

## Implementation of 4D Learning and ADDIE Model to Increase Entrepreneurship Competencies

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### Abstract

*This study aims to examine the implementation of the 4D and ADDIE models ineffective Entrepreneurship Competencies at college students. The method used in this research is research and development with qualitative methods. The object of the research was the students of the Economic Education Study Program at Tanjung Pura University who were choosing entrepreneurship courses. Data collection techniques through direct observation and in-depth interviews. Data analysis uses an interactive analysis model that has three components, namely data collection and presentation, then concluding. The results showed that the development of entrepreneurship learning models based on 4D and ADDIE was by the specified stages. The results of the student questionnaire recapitulation stated that the learning model developed was able to increase students' interest and understanding of entrepreneurship as a whole. The 4D and ADDIE-based entrepreneurship learning model is expertly applied.*

**Keywords:** learning model, 4D, ADDIE, entrepreneurship competencies

### 1. Introduction

Entrepreneurship education in Indonesia still lacks in attention, both by the world of education and society. Many educators do not pay attention to the growth of entrepreneurial character and behaviour. At present most of the college graduates in Indonesia are still weak in their entrepreneurial spirit. One of the strategies implemented by the government to increase entrepreneurship in Indonesia is to include entrepreneurship courses in the university's educational curriculum. Through entrepreneurship learning to broaden their horizons and motivate them to be directly involved in the world of entrepreneurship as young entrepreneurs who are tough, so they can contribute to improving the country's economy. Entrepreneurship lecturers must have adequate entrepreneurial competencies, including business experience. One source of entrepreneurial learning problems on campus is not felt at its core. This problem is due to the lack of entrepreneurial competence of lecturers in terms of experience in the field. In general, entrepreneurial lecturers are in the category of writers, lecturers or researchers, not business lecturers [1]. Lecturers of this type are mostly struggling with theoretical problems, doing more written work than doing business practice activities. In daily activities, the types of lecturers generally struggle with books and scientific journals, instead of trying to realize business theories that have been learned in the real world. Entrepreneurial lecturers must have entrepreneurial competencies such as experience in managerial positions in business and industry [2].

Another cause is that lectures are still based on the Teacher Center learning method, namely lecturers, as a centre of learning activities. This learning method is proven to produce graduates with a low level of independence. Besides, the cause of the weak entrepreneurial spirit of college graduates is also caused by the learning process in higher education which is still limited to theory and not yet conditioned to build entrepreneurial spirit in real activities and the world of work. Factors that influence entrepreneurial

motivation are happy challenges, self-success, achievement, happy work, and instrumentation readiness to become entrepreneurs [3]. Entrepreneurship education is also included in the material that must be taught and mastered and realized by students in everyday life when viewed from national education standards as a reference for curriculum development.

For this reason, it is necessary to find solutions so that entrepreneurship education can play a role in turning people into people who have entrepreneurial character or behaviour. To achieve this, since at school students need to be equipped to have strong entrepreneurial character and behaviour, so that later they will be able to become human beings who if working in the office will become an independent workforce and create minimum employment for themselves. Students are given stimulation in the form of spaces, gaps, opportunities, challenges, and the like to foster entrepreneurial motivation in the pursuit of entrepreneurship [4].

However, the problem is, entrepreneurship education in higher education has so far not touched on the level of internalization and action in daily life. This problem needs to be sought as a wise solution, one way through supporting the implementation of innovative learning models such as 4D (Define, Design, Development, and Dissemination) and ADDIE (Analysis, Design, Development or Production, Implementation or Delivery, and Evaluations) learning models. The selection of the ADDIE model is based on several considerations because this The ADDIE model is a universal learning design whose processes are organized in the construction of learning materials and can be used for face-to-face learning or online. Besides, the ADDIE model illustrates a systematic approach to instructional development and learning models that are general and appropriate are used for instructional development research.

