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## **Developing EFL Critical Reading Aids: Project-Based Learning Activities for Electrical Industrial Engineering Students**

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### **ABSTRACT**

The Independent Learning and Independent Campus (MBKM) curriculum for vocational education provided learning experiences for students. However, the reading material conducted had not reached the curriculum target. Thus, this study aimed to develop critical reading material and worksheets based on the MBKM curriculum. The development procedure was designed in three stages: defining, designing, and developing for 3-D aids. The research resources employed were validation sheets for critical reading aids and semi-observation sheets to provide student activity during PjBL field trial. The results of this study were project-based learning (PjBL) used to construct English language learning aids for the syllabus and coursework units, including worksheets for critical reading. Hence, this learning aid could slightly enhance students' reading competence, which could lead them to have soft and hard skills as well as meet the MBKM curriculum target.

### **KEYWORDS**

critical reading activities;  
MBKM curriculum;  
project-based learning

### **ABSTRAK**

Kurikulum Merdeka Belajar dan Kampus Merdeka (MBKM) pendidikan vokasi memberikan pengalaman belajar bagi peserta didik. Namun bahan bacaan yang dilaksanakan belum mencapai target kurikulum. Oleh karena itu, penelitian ini bertujuan untuk mengembangkan bahan bacaan kritis dan LKS berdasarkan kurikulum MBKM. Prosedur pengembangan dirancang dalam tiga tahap: pendefinisian, perancangan, dan pengembangan alat bantu 3-D. Sumber penelitian yang digunakan adalah lembar validasi perangkat pembelajaran, lembar observasi untuk mengetahui kemampuan dosen dalam memimpin, dan lembar observasi untuk memberikan keaktifan mahasiswa. Hasil penelitian ini adalah pembelajaran berbasis proyek (PjBL) yang digunakan untuk menyusun alat bantu pembelajaran bahasa Inggris untuk silabus dan unit tugas mata kuliah, termasuk lembar kerja untuk membaca kritis. Oleh karena itu, alat bantu pembelajaran ini dapat sedikit meningkatkan kompetensi membaca siswa sehingga dapat menghasilkan *soft skill* dan *hard skill* serta memenuhi target kurikulum MBKM.

### **KATA KUNCI**

Kegiatan membaca kritis;  
kurikulum MBKM;  
pembelajaran berbasis  
proyek

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## INTRODUCTION

A teaching strategy known as project-based learning (PjBL) draws on authentic assignments and learning activities that present students with problems from real-world situations that must be resolved in groups. Due to its emphasis on a student-centered model of learning, students experience meaningful learning (Afriana, 2015). Several previous research on project-based learning has successful portraits some learning models such as a research-based approach to problems and questions that are weighty, real, and relevant (Faridah & Nawafillah, 2019). Meanwhile, Almula (2020) and Lestari (2015) proposed PjBL model to provide opportunities for educators to manage classroom learning by involving project work. According to Division of Teaching and Learning Office of Curriculum, Standards, and Academic Engagement (2019), this is in line with the Independent Learning and Independent Campus (MBKM) curriculum for vocational education, which enables students to develop both hard and soft skills, such as the ability to create products as a result of their learning experiences. This learning method becomes crucial to be applied, since the output of learning that has been taking place at the English class for Electrical Engineering students emphasized science skills, namely observing, using aids and materials, interpreting, planning projects, applying concepts, asking questions, and communicating well.

However, in the process of acquiring their science skills, students still encounter obstacles in developing their creative thinking skills, especially in interpreting, designing and making a project that can be used to solve problems systematically. Students still struggle with developing their creative thinking abilities while learning to read critically, particularly when designing and creating a project that can be used to solve problems in a methodical manner (Astawa et al., 2013). Critical reading requires students to recognize and analyse information they read on a text. It is a higher order reading skill in which the reader assesses the value of what they have read by applying reasoning, inference, and a questioning attitude (Wang & Gierl, 2011). One of the contributing factors is the existence of a critical reading syllabus that is still lacking in terms of the level of cognitive domains (Yu, 2015). According to Bloom's taxonomy, there are three levels of cognitive domains within the purview of critical reading: namely analytical, evaluative, and generate (Anderson & Krathwohl, 2001). The MBKM curriculum, however, is only at the analysis stage and has not yet reached the synthesis and evaluation stages. As a result, just the level of analysis and assessment is covered by the competences provided, ignoring the synthesis. These continuing activities did not perfectly follow the PjBL principles or the critical reading learning process, which students can develop their higher order thinking (HOT) skills.

