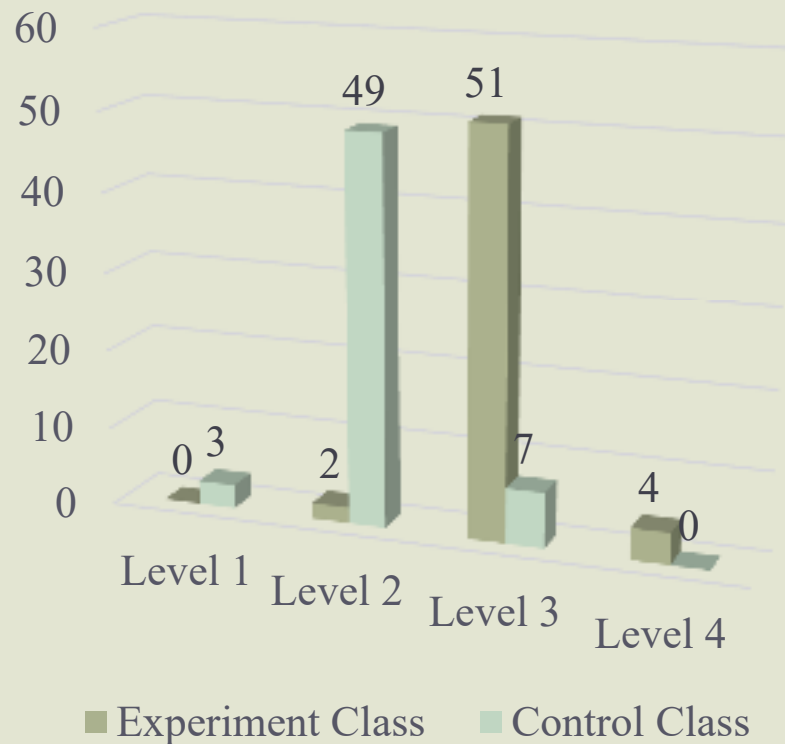
Group Statistics	Class	N	Mean	Std. Dev	Std. Error Mean
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	Control	60	22.960	9.560	1.234

**Table 5. Independent Sample t-test Result**

Independent Samples Test	Levene's Test		t-test for Equality of Means			
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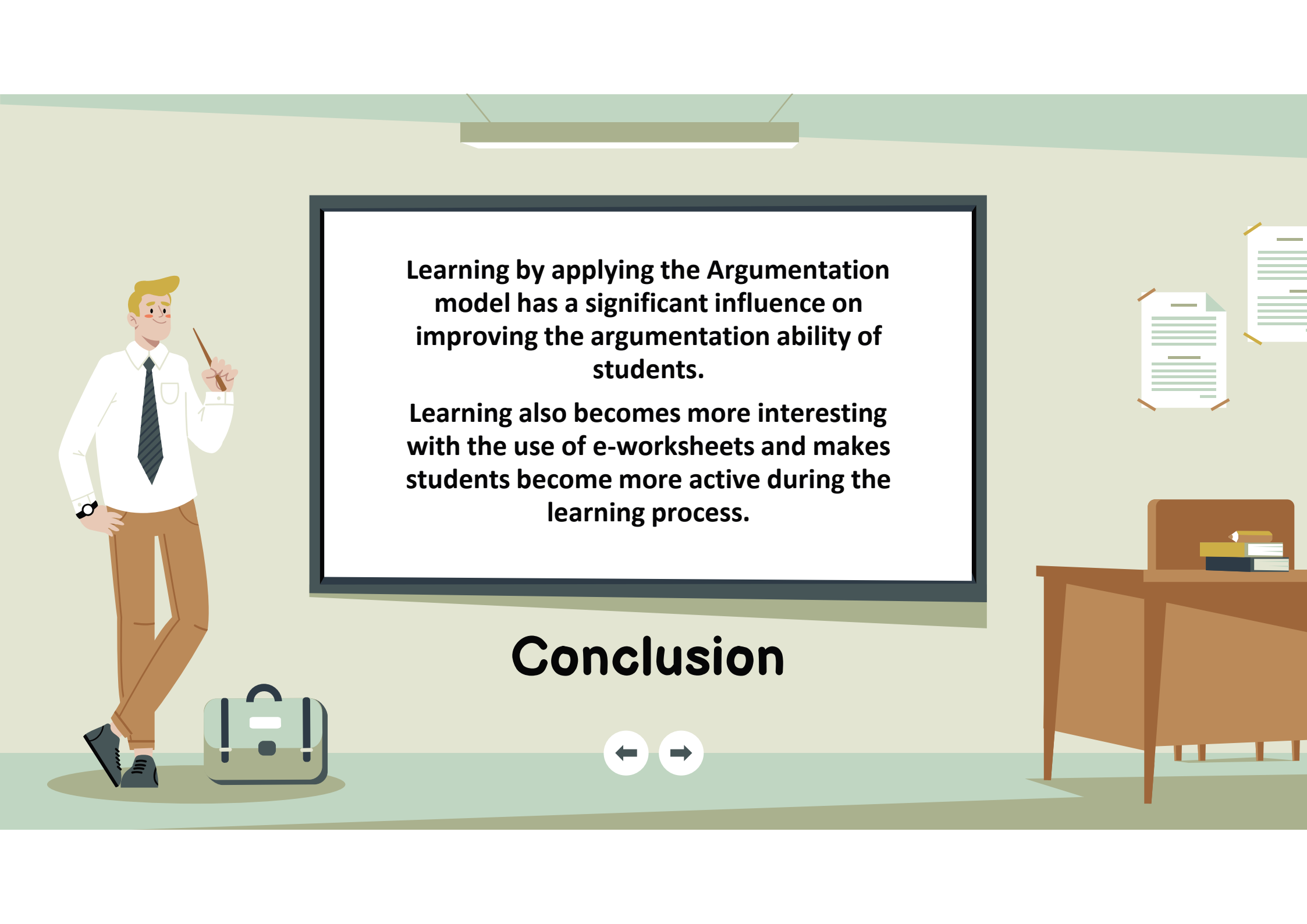
- There is a significant difference between the use of project-based argumentative models and conventional methods to improve students' argumentation skills.
- Students' argumentation skills are influenced by the implementation of learning using interactive e-worksheet products of biotechnology materials with an argumentative model based on project development results.

# Result



- In the experimental class, the increase level of argumentation of learners reached level 4.
- This shows that students have been able to write claims well, write evidence (ground/data) clearly, concisely, and easily identified, provide good justification (warrant) that is easy to identify and connect claims and warrants efficiently and provide backing that supports warrants.





**Learning by applying the Argumentation model has a significant influence on improving the argumentation ability of students.**

**Learning also becomes more interesting with the use of e-worksheets and makes students become more active during the learning process.**

## **Conclusion**

