

Indonesian Journal of Social Sciences
Volume 4, nomer 1,

The Constructivistic Competence Based Learning Development
of Entrepreneurship Class

*Pengembangan Pembelajaran Berbasis Kompetensi
Konstruktivistik pada Kelas Kewirausahaan*

Mohammad Maskan¹

Polytechnic, Malang State University, Malang, East Java, Indonesia

ABSTRACT

Learning is a process of giving meaning to new information. For that, the learning process must be contextual, so the students reach understanding and meaning that are suitable with competence's purposes. Based on this, the learning process with contextual approach is the most suitable approach to the entrepreneurship class, because the students can see, get directly involved and give meaning independently what and how entrepreneurship is practically in society. The developing of the constructivistic competence based entrepreneurship learning model refers to Dick & Carey's approach, consisting 7 steps. The subjects of the research are students. The population is 200 2nd year students of Business Administration Department, State Polytechnic of Malang. The samples are 24 students, consisting of 12 students in the classical class and 12 students in the treatment class with the constructivistic competence based learning. After a series of testing, the results show that constructivistic competence based learning is feasible to apply in the Entrepreneurship learning at Business Administration Department, State Polytechnic of Malang. The indicators show that students can reach good academic and psychomotoric performance, shown by their good performance. However, there are weaknesses, that is, the lack of English mastery that hinders the mastery of the learning instruction, and the lack of time in the implementation and weak coordination among the related classes. Hence, the success to achieve the objectives of the entrepreneurship class is not optimum.

Key word: contrucstivistic, entrepreneurship, Dick & Carey method of development

ABSTRAK

Pembelajaran adalah suatu proses yang memberikan arti terhadap suatu informasi. Untuk itu, proses pembelajaran harus kontekstual, sehingga para mahasiswa dapat mencapai pengertian dan arti yang cocok dengan tujuan-tujuan kompetensi. Berdasarkan ini, proses pembelajaran dengan menggunakan pendekatan kontekstual adalah yang paling cocok terhadap kelas kewirausahaan, karena para mahasiswa dapat melihat dan terlibat langsung, serta memberikan arti secara independen tentang apa dan bagaimana model pembelajaran kewirausahaan yang merujuk pada pendekatan Dick dan Carey, yang terdiri dari 7 langkah. Subjek dari penelitian ini adalah dari populasi 200 mahasiswa tahun ke dua di Departemen

¹ **Correspondence:** Mohammad Maskan. Polytechnic, Malang State University, Malang, East Java, Indonesia. E-mail: um_maskan @ yahoo.co.id

Bisnis dan Administrasi, Politeknik Negeri Malang. Jumlah sampel adalah 24 orang, terdiri dari 12 mahasiswa klasikal, dan 12 mahasiswa yang mengikuti “constructivistic competence based learning” (CCBL). Setelah beberapa kali pengujian, hasil menunjukkan bahwa CCBL adalah memungkinkan untuk diterapkan di pembelajaran kewirausahaan di Departemen Administrasi dan Bisnis, Politeknik Negeri Malang. Indikatornya menunjukkan bahwa mahasiswa mencapai pencapaian psikomotor dan akademik yang baik. Namun demikian, ada kelemahannya, yaitu, kekurangan dalam penguasaan bahasa Inggris menghambat pengertian mahasiswa mengenai instruksi, dan kekurangan waktu dalam implementasi serta koordinasi yang lemah di antara kelas-kelas yang berhubungan. Karenanya, keberhasilan untuk mencapai tujuan dari kelas kewirausahaan tidak dapat optimum.