It is necessary to develop critical reading learning materials that meet the PjBL model and the MBKM curriculum due to the effect this has on inadequate outcomes for learning. Some related literature on critical reading syllabus model was also scrutinized. According to Andreani (2010), a student's ability to comprehend meaning can be determined by how well they can recognize goals, interpret the motivation behind directions, and validate results. According to Astawa et al. (2017), the ability to evaluate, appreciate, and critically think about a text is a component of critical reading. Though it may seem tough to do any critical thinking while reading books, Fragoulis (2009) suggested various kinds of critical thinking readings, in the form of challenging assertions, facts, formats, and presentations; formulating clear ideas about satisfaction and dissatisfaction; identifying flaws completely or partially; excluding ideas; challenging the veracity and authority; ) forming opposing opinions; and contrasting the

tone, language, and content of various authors and reading passages. According to Pirozzi (2003) and Marwan (2015), two additional authorities, critical reading can be characterized as a very advanced comprehension of written material requiring interpretation and evaluation abilities that enable readers to distinguish between relevant and irrelevant information, distinguish between facts and opinions, and ascertain the purpose and tone of the author.

At university level, critical reading practice required students to develop and demonstrate a greater degree of reading proficiency. Rohmah (2018) describes critical reading implementation before producing an academic paper and giving a presentation on a certain subject, students will read pertinent materials to help them with their logical thinking. Thus, the importance of reading in class should be emphasized along with having strong critical reading skills. In addition, Faridah and Nawafillah (2019) in their classroom action research showed Critical Reading strategy can improve students' achievement in reading comprehension and create an attractive and joyful atmosphere during teaching and learning process. Although, there are some studies on critical reading and its benefit, however there was scarcely focused on developing the learning material. This study was intended to develop critical reading material which could meet the MBKM curriculum to PjBL for Electrical engineering students at State Polytechnic of Madura. It is consequently anticipated that these advancements benefit students' hard and soft abilities in this study. As a result, it can assist both the government's deployment of the MBKM curriculum and State Polytechnic of Madura goal of producing graduates who are competitive, skilled, and equipped to operate in the industry (Poltera, 2022).

## **METHOD**

The purpose of this research is to develop critical reading activities through Project Based Learning (PjBL). The goal of this study is to provide PjBL critical reading exercises for the MBKM curriculum. To gain a thorough knowledge of PjBL application in the MBKM curriculum, a qualitative approach is required. It was believed that through using activities that were appropriate for learning, students and teachers could collaborate to meet the established learning objectives. Both students as well as teachers could choose the best learning technique for themselves during class. In order to ensure that the concepts to be applied could work in accordance with the theory that was currently in place and suggested by Lestari (2015), a preliminary inquiry is undertaken utilizing the current protocol for teaching critical reading using the PjBL method. Industrial Electrical Engineering students in English 2 class of the 2022/2023 academic year was chosen to take part in this research, under consideration that they had a project in microcontroller class which also as class collaborator in this PjBL. As the main source of data, validation sheet and semi-structured observation were used. Particularly, validation sheet was used to validate the critical reading learning aids such as syllabus, worksheet and materials in development stage. There were available four scoring criteria (Excellent, good, satisfactory and need improvement) and a blank space which enables the three validators to comment and give suggestion for the improvement of learning aids. Meanwhile, the semi-structure observation was used after the learning aids had been validated. It aimed to generate the implementation of PjBL class by using critical reading learning aids.

In a nutshell, this developing learning aids stages were proposed by Bord & Gall (1983) as cited in Amali *et al* (2019). There were four stages to this research process: device development, implementation, data analysis, and report writing. The initial stage was the device creation stage, which entails the tasks of gathering learning materials, validating already-prepared learning materials, evaluating the validation results, and making adjustments. The second stage involved putting newly redesigned learning materials through informal assessments. One observer watched student behaviours and the lecturer's control over the learning process as it is taking place. The third stage involved reviewing the information gleaned from the implementation stage's data. Writing the report is the last stage. Briefly, it can be seen in the following chart.

