# Providing Assessment Model to Diminish Free Rider and Enhance Students' Cooperative Skills

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*This study aims to propose a concept innovation model: EDDPEA (Envision, Design, Develop, Presentation, Enhance, Assessment) as an attempt to diminish the free-rider issue and raise university students' collaborative skills. The study involved a research development approach using the ADDIE (Analyze, Design, Develop, Implement, and Evaluate) model to develop an innovative learning model for university students. This approach was adopted to develop a product that is effectively involved in learning. In this research, we employed questionnaires in measuring the validity, practicality, and effectiveness. The findings of this study indicate that the EDDPEA follows six stages, including envision, design, develop, present, enhance, and assessment. Each stage can involve students' attention to a particular given topic. Additionally, this innovative learning model can be used for entrepreneurship subjects as attempting to diminish the free-rider issue in a workgroup and it can be elaborated with other relevant subjects. This paper will provide a prior understanding on how to diminish free-rider issue in work group learning.*

*Keywords: learning innovation, EDDPEA, model development, free-rider*

## INTRODUCTION

Project-based learning (PjBL) is a learning model that is deemed appropriate to involve students in growing creativity and critical thinking skills in a joint project (Rahardjanto, 2019). The underlying rationale is that PjBL enables to build on learning activities and actual tasks that provide challenges for students related to everyday life to be solved in groups (Jalinus & Nabawi, 2017). Brassler and Dettmers (2017) added that students constructively carry out deepening learning with a research-based approach to serious, authentic, and relevant problems and questions.

In addition, economics learning, primarily in entrepreneurship subjects, need to engage students in a joint project to acquire an exciting and striking essence to drive their entrepreneurial intentions (Saptono et al., 2020; Wardana et al., 2020). Several previous studies mentioned that efficient and effective entrepreneurship education must be carried out with real projects, not book-based theories in the text

(Karyaningsih et al., 2020). In the PjBL model, students understand the content and develop skills in students how to play a role in society (Mahendra, 2017). Skills developed in PjBl include communication and presentation skills, organizational and time management skills, research and investigation skills, self-assessment and reflection skills, group participation and leadership, and critical thinking (Effendi, 2018; Sumarmi et al., 2019).

However, another problem that arises is the "free rider" in the implementation of PjBL that will diminish the main essence of "cooperation" among members (Healy et al., 2018; Chang et al., 2018). In fact, a free rider is a significant issue in implementing project-based learning involving many group members (Lin, 2018). As a free rider, the effect of this behavior can make group work an unpleasant experience (Dingel et al., 2013). What frustrates students the most is receiving the same grades as fellow group members who do not contribute even though they produce a lot of group work. Identifying "free rider" behavior in a project can help reduce its impact on other group members.

The free-rider problem has raised the attention of researchers worldwide about what and how to try to reduce this issue. For example, Hall and Buzwell (2013) stated that "free rider" in a group project is a major issue at an Australian university because it unfavorable impacts other members and the intention to study as a group. Additionally, Harding (2018) attempted to decline the free-rider problem by using a "flocking" approach. Meanwhile, Ozono et al. (2017) emphasize the "punishment" approach in learning and involving technology (Kloppenburg et al., 2018). This study offers a conceptual model, namely EDDPEA, as an attempt to diminish the free-rider problem.

The concept of the EDDPEA assessment model adopts the assessment model in Imagineering. Imagineering is a new concept developed by adjusting the characteristics of students in the 21st-century era. This concept focuses on the process of independent learning activities, student creativity, and the creation of innovation. The concept of imagining the targets that students must achieve can encourage them to be able to start creating the initial idea of the project they want to be able to apply the process at each stage and forget to also communicate with other members (Nilsook & Wannapiroon, 2013)

This research provides three main contributions. First, this study contributes to the literature on the application of PjBL in economics and entrepreneurship learning, especially during pandemic Covid-19 which was not seen in previous studies. In fact, preliminary research only mostly linked PjBl and learning outcomes (Rahardjanto, 2019; Affandi & Sukyadi, 2016) and critical thinking skills (Hikmah et al., 2016; Effendi, 2018; Inshasiska et al., 2017). Second, this study is the first study involving PjBL and EDDPEA as an effort to reduce free riders. Third, the study can be considered by policymakers in formulating engaging lessons in project-based learning.