Kata kunci: konstruktivistik, kewirausahaan, metode perkembangan Dick & Carey

Entrepreneurship is an integrative subject of three domains knowledge, skill & attitude. The learning strategy for this subject, therefore, can combine theoretical understanding, attitude and skill of an entrepreneurship. The objective of the learning is to prepare students to be entrepreneurs because the constructivistic learning is the most suitable approach, allowing students to see, experience directly and give meanings independently and practically to what and how the existing entrepreneurship in the society. However, so far the learning method applied in the university teaching and learning tends to lead to the classical one. The students are only exposed to subjects based on the Entrepreneurship Module, allowing them to obtain the learning materials only theoretically. Thus, the application of the Entrepreneurship for the last two years has not yet shown a significant impact on the alumni of the Business Administration Department of State Polytechnic of Malang.

The Statement of the Problem is: (1) how is the learning model development process of constructive-constructivistic-based entrepreneurship subject for the students of Business Administration Department - State Polytechnic of Malang?; and (2) how is the effectiveness of the learning model development process of constructive-constructivistic-based Entrepreneurship Subject able to increase the affective and psychomotoric domains of the students of Business Administration Department - State Polytechnic of Malang?

The Objectives in this article is: (1) to improve the learning model development process of constructive-constructivistic-based Entrepreneurship Subject in order that it becomes attractive and facilitating as it applies an approach emphasizing on the active, cooperative, participative and reactive students; and (2) to increase the acquisition of the affective and psychomotoric in entrepreneurship subject of the students of business administration department, State Polytechnic of Malang in order to develop an entrepreneurship and productive attitude.

The Theoretical Overview and Concept of the Learning Development

The previous Studies on the Learning Model Development

Banathy (1987) states that the criteria of the learning material development: (1) helps learners prepare an independent learning; (2) contains a comprehensive learning activity plan and enables a maximum response; (3) consists of a comprehensive learning content allowing to provide a learning opportunity to learners; (4) monitors all learning activities; and (5) provides feedback information to measure the learner's progress.

The learning development of the Entrepreneurship applies Dick & Carey's with the following considerations: (1) this model applies nine systematic and comprehensive steps, allowing to provide detailed guidance to the level of learning material production; (2) this model has a programmed learning format, so that it can be used for personal learning need; (3) the adoption of this model is based on the idea that the lecturer's duty is as the learning planner, implementer, and evaluator; (4) this model refers to the system theory proven to succeed in military, industry and education; and (5) this model can be used as an attempt to develop the

learning materials in the intellectual skill, psychomotoric and verbal information domains so that it is very appropriate to develop the materials of Entrepreneur subject.

The Development Method of Learning System

The model shows a concept describing the real condition. Briggs (1978) stated that a model is a series of consecutive procedures to materialize a process. Based on both opinions, it can be concluded that the learning development model is a series of procedures consecutively done to develop the learning system.

This development should cover the structure of clear subject content and meet the applicable criteria for the learning development. It is in line with Mustaji's opinion (2000) stating that the advantages of the learning tool product with the developed constructivistic approach will gain the following: a) considering the differences/variations of learning styles, the range of attention-interest-preference, memory, early competence, individual intelligence of the students; b) considering that gifted students tend to have a strong curiosity about many things, have initiatives and competence to study independently, think critically-flexibly-productively; c) considering that students have social aspects and gifted students should be able to learn together with other students; d) students are provided with freedom atmosphere to have self-control; and e) Applying the individualized instruction, a learning activity that refers to AECT (1996) consisting of basic elements: choice of various forms of learning, choice of learning material, choice of learning location, flexible time arrangement, considering the early competence of the learners and learner evaluation with various forms and in a flexible schedule.

Development Method

The development model of this Entrepreneurship learning adopts the learning design model by Dick & Carey (1990), consisting of the following steps: (a) knowing the learning objective; (b) making the learning analysis; (c) knowing the input attitude and the student characteristics; (d) formulating the performance objective; (e) developing the pints of guideline reference test; (f) developing the learning strategy; (g) developing and selecting the learning material; (h) designing and doing formative evaluation; and (i) improving or revising the learning.