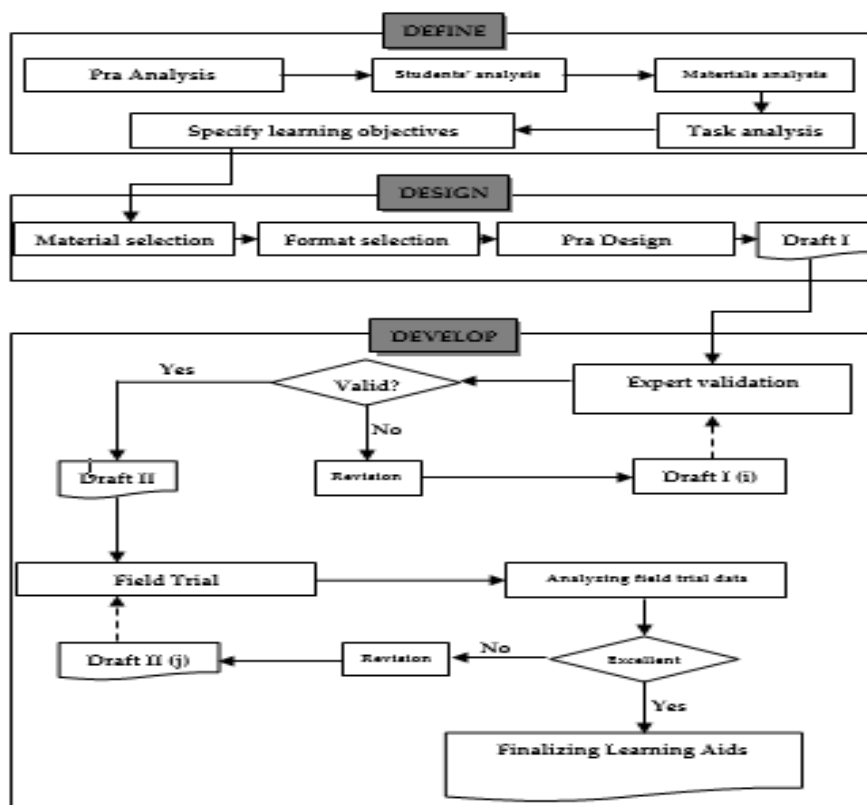


Chart 1. Modification of Research and Development Design (Amali, et al., 2019)

## FINDING AND DISCUSSION

There were three stages of the critical reading material development process. They were defined, design, and develop. Along with the early design of various learning aids, the PjBL Model for teaching critical reading was developed. In addition, two items were changed at the define stage, namely: (1) The term "concept analysis" was changed to "material analysis." The reason for this is that the subject matter is more extensive than the concept. (2) The order of the material analysis and task analysis, which were initially performed concurrently, was modified to material analysis first and task analysis second. This is so that the assignment can be dependent on the reading material. The findings from each development stages of learning aids are described as follows.

### *Description of the results of the defining stage*

#### *Initial Analysis of the Implementation of English Learning*

PjBL with student-centered has been adopted by the Electrical Engineering Department. The English language instruction has placed a strong emphasis on science-related skills, such as observing, using instruments and materials, interpreting, organizing projects, applying concepts, asking questions, and effectively communicating. Students still struggle with developing their creative thinking abilities while learning to read critically, particularly when designing and creating a project that can be used to solve problems in a methodical manner.

### *Preliminary analysis of English learning aids*

A critical reading syllabus still falls short of the level of cognitive domains. Within the purview of critical reading, there should ideally be three levels of cognitive domains: analytical, evaluative, and create (creation). However, the accessible curriculum in this instance was just at the analysis stage and had not yet reached the synthesis and evaluation stages. Thus, just the level of analysis and assessment was covered by the competences provided, leaving out the synthesis. The analytical and evaluative levels included the abilities of recognizing facts and opinions, inferring meaning, forming generalizations, understanding the author's tone, recognizing the author's aim, and recognizing the author's biases. A critical reading curriculum should have ideally included.

### *What need to do?*

In order to build learning aids that adhere to the most recent curriculum, notably the Independent Campus Learning Curriculum, which places a greater emphasis on practical learning that is student-centered, an alternative is required to the above. This is consistent with PjBL, which is a teaching strategy based on learning activities and practical projects that present problems for students to solve in groups on topics connected to everyday life.

### ***Description of the results of the design stage***

#### *Selection of Objectivity in Critical Reading Skills*

Following a requirements study, a summary of the goals for the Critical Reading course was created. The critical reading curriculum was designed to enable students to read texts that require close analysis, synthesis, and evaluation using a variety of reading techniques in order to attain critical reading comprehension. There were many subjects that could be included in critical reading. Students are taught how to distinguish between facts and opinions, apply inferences and generalizations, understand the author's intentions and prejudices, and assess the tone and attitude of the writer at the level of analysis. At the synthesis stage, students were also taught to combine material from a project or article reference and predict the outcomes. At the evaluation level, students were taught to assess the author's claims and justifications as well as references from articles and projects.

#### *Format Selection*

The syllabus format, or Lecture Program Unit (LPU), is modified to fit the Quality Control Unit of State Polytechnic of Madura as guidelines for lectures. Learning Materials and Worksheets made up the learning resources that need to be created.

