

# Development of A Self-Directed Learning Model in Entrepreneurship Courses to Develop Problem-Solving Ability Among Students

Sumanti<sup>1</sup><sup>a</sup>, Yesmira Syamra<sup>2</sup><sup>b</sup>, Zahara<sup>3</sup><sup>c</sup>, Desri Nora<sup>4</sup><sup>d</sup> and Mira Chairani<sup>3</sup><sup>e</sup>

<sup>1</sup>Geography Education, Al-Muslim University, Almuslim street, Aceh, Indonesia

<sup>2</sup>Economic Education, UPGRISBA, Gunung Pangilun Street, Padang, Indonesia

<sup>3</sup>Economic Education, Al-Muslim University, Almuslim Street, Aceh, Indonesia

<sup>4</sup>Sociology Education, Universitas Negeri Padang, Prof. Dr. Hamka Street, Padang, Indonesia

**Keywords:** Entrepreneurship, Learning Model, Self-Directed Learning, Problem-Solving.


**Abstract:** According to preliminary research conducted at Al-Muslim University's Geography Study Program, there are numerous issues with Entrepreneurship education, including the poor development of problem-solving skills in student entrepreneurship courses. Participation in learning activities has not increased due to problem-solving student activities. There are insufficient learning materials, and the paradigms used in education do not enable students to develop their knowledge. Based on these conditions, this type of study is considered Research and Development (R&D). The employed model of development is the Plomp Model (2013). The stages of development are as follows: preliminary/initial research, product design, and assessment/evaluation. The validity and usability of product design are measured via formative evaluation, including self-evaluation and one-on-one. A summative evaluation is conducted at the assessment stage to establish the product's effectiveness. In addition to conversation, observation, interviews, questionnaires, and learning achievement exams, focus group discussions were used to obtain research data (FGD). The gathered information was examined using descriptive and inferential statistics.


## 1 INTRODUCTION


National Education seeks to explore and develop the potential and skills of students for them to become people who have faith, are devoted to God Almighty, have a noble character, are healthy, knowledgeable, capable of creative, and independent, as well as democratic and responsible citizens. (Ministry of National Education, 2003). In line with the 21<sup>st</sup>-century educational framework, students must have skills and abilities, namely the ability to communicate well (communicative), be creative (creativity), the ability to work with other parties (collaborative), and have high creativity (BSNP, 2010). The realization of these hopes is manifested in the form of the K22 curriculum or what is known as the Independent Campus Learning Curriculum (MBKM). Freedom to


learn. The independent campus is a government policy to encourage students to master various knowledge that can be useful for entering the world of work.


Learning activities are not material-intensive but essential. Students can take credits outside the study program at other tertiary or higher education institutions in the independent learning program. The aim is to gain experience or new knowledge in developing students' insights. One of the activities outside of higher education is entrepreneurial activities. The competency achievements of independent learning independent campuses in this entrepreneurship course are producing goods and services and formulating policy objectives and strategies in entrepreneurship. It is a critical learning system based on analysis, reasoning, and

<sup>a</sup> <https://orcid.org/0000-0002-5292-346X>

<sup>b</sup> <https://orcid.org/0000-0002-2655-885X>

<sup>c</sup> <https://orcid.org/0000-0002-1712-2931>

<sup>d</sup> <https://orcid.org/0009-0001-7183-1085>

<sup>e</sup> <https://orcid.org/0000-0003-4343-854X>

interpretation, not memorization, to achieve the curriculum's and educational goals' expectations. It aims to change the way students think. That is, they always desire to find out and make observations. Students are also directed to formulate problems, not only solve problems. Learners are trained to sharpen their reasoning power by thinking analytically. So the Geography Study Program sets entrepreneurship courses with a weight of 2 credits. The expected learning outcomes are that students can interpret the role of entrepreneurs in the country and apply the skills that an entrepreneur must have to develop entrepreneurial attitudes and profiles that become a true entrepreneur (Indonesian National Qualification-Based Curriculum, 2020).

