

Case-Study Based in Entrepreneurship Lectures for Teacher Candidates: A Design of Learning Phase

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Abstract. It is essential to provide entrepreneurship courses to teacher candidates as a provision for when they are already taking part to become teachers. Often, entrepreneurship lectures are not carried out in a meaningful way, and therefore the competencies that should be possessed by students after attending entrepreneurship lectures could be better achieved. This research aims to design entrepreneurship lectures using case study-based learning so that the competencies expected of students can be achieved. This study uses the Fuzzy Delphi method involving 10 experts who are entrepreneurship practitioners with teacher education backgrounds, researchers in the field of education, and lecturers of entrepreneurship courses. The ten experts validated the learning phases and results. Then, the validation was analyzed using fuzzy techniques. The results showed that an agreement was reached on the phases of case study-based learning in entrepreneurship lectures among 10 experts. These phases include (1) case identification; (2) literature study; (3) creation of a roadmap for solving cases; (4) settlement of cases according to the road map; (5) construction of a report of the results; (6) presentation of the report. The six phases are expected to facilitate students to achieve the expected competencies.

1 Introduction

It is very important to provide entrepreneurship lectures to teacher candidates. For teacher candidates, entrepreneurship courses are very important in order to be able to adapt, survive, and have competitiveness in today's global era [1]. According to Aydogmus [2], entrepreneurial teachers with high dedication and fighting spirit will have a significant impact on students acquiring the knowledge and skills they will instruct in the future. Therefore, it is very important to provide teacher candidates, according to their fields, related entrepreneurship courses as a provision to struggle and survive in the 21st-century era. Furthermore, Dyer [3] explained that someone who will become a teacher needs to be educated with entrepreneurship skills during their educational process. This can be realized by training them to become entrepreneurs when they are still teacher candidates. The results showed that there was a positive and significant influence between entrepreneurial skills with professional attitudes and self-efficacy [2,4,5].

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Entrepreneurship courses play an important role, especially in the formation of students' entrepreneurial skills. This skill is very important for teacher candidates as their provision to become a teacher. According to Savickas [6], entrepreneurial skills are an important part of the success of a teacher. A teacher who has good entrepreneurial skills will have entrepreneurial thoughts and behaviors that can encourage the development of self-efficacy in themselves as a more effective means of career development [7]. In addition, in general, entrepreneurial skills are generally related to the ability to take risks from the economic, psychological, and social aspects, as well as to the ability to create innovative and creative things through an attitude of perseverance and thoroughness [8].

Considering the importance of entrepreneurship courses for teacher candidates, it is necessary to design meaningful entrepreneurship courses for students through a learning model. The goal is that the expected learning can be achieved. This is because the process of entrepreneurship lectures must be able to shape the character and entrepreneurial skills of the students. In this study, we designed case study-based learning phases to carry out the entrepreneurship lecture process. Case-based learning is a learning concept that emphasizes students as the center of learning. In principle, the case study-based learning process facilitates students to explore their knowledge independently, with educators as facilitators. This learning concept provides a contextual problem within the students' lives, where students actively solve these problems [9]. One of the important benefits of case-based learning is that it can effectively bridge the gap between theory and practice [10,11].

2 Methods

This research was conducted using the Delphi method. To avoid the long Delphi cycle, the researcher uses the fuzzy technique. This method is carried out by adopting research conducted by Saido [12], with an emphasis on the results of expert consensus on agreeing on learning phases. The Delphi method can be carried out by involving a minimum of 10 experts [13]. In this study, 10 experts were involved. They consisted of researchers and lecturers of entrepreneurship courses. The ten experts will conduct an assessment of the learning stages with a questionnaire guide. The questionnaire was made by adjusting the phases designed by the researcher. All experts will assess whether the phases designed are appropriate and can be applied to entrepreneurship courses to shape entrepreneurial character and skills.

Based on the results of the research design, there are six phases of case study learning in entrepreneurship lectures. The six phases are (1) Identifying the cases presented (P_1); (2) Conducting a literature study related to the case (P_2); (3) Making a roadmap for solving cases (P_3); (4) Resolving cases according to the road map (P_4); (5) Making a report on the results (P_5); (6) Presenting the results' report (P_6). From the results of this design, a questionnaire consisting of six questions was made (according to the phases of learning).