## 2. Literature Review

The 4D model stands for Define, Design, Development, and Dissemination which is used to improve learning systems [5]. The ADDIE Model stands for Analysis, Design, Development or Production, Implementation or Submission, and Evaluation [5]. ADDIE can be used to develop interactive multimedia applications that can support the learning process [6]. ADDIE was developed through a five-step mapping model, namely: analysis, design, development, implementation, and evaluation [7]. The ADDIE model can be used to achieve objectives in teaching information literacy that is designed to become teaching practices [8]. Appropriate teaching materials need to have basic teaching methods and techniques that are appropriate to the needs of students. Therefore, teaching materials at universities are essential to be developed [9]. ADDIE learning models are expected to contribute positively to improve students' skills and competencies and carry out their roles academically and practically [10]. The application of the ADDIE model leads to the identification of professional performance through pre-designed and structured small group reviews and discussion of relevant clinical topics [11]. Using the ADDIE model as a guide, we can create flexible, constructivist, open online courses. Entrepreneurship courses make a positive and significant contribution to student entrepreneurial interest where the majority of post-course survey respondents praised the course for their innovative learning experiences [12]. Thus, the combination of 4D and ADDIE learning models and lecturer entrepreneurship competence is expected to increase student motivation in understanding entrepreneurship [4].

The EntreComp framework reflects the complexity of the domain of entrepreneurial competence that touches on several aspects of life that can be used as a multipurpose reference guide [13]. The academic environment at the university is very friendly with entrepreneurship, such as seminars, training, and even the maturity and motivation of students to become entrepreneurs [14]. The entrepreneurship course contributes positively

and significantly to students' entrepreneurial interests [15]. Entrepreneurship is increasingly included in the curriculum of higher education and international training [16]. In order to promote and develop entrepreneurship in higher education, entrepreneurship education requires a framework and agreement on competence [17]. The developed framework must be emphasized on aspects of entrepreneurship education during the learning process each year [18]. Entrepreneurship teaching courses are different from business teaching competencies [19]. Entrepreneurship courses are subjects that shape the entrepreneurial character of students so they can take opportunities around, create businesses, and take advantage of these opportunities and businesses after graduation or while still in college. [20]. Learning models that are built can help college students to be able to foster entrepreneurial interest in the college environment. Entrepreneurial interest can be fostered through entrepreneurship education that is integrated with a conducive environment [21].

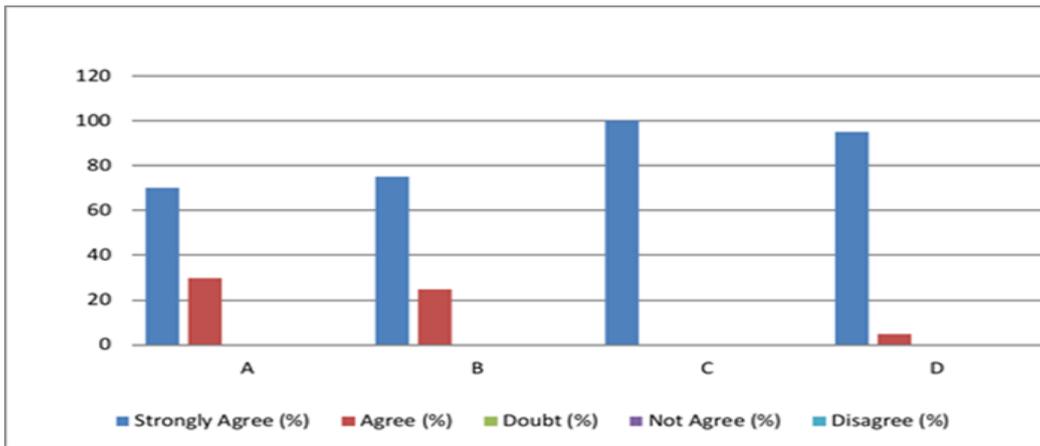
### **3. Methodology**

This research is in the form of an implementation of the effectiveness of the 4D and ADDIE-based entrepreneurship learning model. The method used in this research is research and development with qualitative methods. The object of the research was the students of the Economic Education Study Program at Universitas Tanjung Pura who were choosing entrepreneurship courses. Data collection techniques through direct observation and in-depth interviews. Data analysis uses an interactive analysis model that has three components, namely data collection and presentation, then concluding. The details of the research stages can be described as follows: The First Stage is a preliminary study stage of developing the 4D and ADDIE-based entrepreneurship learning model. This step is carried out among others: (1) Literature study (theoretical and empirical); (2) empirical analysis (results of previous studies based on the field); (3) Description and analysis of findings. The Second Stage carried out several steps including (1) Findings on the design of the 4D and ADDIE-based entrepreneurship learning model design; (2) Preparation of the 4D and ADDIE-based entrepreneurship learning model tools; (3) Conducting limited trials with experts; (4) Evaluation and improvement; (5) Carry out broader trials with experts; (6) Evaluation and improvement of 4D and ADDIE-based entrepreneurship learning models. This third step is a refinement from the previous stage and evaluates various aspects oriented to the 4D and ADDIE entrepreneurship learning model with the following steps (1) Revealing the effectiveness of applying the 4D and ADDIE entrepreneurship learning model (hypothetical model); (2) Carry out initial tests, implementation, and final tests to find the final 4D and ADDIE models.