However, based on searches on Geography study programs, especially fifth semester (V) students in entrepreneurship courses, students attending lectures is still like lecturing pulpit. Students silently listen as if only the lecturer is the only source of learning, so learning is monotonous and boring. Students are only passive. Inactive, unable to think critically. In response to the facts and phenomena above, it is necessary to find learning solutions, namely changing learning models and strategies. One of the learning models considered appropriate is the Self-Directed Learning (SDL) learning model. This learning model is innovative. This SDL mode provides opportunities for students to create and diagnose, formulate learning objectives, select and implement learning strategies, and evaluate learning outcomes (Pluskwik et al., 2018; Ramadhan & Jalinus, 2021; Scroccaro & Rossi, 2021; Silamut & Petsangsri, 2020). As for the syntax or steps of the SDL model, there are three kinds: planning, students planning learning locations, and times when students feel comfortable. Furthermore, students determine the learning components and determine achievement targets. Then the next step is to monitor. Namely, students observe learning so that learning activities will be more meaningful and then carry out evaluations. The Self Directed Learning model ignores religious or religious values in students according to national education goals (Beach, 2017; LaTour & Noel, 2021; Silamut & Petsangsri, 2020). So this model only emphasizes knowledge alone. Religion. The model developed is called Insert Self-Directed Learning (ISDL). This study aims to develop a self-directed learning model that is valid, practical, and effective in the Entrepreneurship course at the teaching and educational faculty of the geography study program.

The philosophical foundation used in the Insert Self Directed Learning (ISDL) Learning model is the educational philosophy that Ki Hajar Dewantara put

forward. This philosophy is a convergence of the philosophy of progressivism regarding the natural ability of students to overcome the problems they face by providing the broadest possible freedom of thought (Wichadee, 2011). Meanwhile, the learning theory used relies on constructivist learning theory, which reveals that knowledge is the result of human constructs, meaning that here students, through their interactions with objects, the environment, phenomena, and experiences, will construct knowledge (Jonassen et al., 1995; Joyce et al., 2015).

Learning is processed and where activities originate or are transformed through training procedures (whether in the laboratory or a natural environment). Good learning embraces learning without boundaries (Joyce et al., 2015; Kurniati et al., 2020; Pateliya, 2013; Szmids & Majewska-Owczarek, 2020). To embrace diverse students, you have to use a suitable model. The model can be a guideline explaining what the teacher must do to help students achieve learning goals (Schiering et al., 2012). The Learning Model is a framework of reference for learning that is carried out based on patterns that have been systematically designed. So that learning is carried out effectively and efficiently (Mousoulides, 2011).

Learning Model Self Directed Learning (SDL) is a learning process that is carried out based on one's desires and initiative. Essentially, this model is independent learning (Beach, 2017; Deng et al., 2022; Mamun et al., 2020; Ramadhan & Jalinus, 2021). In line with the opinion above, the direct instruction learning model is specifically designed to support student learning related to well-structured declarative and procedural knowledge that can be taught with a gradual pattern of activities step by step. The Self-Directed Learning model will increase students' problem-solving abilities. Problem-solving ability is a thought or ability to find a solution or way out of a problem or problem with very mature and reasonable considerations. (Koh et al., 2010).

## 2 METHOD

This study involves both research and development (Research and Development). This research has generated a learning model titled Insert Self-Directed Learning (SDL). This learning paradigm enhances students' capacity to solve valid, practical, and efficient problems. The development design employed is Plomp, which comprises many stages: 1) preliminary study, 2) prototype phase, and 3) evaluation stage. (Plomp, 2013). Data analysis was

carried out in a qualitative and quantitative descriptive manner. The test of the model's validity uses experts' opinions (judgment experts). The validators/experts were asked for their opinions about the models and products being developed. The validation developed includes constructing validity and content validity. The practicality test of the model is determined from the results of assessments by observers and practitioners. Practicality regarding the product's ease of use and understanding in learning.

In order to determine the validity and applicability of the results provided by the validator, practitioner, or assessor, an intraclass correlation test was conducted with the SPSS program's Intraclass Correlation Coefficient (ICC). An analysis of the effectiveness of the Insert Self-directed Learning learning model was derived from a problem-solving ability test and a learning achievement test administered to students in entrepreneurship courses. The evaluation uses a rubric that is evaluated from three perspectives: 1) identifying what is known about a problem; 2) formulating the problem, followed by determining the best approach and being able to interpret the problem; and 3) solving the problem analytically and methodically. Exam questions are in essay format. The product's effectiveness was evaluated using a t-test. This study's participants were fifth-semester students in unit C of the geography study program. The trial group was randomly selected from the entire research subject population. This study's participants were fifth-semester students from five classes. They gathered information through observation, interviews, and focus group discussions (FGD).