#### *Initial Design of Learning Aids*

After choosing the type of syllabus in the previous step, a proto syllabus was created. At this point, the writer had incorporated language and language use into the curriculum. At this point, information was gathered about the themes to be covered, the reading methods that must be covered, and the different kinds of reading texts that must be covered. Five Lecture Program Units (LPU), one syllabus, and five worksheets are the results of this step. Making a pedagogical syllabus followed the creation of the proto syllabus in the activity. Based on the description from the previous stage, which includes an overall narrative description of the

objectives of the Critical Reading course, materials and activities included in the proposed Critical Reading course syllabus, time allocation for the material being taught, teaching and learning activities and techniques applied in teaching critical reading, evaluation or assessment, the pedagogic syllabus for English 2 courses for Critical Reading material was created.

## **Description of the results of the development stage**

### ***Expert validation***

Learning aids (Five lecture program units, one syllabus, and five worksheets) were revised and improved based on the findings of expert validation. Based on suggestions from the three validators engaged, the learning aids had been changed. The three validators' ideas for improvement include the following:

#### *Validator 1*

The learning aids were validated twice by the first expert. This occurred as a result of the first expert's suggestion that a few elements be updated before he began validating and signed the validation sheet during the first validation. First, there had been some comment regarding the validity on August 4, 2022. First, the first expert suggested that the author outline the English 1 courses that are required for the Critical Reading course. Second, it was suggested that the writer assess the student's degree of proficiency by examining their vocabulary or English proficiency. The corrected draft was provided for validation after revision. On August 15<sup>th</sup>, 2022, the second validation took place. Because the document was changed during the first validation, the first expert's advice was currently limited. He recorded a number of validation sheets before signing the last one.

#### *Validator 2*

The learning aids were verified by second expert just once, on August 5<sup>th</sup>, 2022. For the syllabus to be effective, there were still a few ideas that should be taken into account. The validation components for the syllabus for critical reading include objectives, topic summaries, learning methodologies, evaluations, material sources, and time allotment. The elements were rated by experts as Excellent, good, satisfactory and need improvement. The second expert stated that he did not know how to evaluate the material for the Critical Reading course because the author did not give examples of the subject covered in the course. He proposed changing it to a more appropriate content description. He added that critical reading courses teach skills in particular order.

#### *Validators 3*

The learning aids were verified by third expert just once, and his remarks were more heavily weighted toward the Project Based Learning method strategy employed in studying Critical Reading material. He said it was excellent since it matched the competencies that needed to be attained and the tactics utilized enhanced student participation. Additionally, there was excellent material support because of the materials used to teach critical reading. The demands and skill levels of the pupils must be taken into consideration while reproducing props like images and other media. Additionally, experts believe that the time allotted for each unit is extremely good because they are aware that Critical Reading courses demand a greater level

of student participation in interactive activities like discussions and presentations, which take a lot of time. They emphasized that the amount of time allocated to the development of each skill is proportionate. Since after the validation, the three experts agreed that critical reading abilities are crucial for students in the department of industrial electrical engineering. He claimed that the course outline provides a meticulous, step-by-step learning approach.

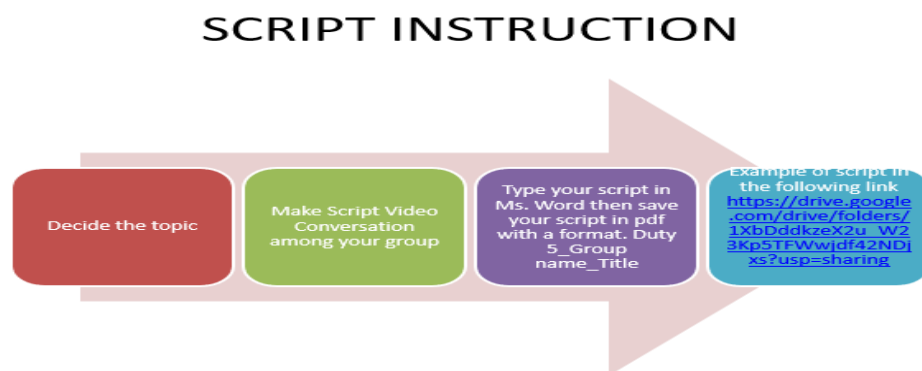
### Field trials

After the three experts' validation results were finished on August 23<sup>rd</sup>, 2022, then, on September 2<sup>nd</sup>, 2022, it was tested out by two Poltera English lecturers. Two critical reading instructors were asked to create a LPU based on the proposed syllabus for the proposed Critical Reading course. The author had provided some sample material. This exercise was designed to determine whether the language, structure, and substance of the suggested syllabus have been properly grasped. Checking the applicability of the syllabus to be developed into SAP was another goal of this study. The researcher met informally with the team of English lecturers to explain what they needed to undertake.