### **4. Result and Discussion**

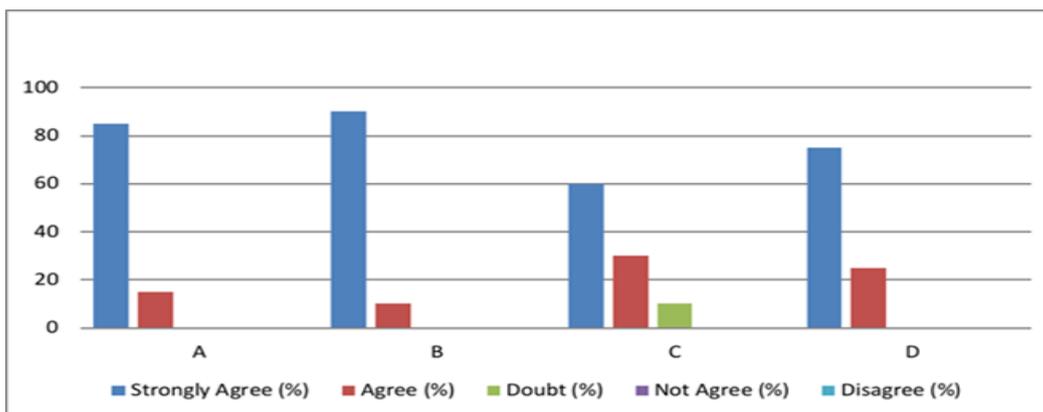
#### **4.1. Implementation of 4D and ADDIE-Based Entrepreneurship Learning Models**

In the aspect of the analysis of interests in developing learning models and eligibility requirements include three things that must be analyzed, namely the analysis of needs, curriculum, and character of students. Response questionnaire about the aspect of analysis, consisting of four questionnaire questions with answer recapitulation. The results of the questionnaire the model as needed showed (A) that 70% of students strongly agreed that this learning model suited their needs, models according to characteristics (B) 75% of students strongly agreed that this learning model was following their characteristics, the model according to the purpose (C) 100% of students stated strongly agreed that this learning model was following the objectives of entrepreneurial learning, and the model according to competence (D) 95% of students strongly agree that this learning model is following the competencies they want to achieve. The results of the questionnaire can be seen in Figure 1.



**Figure 1. Diagram of the questionnaire responses to the analysis aspects**

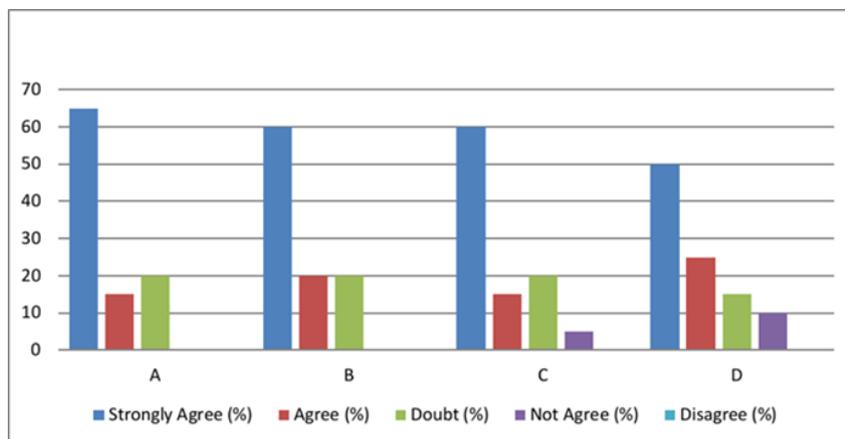
In the aspect of design, the researcher develops an instrument that will be used to assess the application of the developed learning model. The instruments are arranged by paying attention to the evaluation aspects of teaching materials. These aspects consist of aspects of content suitability, language accuracy, the suitability of presentation, the suitability of images, and suitability of the approach used. The instruments were arranged into test questions and response questionnaires which would then be validated to obtain a valid assessment instrument after completion. The results of the questionnaire responses about the model are worth studying (A) showed 85% of students stated strongly agree that the material presented in the learning model was feasible to be studied, fill in the material according to competence (B) 90% of students stated strongly agreed that the contents of the material were by the competencies to be achieved, learning models based on analysis and planning (C) 60% of students stated strongly agreed that the learning model this is based on the analysis and planning that was delivered at the initial meeting, and responses about the cooperative learning model of lecturers and students (D) 75% of students stated strongly agree that the learning model reflects the cooperative principle of lecturers with students. The results of the questionnaire about the design aspects can be seen in Figure 2.