### 3 RESULTS AND DISCUSSION

This research was carried out referring to the development of Plomp, which includes: 1) Preliminary research (preliminary research); 2) Prototype Phase (Prototyping phase); 3) Assessment stage (Plomp & Nienke, 2013; Van den Akker, 2006). The results of the study are as follows:

#### 3.1 Preliminary Research

In the needs analysis stage, the importance of the self-directed learning (SDL) model is analyzed in entrepreneurial learning. Needs analysis includes a) problem analysis during learning activities. b) curriculum analysis. The curriculum analysis that is carried out is the application of the curriculum, the scope of material and learning methods, and the goals

and strategies for achieving this are carried out to know the problems in the field. This data is intended as a basis for the development of learning models. Based on preliminary research results, it was found that entrepreneurship learning was carried out in the form of pulpit lectures, and monotonous learning was still rote. No lecturers in the learning process use the self-directed learning model because it takes a long time and disrupts the previously prepared lesson plans. From a curriculum point of view, when viewed from the scope of the material, it is generally in the form of a collection of theories and concepts so that learning cannot make students think analytically. The critical and reasoning power of students is weak. Seen from the lecturers generally do not prepare learning tools properly, such as semester learning plans (RPS) media and other learning resources. At the same time, the analysis of students (students) reveals a feeling of boredom when attending entrepreneurship lectures because learning is monotonous and does not involve students actively in the learning process. A design or learning model is prepared as a book based on searches and information obtained from lecturers, students, and related parties. The self-directed learning model book is designed to contain four parts, namely: first, the rational model contains the critical background and urgency of developing the self-directed learning model; secondly, supporting theories contain learning theories put forward by several experts, the third model component contains philosophical and theoretical foundations model, and the fourth implementation of the problem-based self-directed learning model contains the syntax of the social system and the principle of reaction to instructional impact and accompanying impact. Learning components according to the existing problems

Insert Self Directed Learning learning is based on the results of preliminary research conducted and studies of learning theories and learning models equipped with syntax where the syntax is one part of the learning model that contains references to models in actions or activities that are arranged based on clear stages of the entire activity. Moreover, the stages are carried out by the teacher in learning. The results of these studies can be guidelines for compiling the syntax of the developed model. The syntax of the model is designed to pay attention to how to invite students to be actively involved and feel directly as part of the learning process. The model syntax was developed from the Self-directed Learning model proposed by. Song & Hill as for the syntax of the Insert Self Directed Learning (ISDL) learning model. (1) the activity starts before the students read the

Asmaul husnah together, (2) the lecturer divides the student groups consisting of 3-4 students to make plans about the desired learning components, (4) students carry out learning in a place where preferred. (5) students with their groups carry out the discussion. To identify learning activities (6), further class meetings are held, and the teacher gives feedback and evaluates learning to know how far students have mastered the learning components that have been implemented.

Table 1: Theory Analysis Results in the Development of Investigation-Based Learning Models.

No	Theory, Concept, and Material	Role
1	Model Construct By Joyce & Well (1992, 2000), Personal, Benny A (2011), Rusman(2012), Kemp et al. (1994)	For the preparation of model components (syntax, reaction principles, social systems, model impacts, and model support systems
2	Model development by Chandra 2014 and Pumps (2013)	Guide to model development stages
3	Philosophy of learning (constructivist theory) initiated by Mark Baldwin	The basic concepts of developing knowledge underlie model development and building model syntax
4	theoretical basis Cognitive learning theory- Constructivism Problem-Solving Theory Learning model Self-directed Learning	Santrock (2010), Slavin (2011) Gredler (2011), Suparno (1997) Jonassen (1997), Kapur (2015) Carin (1997) Cindy & hamello David Johnson & Johnson Richard I. Arend (2008)
5	perspective(learning theories: Educational Perspective) by Dale H (2012), Learning and Learning by Dimiyati (2009), E-Learning theory. Hartley [Hartley, 2001and Communications Hovland in Mulyana (2007:68)Darmansyah (2011)	To construct self-directed learning (ISDL), insert model syntax.
6	The cooperative learning model by Robert E. Slavin (2008), active learning by Mel Silberman	For reference comparison of model development

No	Theory, Concept, and Material	Role
	(2002), and CTL by Elaine Jhonson (2010),	
7	Analysis of Approaches, Methods, Strategies, and Learning Models by (Iru & La Ode 2012). Designing Effective Instruction by Kemp et al. (1994) Teaching and Learning Interaction and Motivation by Sardiman (2011) (Russman, 2012).	To devise social systems, reaction principles, and impact models

### 3.2 Prototype Stage

The development of the self-directed learning model is based on the Self-directed Learning model proposed in the model book consisting of several structures as shown below.