### Observation results for learning English with the project-based learning-model

The steps of the PjBL paradigm, which have been put into practice over the course of 8 meetings beginning with the first week of classes on September 5 and running through October 31<sup>st</sup>, 2022, are as follows:

1. Asking a thought-provoking question at the outset—beginning of the lesson (open with the big question). A driving question that could assign students to complete an activity sets the stage for learning. The subjects chosen ought to be based on actual events and start with a thorough inquiry.



**Figure 1.** Script Instruction

2. Project planning (creating a plan for the project). Collaboration between instructors and students were used when planning. As a result, ownership of the project was demanded of the students. The planning process consists of establishing the ground rules, choosing the activities that helped answer key questions by fusing diverse supporting topics, and deciding on the resources and aids that were needed to finish the project. The following were some of the actions taken in this regard

## Submission Date

- In meeting 6, Please sent your script of your group project to THE AVAILABLE FOLDER BASED ON YOUR GROUP NAME to this link and in meeting 13 please send the video of your group project to <https://drive.google.com/drive/folders/1c6rnOoZus5x8S46v3VawknYlmcWIB7EI?usp=sharing> and fill the google form to send your progres report in the following link <https://bit.ly/progressreportbig1>
- in meeting 7 please send the video of your group project to <https://drive.google.com/drive/folders/1c6rnOoZus5x8S46v3VawknYlmcWIB7EI?usp=sharing> and fill the google form to send your progres report in the following link <https://bit.ly/progressreportbig1>
- Meeting 8 you ready to present your group project video

**Figure 2.** Submission Date

## VIDEO INSTRUCTION



**Figure 3.** Video Instruction

3. Scheduling activities, which involved instructors and students in planning activities together to finish tasks. Students must be provided instructions on how to manage their time and must be given a clear deadline for the project's completion. Allow students to conduct experiment, but the lecturer must continually remind them if their actions diverge from the project's goals. Since student-led projects were labor-intensive, teachers often urged students to work in groups to finish them outside of class time. When learning took place in the classroom, students were simply required to present the outcomes of their projects.

**Table 1.** PjBL Schedule

Level	Meeting	Competence	Time allotment
Analysis	1-2	Differentiating between facts and opinions	(2 x 100'')
	3	Identifying Generalization	(3x 100'')

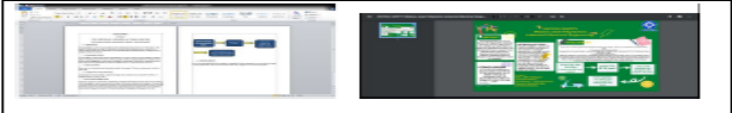


Synthesis	4	Synthesizing a text in the article online or offline	(2x 100'')
	5-7	Construct their poster draft and ppt	
Evaluation	8	Evaluating the writer's argument and reasoning through a group presentation	(3x 100'')


4. Oversee the project's operation. While students were working on projects, lecturers kept an eye on their progress. Students assisted in each process serve as the observers. In other words, teachers supervised student projects as mentors. Students learnt how to cooperate in a group from lecturers. Each student was free to select their respective roles while still considering the needs of the group. By completing the progress report form, students report the status of the project they were working on. The following figure described their progress report form of their project. The manuscript and video progress were needed to report. They could enclose a screenshot of their progress and send the report through google form.


**PROGRESS REPORT FORM**

CLASS : TLI-2A  
 GROUP : 1  
 TOPIC : BICYCLE SAFETY

- Please describe your video/MANUSCRIPT topic in a paragraph!  
 [In this video and script assignment we discuss a device, namely a bicycle safety device whose function is to guard the bicycle when we are not in close proximity]
- Who are being involved in the video/MANUSCRIPT?  
 [all of our members are involved in making videos and scripts. The idea for the tool came from Syafiuddin and then we made the text and video together]
- What is your video/MANUSCRIPT progress right now?  
 [we have made the script and the poster, only the video remain]
- Please insert your screenshot of your progress report?  

- What are the barriers which you have found?  
 [The obstacles that we might face are not being able to discuss intensively because of limited time provided]
- What will you do to minimize the barriers?  
 [by communicating via WhatsApp]

Make sure of what you have filled in this form is true. The chair person of this project should be responsible of what the team has done during this making video project.