**Figure 2. Diagram of the questionnaire responses to the Aspects of Design**

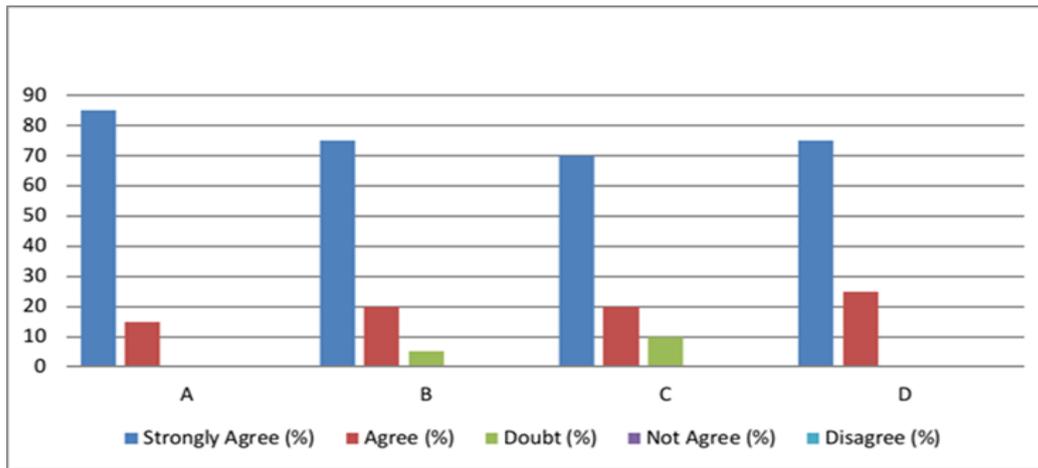
In aspects of the product development or realization stage, expert lecturers and business people validate the test question instruments and questionnaire response instruments. The validator uses instruments prepared in the previous stages for the validation process and is asked to provide an assessment of the design of the developed learning model. Assessment is based on aspects of the feasibility of the learning model. The validator provides suggestions and comments related to the contents of the design, which will later be used as

benchmarks for revising improvements and enhancing learning models. Questionnaire responses about aspects of development, consisting of four questions and a summary of questionnaire answers. The results of the recapitulation of the answers showed lecturers carry out the validation process in stages (A) is 65% of students expressed strongly agree that when developing the learning model, lecturers carry out the validation process in stages, the model validation process, the lecturer, always involves students (B) is 60% of students stated strongly agreed that when implementing the model validation process, lecturers always involve students, lecturers implement improvements to the content and stages of implementing the model (C) is 60% of students stated strongly agreed that lecturers always implement improvements to the content and stages of implementing the model, and The process of improving the content and stages of implementing the learning model is always based on the results of the validation (D) is 50% of students strongly agree that the process of improving the content and stages of implementing the learning model is always based on the results of the validation. The recapitulation results of development can be seen in Figure 3.