The structure is contained in the model book.

Table 2: Model's Book Component.

Model Book
Foreword
List of contents
Introduction
Rational Learning Model Self-Directed Learning
Philosophical Foundation and theoretical models
Implementation of models
Model syntax
Social system
Reaction system
Instructional impact
Companion impact
Supporting products
References
Author Profile

### 3.3 Product Validation

The results of product validation carried out by five experts/validators showed that the insert self-directed learning (SDI) model proved valid, as data processing results showed that the result was > 3.20. The model book's score Intra-class Correlation Coefficient (ICC) amounted to 0.885.

Table 3: Summary of Book Validation Results Insert Self-Directed Learning Model.

No	Assessment Aspect	K	Category
1	Book Construct	0.85	Very valid
2	Rational Model	0.87	Very valid
3	Supporting Theory	0.82	Very valid
4	Model Structure Self-Directed Learning	0.79	Valid
	a. Syntax	0.84	Very valid
	b. Social system	0.87	Very valid
	c. Reaction Principle	0.89	Very valid
	d. Support System	0.89	Very valid
	e. Instructional and Accompaniment Impact	0.87	Very valid
5	Model Implementation in Learning	0.89	Very valid

Source: Processed Primary Data

The model book was valid and could be continued at other stages. However, there were several essential suggestions from the validator for improving the model book, especially the use of grammatical words, letters, and coloring and the structure of the model. Then the next step is product revision in the form of a model book.

### 3.4 Practicality

#### 3.4.1 Practicality of the Self-Directed Learning Insert Learning Model in the Entrepreneurship Course to Improve Geography Problem-Solving Skills

Al-Muslim University's analysis of implementing the learning model Insert Self-Directed Learning in entrepreneurship courses. Data collected from three observers showed that the average score for all aspects was 4.75. Thus, implementing the learning model Self Directed Learning in entrepreneurship courses to enhance problem-solving skills is conducted in particular categories. The intraclass correlation test for the model implementation yields a value of 0.186. It indicates a slight correlation between assessors in determining the feasibility of the model, i.e., the value of the learning model itself. Experts/validators have provided well-executed Directed Learning in Entrepreneurship courses to enhance problem-solving skills. There is only enough correlation between validators to determine the practicability of the model. Observer observation revealed that using learning models, Self-Directed Learning in Entrepreneurship courses to enhance problem-solving skills, and using teacher books and student books in the learning process conforms to the established criteria in terms of practicality.

### 3.4.2 Stage Focus Group Discussion (Focus Group Discussion/ FGD)

The results of the Focus Group Discussion included critiques and recommendations from FGD U participants. Participants in the FGD suggested using grammar and spelling consistent with Indonesian spelling. As with student textbooks, the front cover must be revised, but the images used in model textbooks already support the description. The results of this FGD indicate that the problem-based learning model, supported by Facebook, teacher's books, and student books, is reasonable and practicable. The results of product revisions are known as prototype products.



Figure 1: Model Book Cover before and after Revision.

### 3.4.3 Effectiveness Test

Effectiveness in terms of development, activity, observation sheets, and the development of entrepreneurial problem-solving skills is obtained through learning achievement tests in the form of assessment essays carried out from the learning rubric. Using t-test analysis obtained a significance level of 0.01.

## 4 CONCLUSIONS

Based on the results of field research regarding the development of the Self-Directed Learning model,

the Insert Self Directed Learning model using the development steps proposed by Plump are as follows.

1. The Insert Self Directed Learning model book, after being validated by experts consisting of discussion experts, material experts, and design experts, is declared valid and suitable for use.
2. Based on the assessment of observers, practitioners, and users, the Self-Directed Learning book states that the model book is convenient because learning is carried out well without any obstacles, and students enjoy the process of learning.
3. When observing the learning activities, learning motivation, and problem-solving abilities, data was obtained on students' problem-solving abilities development, as evidenced by very satisfying learning outcomes.
4. The self-directed learning model was developed and called Insert Self Directed Learning (ISDL) so that lecturers can apply it in entrepreneurship courses because this ISDL learning model has been proven to be valid, practical, and effective in the learning process, and students can use this model and make a reference in subsequent research.