[Your sincerely,  
 The chairperson of GROUP 1  
 (please sign here)  
  
 Venezia Arzetti Meg  
 NIM: 33112001005]


Suggestions from the lecturer See the Grammatical dan systematical of your poster	Approved  Dr. Milawati., S.Pd., M.Pd
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**Figure 4.** Progress Report Form

5. Evaluation of the end outcome. Assessment was done to help teachers gauge standard achievement, evaluate each student's development, give feedback on the depth of comprehension that had been attained by students, and help professors come up with future learning tactics. As indicated in the following figure 5, product assessment was done when each group turns to display their product in front of the other groups. In particular, each member of the group presented the product. After they did their presentation, they also submitted the report of their product in the form of poster (see figure 6).




Figure 5. Project Based Learning Product Presentation (Assessment Product)



## State Polytechnic of Madura

### INDUSTRIAL ELECTRICAL ENGINEERING

# 'Robot Line Follower'



**- Abstract**  
 Line Follower Robot is one of the basic types of robots for beginners who want to learn or know the science of robotics, this robot has a working principle / method of being able to follow lines, both black and white lines, which usually use line sensors, namely photodiode and LDR. This robot can be developed by adding other sensors such as heat/flame sensors, proximity sensors and others. Because this robot can be competed in robot contests from the student level to the student level, even to the world level. Therefore, we will try to make a line follower robot that aims to learn the basics in making robots, apply the courses that have been taken, especially electronics and microcontrollers. Line follower robots are one of the most basic types of robots, so they are easy to learn for beginners. This robot also has a fairly simple working principle, namely it can follow lines, both black and white lines, which usually use line sensors, namely photodiode and LDR. The conclusion of making a line follower robot is that we can learn and build a line follower robot. In addition, we can find out about what a line follower robot is, how it works, what is needed in making a line follower robot, the process of making a line follower robot from start to finish.

**- Introduction**  
 Line Follower Robot is one of the basic types of robots for beginners who want to learn or know the science of robotics, this robot has a working principle / method of being able to follow lines, both black and white lines, which usually use line sensors, namely photodiode and LDR. This robot can be developed by adding other sensors such as heat/flame sensors, proximity sensors and others.

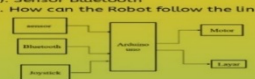
**- Method**  
 There are two things that need to be discussed namely, the components needed and how it works.

1. Components Of Robot Line Follower  
 There are 5 main components needed in making a Smart Plug, namely:

**- References**  
 Editor, P. (2013). Keunggulan Robot line follower. <https://www.plimbi.com/article/97891/line-follower-robot-robot-paling-sederhana-yang-te>. (Retrieved on 29 May 2022, at 18:52 PM).  
 Felix. (2019). Sistem kerja Robot line follower <https://osc.medcom.id/community/robot-line-follower-2/>. (Retrieved on 29 May 2022, at 15:52 PM).  
 Kho, Dickson. (2020). Pengertian LED (Light Emitting Diode) dan Cara Kerjanya. <https://teknikindonesia.com/pengertian-led-light-emitting-diode-cara-kerja/>. (Retrieved on 29 May 2022, at 12:34 PM).  
 Krisna D.Y et al. (2019) desain robot pengikut garis menggunakan arduino UNO :Universitas Islam Malang.  
 Makabue. (2021). Pengertian Bluetooth sensor <https://www.makabue.com/bluetooth-sensors-guide>. (Retrieved on 29 May 2022, at 15:05 PM).  
 Nugraha, Anggara Triana. (2017). Pengertian photodiode (diode foto) dan prinsip kerjanya. Kajian: Sistem Kerja Photo dioda.  
 Pradana, R. (2018). Prinsip Kerja Arduino UNO pada Robot line follower <https://www.scribd.com/document/511985733/5de7891a8b71a67501f9e777fcb0a0>. (Retrieved on 29 May 2022, at 10:19 PM).

a). Skeleton And Body  
 b). LED  
 c). Arduino Uno Microcontroller  
 d). Photo Diode  
 e). Sensor Bluetooth

2. How can the Robot follow the line



**- Result**  
 This robot detects the line by using the infrared sensor attached to it. The sensor reading data is sent to the microcontroller, then the microcontroller will use the data to decide the direction of the robot's motion. In the program, fuzzy logic and PID can also be implanted to increase the responsibility of this one robot ( Felix, 2019, Para.2). A line follower consists of an infrared light sensor and an infrared LED. It works by illuminating a surface with infrared light; the sensor then picks up the reflected infrared radiation and, based on its intensity, determines the reflectivity of the surface in question.  
 Line follower robot is a robot that can distinguish the color of a black line and a white background, and vice versa. This can be done because this robot has a sensor to determine the color of objects. However, objects that can be detected by this robot are only objects that have a color value below and above a certain nominal value. So a good line and background for a line follower robot is one that only has 2 different colors, for greens that have 2 different colors it can be passed but the robot will have difficulty detecting these colors.(Editor, P, 2013, Para.2)