The results of the questionnaire were analyzed in stages: (1) Determining the linguistic scale (The linguistic scale can be seen in **Table 1**). This scale is a type of Likert scale with three added fuzzy numbers (m_1, m_2, m_3) with a scale between 0 to 1; (2) Calculating the average score of fuzzy numbers (FN) from the experts' input on the questionnaire; (3) Calculating the threshold (d) value using equation (1); (4) Calculating the percentage score of expert agreement; (5) Ranking (R) at the learning phases designed using equation (2).

Threshold values and percentage of expert agreement are used to analyze the level of expert agreement. If the threshold value (d) ≤ 0.2 and the percentage $\geq 75\%$, it can be interpreted that the experts have agreed on the learning phases designed to be applied in entrepreneurship lectures in developing entrepreneurial character and skills so that the status of the learning stages is acceptable (A). On the other hand, if not, then the status of the learning stage is Unacceptable (UA). In addition, the ranking carried out in the fifth stage is carried out to consider the priority aspects of the phases that must be carried out.

$$d = \sqrt{\frac{1}{3}((\bar{m}_1 - m_1)^2 + (\bar{m}_2 - m_2)^2 + (\bar{m}_3 - m_3)^2)} \quad (1)$$

$$DV = \frac{1}{3} * (\bar{m}_1 + \bar{m}_2 + \bar{m}_3) \quad (2)$$

Table 1. Linguistic Scale

Linguistic Scale	Fuzzy Number		
	<i>m1</i>	<i>m2</i>	<i>m3</i>
Strongly Agree	0.6	0.8	1
Agree	0.4	0.6	0.8
Moderately Agree	0.2	0.4	0.6
Disagree	0	0.2	0.4
Strongly Disagree	0	0	0.2

3 Results and Discussion

In this study, the researcher develops six phases, namely P1: the stage of identifying the cases presented, P2: the stage of conducting a literature study related to the case, P3: the stage of making a roadmap for solving cases, P4: the stage of completing the case according to the roadmap, P5: the stage of making a report on the results, P6: the stage of presenting the report. The complete research results can be seen in **Table 2** and **Table 3**. **Table 2** shows the average fuzzy value data for each learning phase that has been filled in by the expert and **Table 3** displays the threshold value data (d), the percentage of the experts' agreement, and the ranking score (DV).

Based on **Tables 1** and **2**, all experts have agreed on the learning phases developed in this study. This means that each of the phases developed can be applied in entrepreneurship lectures to develop students' entrepreneurial character and skills. It is proven that at all phases of learning, the threshold value (d) is 0.2, and the percentage of agreement is 75%. According to the researcher's analysis, experts' agreement is caused by the learning phases that are able to bridge the gap between theory and practice. This is one of the principles of case-based learning: the activities carried out must be able to facilitate students to conduct investigations in the context of solving problems/cases (practice) using the theory they have/through literature study [10,11,14]. In the context of this designed phase, the learning activities accommodate students to study theory (P2) and then apply the theory to solve cases (P3, P4). In addition, another principle in case-based learning is the provision of a contextual problem related to a student's life that students actively solve [9]. For all phases designed in this research, the principle exists and can be found.

Table 2. The Result of Delphi Test.