The development of the self-directed learning model has produced a product or Novelty in the form of a valid, practical, and influential Insert Self Directed Learning (ISDL) model book for students in Entrepreneurship courses.

## REFERENCES

- Beach, P. (2017). Self-directed online learning: A theoretical model for understanding elementary teachers' online learning experiences. *Teaching and Teacher Education, 61*. <https://doi.org/10.1016/j.tate.2016.10.007>
- Deng, C., Wang, Y., Qin, C., Fu, Y., & Lu, W. (2022). Self-directed online machine learning for topology optimization. *Nature Communications, 13*(1). <https://doi.org/10.1038/s41467-021-27713-7>
- Jonassen, D., Davidson, M., Collins, M., Campbell, J., & Haag, B. B. (1995). Constructivism and Computer-Mediated Communication in Distance Education. *American Journal of Distance Education, 9*(2), 7–26. <https://doi.org/10.1080/08923649509526885>
- Joyce, B., Weil, M., & Calhoun, E. (2015). *Models of Teaching* (9th Edition). Pearson. <https://doi.org/10.4324/9780429398117-5>
- Koh, J. H. L., Herring, S. C., & Hew, K. F. (2010). Project-based learning and student knowledge construction during asynchronous online discussion. *Internet and Higher Education, 13*(4). <https://doi.org/10.1016/j.iheduc.2010.09.003>
- Kurniati, E., Jufrizal, & Jufri. (2020). *Communicative Games in Teaching English at Elementary Schools in Jambi*. <https://doi.org/10.2991/assehr.k.200306.009>
- LaTour, K. A., & Noel, H. N. (2021). Self-Directed Learning Online: An Opportunity to Binge. *Journal of Marketing Education, 43*(2). <https://doi.org/10.1177/0273475320987295>
- Mamun, M. A. Al, Lawrie, G., & Wright, T. (2020). Instructional design of scaffolded online learning modules for self-directed and inquiry-based learning environments. *Computers and Education, 144*. <https://doi.org/10.1016/j.compedu.2019.103695>
- Mousoulides, E. &. (2011). *Models and Modeling: Cognitive Tools for Scientific Enquiry*. Springer.
- Pateliya, Y. P. (2013). An Introduction to Modern Models of Teaching. *International Journal for Research in Education (IJRE), 2*(2).
- Plomp & Nienke. (2013). Introduction to Educational Design Research: An Introduction. *Educational Design Research*.
- Plomp, T. (2013). Educational Design Research: A Introduction. In *Educational Design Research*.
- Pluskwik, E., Leung, E., & Lillesve, A. (2018). The growing entrepreneurial mindset in interdisciplinary student engineers: Experiences of a project-based engineering program. *ASEE Annual Conference and Exposition, Conference Proceedings, 2018-June*. <https://doi.org/10.18260/1-2--30565>
- Ramadhan, A. A., & Jalinus, N. (2021). The Development of E-Module Based on Learning Models of Self Directed Learning in Welding Subject. *JURNAL PENDIDIKAN TEKNOLOGI KEJURUAN, 4*(2). <https://doi.org/10.24036/jptk.v4i2.16923>
- Schiering, M. S., Bogner, D., & Buli-holmberg, J. (2012). Teaching and learning: a model for academic and social cognition. In *Choice Reviews Online* (Vol. 49, Issue 06). <https://doi.org/10.5860/choice.49-3394>
- Scroccaro, A., & Rossi, A. (2021). Start-up lab: A springboard for university entrepreneurship and students' start-ups. *Proceedings of the European Conference on Innovation and Entrepreneurship, ECIE*. <https://doi.org/10.34190/EIE.21.229>
- Silamut, A. acha, & Petsangsri, S. (2020). Self-directed learning with knowledge management model to enhance digital literacy abilities. *Education and Information Technologies, 25*(6). <https://doi.org/10.1007/s10639-020-10187-3>
- Szmidt, K. J., & Majewska-Owczarek, A. (2020). Theoretical Models of Teaching Creativity-Critical Review. *Creativity, 7*(1). <https://doi.org/10.2478/ctra-2020-0004>
- Van den Akker, J. (2006). Educational Design Research. *Educational Design Research*. <https://doi.org/10.4324/9780203088364>
- Wichadee, S. (2011). Developing The Self-Directed Learning Instructional Model To Enhance English Reading Ability And Self-Directed Learning Of Undergraduate Students. *Journal of College Teaching & Learning (TLC), 8*(12). <https://doi.org/10.19030/tlc.v8i12.6620>