**- Discussion**  
 Line follower robots are one of the most basic types of robots, so they are easy to learn for beginners. This robot also has a fairly simple working principle, namely it can follow lines, both black and white lines, which usually use line sensors, namely photodiode and LDR. The younger generation also needs to learn about robotics because in the industrial world, robots play an important role in helping humans, so humans no longer need to carry out activities or jobs that pose a fatal risk to their survival.

**- Conclusion**  
 The conclusion of making a line follower robot is that we can learn and build a line follower robot. In addition, we can find out about what a line follower robot is, how it works, what is needed in making a line follower robot, the process of making a line follower robot from start to finish.

**Group 1**  
 Agung Parsonno S.A  
 Syaiful Anwar  
 Rizki Akmal  
 Acha Rizki  
 Indira Yudianti S.P

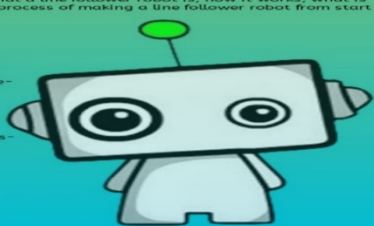


Figure 6. Poster of Project Based Learning Product

6. Evaluation was the process of looking back on the projects and activities that had been completed by lecturers and students at the conclusion of the learning process. There were both individual and group reflection exercises. Students were asked to discuss their thoughts and feelings they had while working on the assignment. This explanation led to the creation of the accompanying diagram, which showed the steps of project-based learning implementation. Figure 7 was the evaluation form of project-based learning. This was a group evaluation; one group could comment to another group. There were some point to be evaluated such as topic selection, opening performance, clarity of their group presentation (mimic, gesture, content, fluency, accuracy), how they could defend their opinion when teacher directly asked question and last is suggestion for group.

**FEEDBACK FORM ON GROUP PRESENTATION  
PROJECT-BASED LEARNING**

CLASS : \_\_\_\_\_

TOPIC : \_\_\_\_\_

1. TOPIC DESCRIPTION
2. How is the opening of their presentation?
3. How is the Clarity of their presentation?
4. Describe the CONTENT, MIMIC, GESTURES, FLUENCY, and ACCURACY of each  

Name:	Presenter 1
Description:	
Name:	Presenter 2
Description:	
5. How is this group answer the teacher's question?
6. SUGGESTIONS

**Figure 7.** Project Based Learning Feedback Form

From the research findings above, the development of those instruments could generally be more beneficial. They enabled students to develop their soft skill and hard skill. Particularly, students could enhance their reading skill when they read text references relevant to their project. In other words, they had applied higher order reading skill as it is stated by Wang & Gierl (2011) they recognize and analyse information they read on a text. In addition, students could also create products (robot line follower prototype and poster) based on the references they read as a result of their learning experiences. Those in line with Division of Teaching and Learning Office of Curriculum, Standards, and Academic Engagement (2019), this is in

line with the Independent Learning and Independent Campus (MBKM) curriculum for vocational education, which enables students to develop both hard and soft skills. In contrast to the beneficial of critical reading and its implementation in project-based learning, teachers and students might pay attention to the objectives provided in each meeting in order to make the most of the syllabus. Both of them was given specific information about the extent of the subject to be covered in class since the examples of the material offered in the syllabus are supported by examples. Additionally, because the curriculum clearly states whether these activities are completed singly, in pairs, or in groups, the activities that were completed in class may be identified. A test to determine whether the meeting's goals have been met was needed for further research and development in the syllabus. Particularly, the teacher might then allot the allotted time to finish the material. Hence, they could had done enough planning and preparation for the critical reading.

As several adjustments must be performed in order to implement the findings of this study. Since the learning process to generate a product technically takes time. It is required to adjust the time to work on aids, prepare presentations, and write reports in order to produce goods that meet expectations. Project-Based Learning (PjBL) learning aids need to be updated to suit the latest curriculum developments, student needs and prioritization of material given that the implementation of PjBL requires an extra allocation of learning time. The use of appropriate teaching strategies and Project-Based Learning (PjBL) evaluation models for English instruction in industrial electrical engineering has to be further investigated.