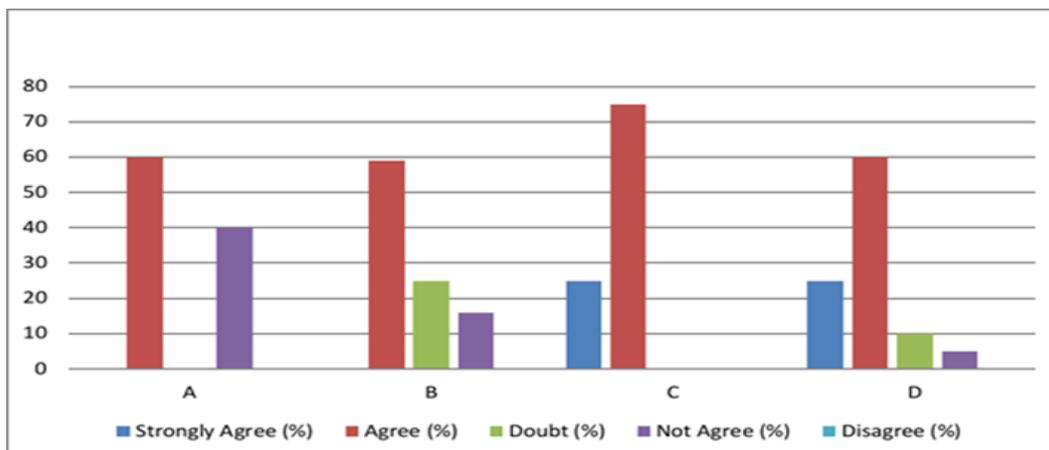
**Figure 3 Diagram of the questionnaire responses to the Aspects of Development**

In the aspect of implementation, an analysis is carried out to determine the practicality of the learning model developed by looking at the practicality value and evaluating the effectiveness of the learning model. The effectiveness of the data obtained from the test scores of student learning outcomes. The response questionnaire on aspects of implementation consisted of four questionnaire questions. The results of the recapitulation of the implementation aspects showed Learning models that are applied could attract learning interest (A) is 85% of students stated strongly agreed that the learning model applied was able to attract learning interest, Learning models applied can increase curiosity related to the material (B) is 75% of students stated strongly agreed that the learning model applied was able to increase curiosity related to the material, Learning models that are applied provide benefits that are felt directly (C) is 70% of students stated strongly agreed that the learning model applied gives benefits that are felt directly, and Learning models applied can improve understanding of the material (D) is 75% of students expressly agree that the learning model applied can increase understanding of the material. The results of the recapitulation of aspects of implementation can be seen in Figure 4.



**Figure 4. Diagram of the questionnaire responses to the Aspects of Implementation**

In the evaluation aspect, data are used based on the input obtained from the response questionnaire or field notes on the observation sheet. This activity is to revise the final learning model that will be developed to be suitable and can be used with full coverage. Response questionnaire on the evaluation aspects, consisting of four questionnaire questions with a questionnaire answer recapitulation showed Lecturers carry out periodic evaluations (periodic) (A) is 60% of students agreed that the lecturers carried out periodic evaluations, Evaluation conducted by the lecturer by the implementation (B) is 59% of students strongly agreed that evaluations carried out by lecturers were following implementation, When carrying out the evaluation, the lecturer involves students (C) is 75% of students stated they agree that when conducting evaluations, lecturers involve students, and The results of evaluations of implementing the learning model are always informed to students (D) is 60% of students expressly agree that the results of evaluations of implementing learning models are always informed to students. The results of the questionnaire about the evaluation aspects can be seen in Figure 5.



**Figure 5. Diagram of the questionnaire responses to the Aspects of Evaluation**

#### 4.2. Evaluation of the Development of Entrepreneurship Learning Models Based on 4D and ADDIE

Based on the evaluation carried out, there are still some minor deficiencies that researchers need to correct before implementation on a broader scope. Researchers need more time to prepare students' conditions before applying ADDIE-based entrepreneurship learning models. That is because students are familiar with the conventional lecture system

such as lectures, questions and answers, and panel discussions. Students from various backgrounds have complex characteristics, so researchers are only able to analyze student characteristics in general. This background has an impact on student acceptance of the entrepreneurship learning model that has been developed. Student working groups do not have the same vision as the vision of lecturers in implementing ADDIE-based entrepreneurship learning models, so students are still inclined as learning objects. Although there are still some minor deficiencies, the evaluation results also show that the entrepreneurship learning model developed can increase student interest in learning about all aspects of entrepreneurship that lead to an increase in the ability to understand the material presented.

## 5. Conclusion

The development of entrepreneurship learning models based on 4D and ADDIE consists of the planning stage, the research and data collection stage, the development stage of the learning model and the validation and trial stages. The implementation of the development of entrepreneurship learning models starts from the analysis, design, development, implementation and evaluation stages. The development of entrepreneurship learning models based on 4D and ADDIE is by the specified stages. The results of the student questionnaire recapitulation stated that the learning model developed was able to increase students' interest and understanding of entrepreneurship as a whole. The 4D and ADDIE-based entrepreneurship learning model is effectively applied in the FKIP Universitas Tanjungpura Economic Education Program.

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