## RESEARCH METHODS

This study aims to provide an innovative learning model to overcome the free-rider issue in the workgroup. The development of this learning innovation adopted the ADDIE model development steps. This approach was adopted to develop a product that is effectively used in learning. We involved a questionnaire in measuring the validity, practicality, and effectiveness. At the analysis stage, two analyzes were adopted, namely an analysis of student needs and free-rider problems that often appeared in group discussions. From the analysis results, the learning design was designed under the name EDDPEA: Envision, Design, Develop, Presentation, Enhance, Assessment. Needs analysis is intended not only to observe appropriate learning plans but also to conduct a needs analysis of learning models, teaching materials, and methods engaged by teachers to identify and solve the problems.

At the development stage, the learning model guide book assessment instrument was validated by three experts the assessment of the learning model guidebook which was validated by three experts who conducted the assessment and improvement of the instrument used carried out the assessment and improvement of the instrument used in the form of a questionnaire. Based on the validator's suggestion, improvements and refinements were made to the validator model to this learning model. The revised guidebooks were tested on students with observation sheets on free-rider problems and improving

collaborative skills at the implementation stage. At the evaluation stage, improvements were provided to the EDDPEA learning module through a questionnaire.

The result of the development is the final product of the EDDPEA guidebook, the final product of the learning guidebook for overcoming free-rider problems and improving collaborative skills. The validity category of the learning model follows the criteria from Creswell and Miller (2000), while the user practicality test data in filling out the questionnaire is presented using percentages (%). After the percentage is obtained, it is grouped according to the criteria for the practicality assessment. While the effectiveness analysis is acquired by calculating the activities as contained in the observation sheet.

## RESULTS AND DISCUSSION

### EDDPEA Concept

The concept of EDDPEA adopts the assessment model on Imagineering. Imagineering is a new concept that was developed by adjusting the characteristics of students in the 21st-century era. This concept focuses on the process of independent learning activities, student creativity, and the creation of innovations. In the concept of imagining the targets that students should achieve, it can encourage them to be able to start creating the initial idea of the project they want so that they can apply the process at each stage and forget to also communicate with other members (Nilsook & Wannapiroon, 2013) revealing that there are six aspects of learning. There are in Imagineering, namely: Imagine, Design, Develop, Presentation, Improvement, Evaluation.

In the EDDPEA concept, several aspects have been modified. This difference in assessment aspects is due to differences in the focus of the assessment that will be carried out on students. The word "envision" was chosen because it means to see what other people think. This is because in the EDDPEA model, individual thoughts are prioritized, and other people's ideas or thoughts are prioritized. The word "enhance" was chosen because, at this stage, students are required to improve what has been made even better. The focus is on improving the products that have been made. The word "assessment" was chosen because this is the final stage of the EDDPEA model, which is already a product assessment that students have perfectly made. The following is a change in aspects contained in the EDDPEA concept (see Table 1).

**TABLE 1**
**THE DIFFERENCE BETWEEN IMAGINEERING AND EDDPEA**

| Imagineering | EDDPEA |
|---|---|
| Image | Envision |
| Design | Design |
| Develop | Develop |
| Presentation | Presentation |
| Improve | Enhance |
| Evaluation | Assessment |

### Implementation

In the implementation of the EDDPEA model, students will be divided into small groups that are chosen directly by the students. This is done so that students can choose members who have the same vision and mission in the group. Before starting the activity, students were then briefed and related to the EDDPEA model. After students receive direction, the next activity to be carried out is group discussion and mapping out members according to the competencies or expertise possessed by each member. The descriptions of activities and expected results in each stage of EDDPEA are provided as follows.

### Envision

Envision is the first procedure of the EDDPEA learning model. The brainstorming technique is used to carry out learning activities using the EDDPEA model. This technique involves seeking inspiration and

imagining goals. In this activity, students are required to imagine a situation or situation in the future when they are an entrepreneur. Students are faced with questions about: (1) what inspires their thinking? (2) who inspires their thinking? (3) why do they want to make it happen?. These questions are intended so that the right brain of students plays a role in finding what answers are in accordance with the wishes of these students. The results of this activity are presented in term of (1) the agreement of products to be produced. (2) the distribution of members according to their competence.