## CONCLUSION

Utilizing project-based learning models for critical reading materials benefit students to acquire both soft skill and hard skill which could met the MBKM target. Learning resources are focused on project-based learning strategies for challenging reading. They were worksheets, coursework units, and a syllabus. Through 3D research and development stage namely defining, designing, and developing, those learning resources created. The reading activities designed in the syllabus were dominantly centre on students. Thus, students can earn their learning experience by themselves, while the teacher could pose as a facilitator. Particularly, this learning aids also enabled students not only enhance their reading skill but also other language skills such writing a poster and speaking skills through individual or group presentation. Both teacher and students could get the beneficial of developing this learning aids since their learning aids made, are updated along with the development of the latest curriculum policy.

## REFERENCES

- [Almulla M.A.L. (2020). The effectiveness of the project-based learning (pbl) approach as a way to engage students in learning. Sage openvolume 10, issue 3, july 2020. <https://journals.sagepub.com/doi/epub/10.1177/2158244020938702>
- Amali, K., Kurniawati, Y., & Zuhiddah, Z. (2019). Pengembangan Lembar Kerja Peserta Didik Berbasis Sains Teknologi Masyarakat pada Mata Pelajaran IPA di Sekolah Dasar. *Journal of Natural Science Integration*, 2(2), 191-202.
- Anderson, L. W. and Krathwohl, D. R. (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives*. Allyn & Bacon. Boston, MA (Pearson Education Group)
- Andreani, Sri. 2010. *Modul reading III: Critical reading*. Malang: State University of Malang.
- Afriana, Jaka. (2015). *Project-Based Learning (PjBL)*. Universitas Pendidikan Indonesia. Bandung.

- Astawa, Ni Luh Putu Ning Septyarini Putri, Luh Putu Artini, Putu Kerti Nitiasih. (2017). Project-based Learning Activities and EFL Students' Productive Skills in English Journal of Language Teaching and Research, Vol. 8, No. 6, pp. 1147-1155. DOI: <http://dx.doi.org/10.17507/jltr.0806.16>
- Division of Teaching and Learning Office of Curriculum, Standards, and Academic Engagement. 2019. Project-based learning: Inspiring middle school students to engage in deep and active learning. New York. [http://blog.ncue.edu.tw/sys/lib/read\\_attach.php?id=11950](http://blog.ncue.edu.tw/sys/lib/read_attach.php?id=11950) (Accessed on 19 Januari 2019)
- Farida, F & Nawafillah, NQ. (2019). The implementation of critical reading strategy for improving reading comprehension skill of Informatics Engineering students. Lintang Songo: Jurnal Pendidikan, Vol. 2 No. 2 Agustus 2019
- Fragoulis, Iosif. (2009). Project-Based Learning in the Teaching of English as A Foreign Language in Greek Primary Schools: From Theory to Practice. *English Language Teaching*. Vol 2(3)
- Foss, Patrick, Carney, Nathaniel, McDonald, Kurtis and Rooks, Matthew. (2008) Project-Based Learning Activities for Short-Term Intensive English Programs. The Philippine ESL Journal: Volume 1 Page 57-76
- Grant, M.M. (2002). Getting a grip of project-based learning: Theory, cases, and recommendation. North Carolina: Meridian A Middle School Computer Technologies. Journal Vol. 5.
- Lestari, Tutik. (2015). Enhancing students' basic competence through project-based learning model. Yogyakarta: Universitas Negeri Yogyakarta
- Marwan, Ardi. (2015). Empowering English through Project-Based Learning with ICT. TOJET: The Turkish Online Journal of Educational Technology – October 2015, volume 14 issue 4
- Permendikbud. (2020). National Standard of Higher Education. Jakarta: Kemendikbud
- Pirozzi, Richard. (2003). *Critical reading, critical thinking*. New York: Addison Wesley Educational Publisher Inc.
- Politeknik Negeri Madura. (2022). Visi dan Misi. <https://www.poltera.ac.id/info-box-2/> (diakses pada tanggal 22 Januari 2022 jam 23.54)
- Rohmah, G.N. (2018). Students' problems, strategies and reflections. J-ELLiT (Journal of English Language, Literature, and Teaching Vol.2 (1). <http://repository.uin-malang.ac.id/5977/1/5977.pdf#>
- Yu Jinhong. (2015). Analysis of Critical Reading Strategies and Its Effect on College English Reading. Theory and Practice in Language Studies, Vol. 5, No. 1, pp. 134-138, January 2015 ISSN 1799-2591 <http://dx.doi.org/10.17507/tpls.0501.18>
- Wang, C & Gierl, M.J. (2011). Using the attribute hierarchy method to make diagnostic inferences about examinees' cognitive skills in critical reading. Journal of Educational Measurement Summer, 48(2): 165–187