The Procedures of Constructivisticism-Based Entrepreneurship Learning Development

The constructivisticism-based Entrepreneurship learning design above consists of five phases of development procedures. The First Phase is determining the subject to develop. The Second Phase is identifying the syllabus of the subject to develop. The Third Phase is the development phase of the constructivisticism-based Entrepreneurship learning, consisting of seven steps, namely: 1) analyzing the learning need; 2) identifying the general objective of learning; 3) analyzing and identifying the input attitude and student characteristics; 4) formulating the specific learning objective; 5) developing the learning material; 6) determining the steps and strategies of learning to follow; 7) determining the tool of process evaluation and learning outcome. The Fourth phase is developing topics into the presentation of the constructivisticism-based Entrepreneurship learning consisting of 6 steps, namely: 1) identifying the problems existing in the community; 2) selecting the problems for the class review; 3) collecting information on the problems to review in the classroom; 4) making the constructivistic class; 5) constuctivistic presentation (show case); and 6) reflecting on the learning experience. The Fifth phase is the try-out phase of the constructivisticism-based Entrepreneurship learning design product, consisting of the expert review and the field try-out phase.

The population as the research subjects are the students of Business Administration Department of State Polytechnic of Malang in 24 classes, under the supervision of the National Education Department.

The sampling method for the product tryout is multi stage sample, a sampling method done in a series of steps (Sugiarto et al 2003) with the following stages: 1) Stage I: The class determining based on the random sampling technique, a sampling technique by providing equal chances to each group (Zuriah 2006); 2) Stage II: The sample group determining in each class by taking 4 students who are then grouped into 3 groups of learning abilities of very good, good and medium. This sampling is done based on cluster random sampling technique, a sampling based on the population group (class) (Zuriah 2006); and 3) Stage III: The individual sampling is done by selecting 24 students, 12 of whom are taken from the experiment class and 12 from the control class. The sampling technique used is stratified random sampling, a sampling technique based on the population strata (Zuriah 2006).

The steps of the product tryout of this constructivisticism-based Entrepreneurship learning development are as follows: The Review of the Subject Expert, Learning Development/Design Expert and Computer Expert. The individual tryout covers the instrument tryout and the implementation of constructivisticism-based Entrepreneurship learning, which is explained as follows: 1) Small Group Tryout and; 2) Field Tryout.

The tryout of constructivisticism-based Entrepreneurship learning model for the small group stage is done to 10 groups of second-year students (consisting of 5 groups of control classes and 5 groups of experiment classes, each of group consists of 3 students in the Business Administration. The tryout is done to individual in the even semester of 2005/2006 academic year in 16 meetings @ 90 minutes, including the test. Through this try out, the researcher tries to find input on: (1) the level of competence demanded as stated in the syllabus design distributed in the beginning of learning; (2) the clarity of the written instruction for assignment and test; (3) the procedure and evaluation criteria given by the lecturer; (4) the difficulties arising during the assignment and test; (5) the students' perception on the constructivisticism-based Entrepreneurship learning model; and (6) any significant improvement of the students' affective and psychomotoric competences.

The wider field tryout will be conducted to the students of Business Administration Department of State Polytechnic of Malang of 2005/2006 academic year in semester 4, of 2 classes (1 class of experiment group and 1 class of control group) in 16 meetings @ 90 minutes, with considerations: 1) the students have followed 3 semesters of the Entrepreneurship subjects; 2) the second-year students have more experience in the learning evaluation; and 3) the second-year students have more confidence in giving opinions.

From all classes available, there are two classes selected based on the cluster sampling technique, with the following procedures: 1) classifying all the students according to their achievement in the Entrepreneurship Subjects. It consists of 4 (four) categories: A, B, C and D; 2) selecting randomly from each groups the categories for the behavioristic and constructivistic classes, 5 students of each; and 3) the experiment design used is Factorial Design with design category 5, namely Randomized Subject, Pretest – Post test Control Group Design (Ary, Jacobs & Rasavieh 2002).