**Design**

The design uses blueprint techniques, including drafting, storyboard building, scripting, and prototyping (Nilsook & Wannapiroon, 2013), laying the foundation for how students will design their plans (McKenna, 2012). After that, they need to combine their imagination into a work process construct. The results at this design stage are presented as follow: (2) the plan of business activities agreed by the group (2) the stages of activities and schedule of group activities (3) the overview of the product to be made.

**Develop**

Develop means that this development is associated with the implementation of tasks. This includes creating and testing models, using multiple perspectives, promoting creativity, and approaching problems, which can occur at any time during the creative process. In this activity, the results are informed as follows: (1) products to be promoted (2) report on the implementation of the stages of each member (3) video of the implementation of activities by each group member.

**Presentation**

This activity refers to presenting student results, and includes illustrating results, showing their work and/or comparing them with other works, and receiving suggestions (Nilsook & Wannapiron, 2013). The results of this activity are provided as follows: (1) presentation of products that have been made (2) suggestions and input on products that have been made by the group (3) the steps taken by the group in promoting the product.

**TABLE 2**
**INDICATOR OF ASSESSMENT**

| No | Students' name | Steps | Initial agreement | Point (Max 100) | Individual point |
|---|---|---|---|---|---|
| 1 | | Envision | | | Total points per stage/ number of agreements |
| 2 | | Design | | | Total points per stage/ number of agreements |
| 3 | | Develop | | | Total points per stage/ number of agreements |
| 4 | | Presentation | | | Total points per stage/ number of agreements |
| 5 | | Enhance | | | Total points per stage/ number of agreements |

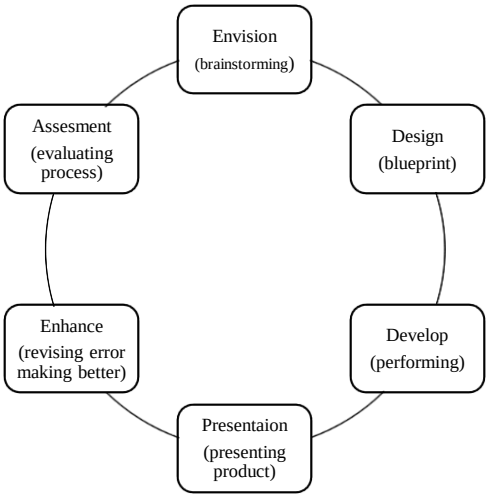
**Enhance**

Students are required to improve what has been produced in accordance with the agreement at the time of the presentation. This activity is intended so that the products produced by these students are the best products they can create. The results of this activity are provided as follow: (1) Fixes on products that obtain input (2) Improvement of the system or process that has been carried out by the group (3) Products that have been repaired (4) Improved system.

**Assessment**

Assessment is an effort to obtain data/information from the learning process and results to determine how well the performance of students, classes/courses, or study programs is compared to certain learning objectives/criteria/achievements. This activity is the final activity of the EDDPEA stage. In this activity, students will acquire an assessment according to the part of the task obtained and follow the design plan agreed upon at the beginning. Assessment of the process carried out by individuals under the output's provisions (see Table 2).

**FIGURE 1**
**EDDPEA INSTRUCTION MODELS**




At each stage of Envision, Design, Develop, Presenting, Enhance, and Assessment, each student who is a member of a group have their respective job descriptions according to the skills written in the group report. Therefore, the task in the form of a project can run optimally, and the assessments made by course lecturers become more apparent and more objective because each member does his or her job to get maximum results in order to create and work on the assigned product or project. In addition, the possibility of free riders can also be minimized by implementing the EEDPEA concept (see Figure 1).

## CONCLUSION

This aims at providing an innovative learning model to reduce the free-rider issue in the workgroup. The findings indicate that the EDDPEA follows six stages, including envision, design, develop, presentation, enhance and assessment. Each stage can involve students' attention to a particular given topic. Additionally, this innovative learning model can be used for entrepreneurship subjects as attempting to diminish the free-rider issue in a workgroup. This study faces some limitations. First, this is a concept model that further needs to be validated and adopted in various settings. Second, the breakdown for each stage needs to be engaged with the learning context of educational level. Further research can adopt this model and elaborate with other relevant subjects.

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