Phase	FN	Expert										FN
		1	2	3	4	5	6	7	8	9	10	
P ₁	m ₁	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
	m ₂	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
	m ₃	1	1	1	1	1	1	1	1	1	1	1
P ₂	m ₁	0.6	0.6	0.6	0.6	0.4	0.6	0.6	0.6	0.6	0.6	0.58
	m ₂	0.8	0.8	0.8	0.8	0.6	0.8	0.8	0.8	0.8	0.8	0.78
	m ₃	1	1	1	1	0.8	1	1	1	1	1	0.98
P ₃	m ₁	0.4	0.6	0.4	0.6	0.4	0.6	0.6	0.4	0.4	0.6	0.5
	m ₂	0.6	0.8	0.6	0.8	0.6	0.8	0.8	0.6	0.6	0.8	0.7
	m ₃	0.8	1	0.8	1	0.8	1	1	0.8	0.8	1	0.9
P ₄	m ₁	0.6	0.6	0.6	0.4	0.6	0.6	0.6	0.6	0.6	0.6	0.58
	m ₂	0.8	0.8	0.8	0.6	0.8	0.8	0.8	0.8	0.8	0.8	0.78
	m ₃	1	1	1	0.8	1	1	1	1	1	1	0.98
P ₅	m ₁	0.6	0.4	0.6	0.6	0.4	0.6	0.6	0.4	0.6	0.6	0.54
	m ₂	0.8	0.6	0.8	0.8	0.6	0.8	0.8	0.6	0.8	0.8	0.74
	m ₃	1	0.8	1	1	0.8	1	1	0.8	1	1	0.94
P ₆	m ₁	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
	m ₂	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
	m ₃	1	1	1	1	1	1	1	1	1	1	1

Furthermore, based on **Table 3**, by looking at the DV scores, one can see that there has been an expert agreement on the order of priority for the learning phases designed. The results of the Delphi test show that the firsts in order of priority, ones that must exist in learning activities, are the stage of identifying cases (P₁) and the stage of presenting the results report (P₆). The stage of conducting a literature study (P₂) and the stage of completing the case (P₄) come second in order of priority, while the stage of making a result report (P₅) comes third in order of priority. Finally, the stage of making a case settlement roadmap (P₃) comes last in order of priority. This order of priority does not indicate which phases must be done first but is related to the order of urgency of the learning activities. In more detail, the order of priority for the learning phases can be seen in **Fig. 1**.

Table 3. The Result of Delphi Test

Learning phase	d	%	Ket	DV
P1	0	100	A	0.8
P2	0.02	98	A	0.78
P3	0.1	90	A	0.7
P4	0.02	98	A	0.78
P5	0.06	94	A	0.74
P6	0	100	A	0.8

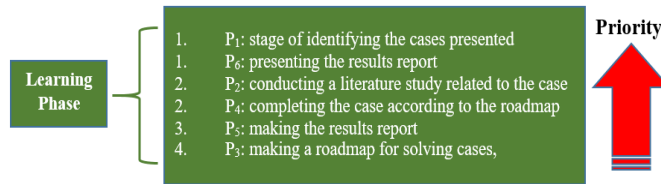


Fig. 1. Order of Priority for the Learning Phases

This order of priorities is in accordance with the learning objectives that are targeted in the entrepreneurship lecture process, namely developing entrepreneurial character and skills. Higher priority indicates that these activities play a more important role in developing entrepreneurial character and skills. Some important aspects of developing entrepreneurial character and skills are the courage to take risks, the ability to see opportunities that exist, the possession of confidence in oneself, emotional intelligence, critical thinking, innovativeness, and problem-solving ability [2,4,13]. These aspects coincide with aspects of 21st-century life skills, and the principle of case-based learning is very suitable for training in 21st-century life skills. Some research results state that the cases brought into the learning process make learning relevant and meaningful for students through the active participation of students in analyzing, discussing, and solving real problems (cases) in a particular field [15–17]. In addition, case-based learning also shifts the focus of learning from memorizing facts and applying concepts, theories, and techniques to solving a practical, real-world problem [18].

4 Conclusion

Based on the results of the study, it was concluded that there were six phases of case study-based learning that were agreed upon by the experts to be applied in entrepreneurship lectures. The six phases are the stage of identifying the presented case, the stage of conducting a literature study related to the case, the stage of making a case settlement roadmap, the stage of completing the case according to the road map, the stage of making a result report, and the stage of presenting the result report. These phases are carried out in order to develop entrepreneurial character and skills. In addition, this study also agreed on the order of priority of the learning phases. In order of priority, the first phases that must be in the learning activities are the stage of identifying cases and the stage of presenting the results report. The phases that come second in the order of priority are the stage of conducting a literature study and the stage of completing the case. The third phase in the order of priority is the stage of making a result report. Finally, the last phase, in order of priority, is the stage of making a roadmap for solving cases.

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