The tryout subjects of the research are the students of Business Administration of State Polytechnic of Malang following Entrepreneurship subject. This tryout involves two classes called constructivistic class (treatment group) and conventional class (control group). For this experiment research, the researcher tries to avoid any conditions that lead the research results to be biased (Gay 1996), by: 1) choosing the second year students because they have followed subjects supporting Entrepreneurship; 2) applying clear evaluation weighting for assignments, active involvement, discussions and tests. Besides, this evaluation is done transparently so that the students can compare their competence with other students and also ask for an explanation from their lecturer about the grades they get; 3) seeing the difference of the affective and

psychomotoric competence of the Entrepreneurship subject both in constructivist and behavioristic classes proportionally; 4) making sure that the members of the groups have known well each other so that they can work well together optimally; and 5) adapting the Entrepreneurship subject materials to the syllabus and making comparisons of the second year students' competences based on the final grades of the Entrepreneurship learning and their scores on the interest in the learning process.

The data required in this research can be categorized as follows: 1) primary data, this study tries to collect the primary data from the subject expert (lecturer), learning media expert and design expert and students in the forms of opinions, suggestions and discussions; 2) secondary data, the secondary data related to this research is lesson plans, syllabus, number of classes, students' names, Entrepreneurship lecturers' names and academic achievement of the third year SMK students obtained through documentation and observations at SMKs in Malang.

Furthermore, to find out the affective and psychomotoric competence of the Entrepreneurship subjects in the last semester, the research collects the data of students' achievement of Entrepreneurship students to provide an adequate discussion on the effectiveness of the model applied.

Data Collection Instrument

The instruments used to collect data are as follows: 1) questionnaires, used to collect the following data: a) the Personal Entrepreneurship Quality (PEQ), a non-test measurement tool on the Entrepreneurship quality level by using PEQ questionnaires; b) instructions from the constructivist-based Entrepreneurship learning model developed through the individual and small group tryouts; c) the reviews of the subject expert (lecturer), media expert and learning design expert; d) the individual and group tryouts of the SMK students in Malang; and e) the interests of the students of Business Administration Department of State Polytechnic of Malang in the constructivist learning model. This measurement should meet four conditions, namely, the expert's approval, comprehension on the general instructions, being valid and reliable (Cronbach 1980, Saubah 2004). Besides the employment of the designed measurement tools in the form of assignment, test and field observation, the researcher also uses non-test measurement tools such as the clarity of the instructions at each learning stage of each classes; 2) documentation, used for collecting data on lesson plans, syllabus, number of classes, students' names, Entrepreneurship lecturers' names and the samples of the second year students' academic achievements; 3) observation, used for collecting the data on the Entrepreneurship learning method available at the Business Administration Department of State Polytechnic of Malang; 4) discussions with the subject experts (lecturers), the learning media experts, learning design experts, and students. They are used for collecting data for revisions and validation of the teaching materials, lesson plans, syllabus, learning method and evaluation system products (empiric) and constructivist learning model; and 5) the consultation with the subject experts (lecturers), learning media experts, and learning design experts that are used to collect data for revisions and validation of the teaching materials, lesson plans, syllabus, learning method and evaluation system products (empiric) and constructivist learning model.

Data Analysis Technique

The data analysis used is as follows: Content Analysis and Descriptive Analysis. This analysis is used for processing data from the interview and discussion with the experts, lecturers, and students and individual and small group tryout results. The content analysis is done by classifying information from qualitative data of input, opinion, criticism and suggestions for improvement in the questionnaire. The analysis results is used as the basis to revise the teaching material product.

Descriptive Analysis

The Quality of Teaching Product and Students' Interest

This analysis is used for finding out the responses of the subject experts (lecturers), learning media experts, learning design experts and students on the quality of constructivisticism-based Entrepreneurship learning model. The response score can be mathematically formulated as follows:

$$\text{Percentage} = \frac{\Sigma (\text{Response} \times \text{weight of each option})}{n \times \text{Highest Weight}} \times 100\%$$

Given: n is the number of statements.

Results

Need Analysis (Needs Assessment)

The need analysis data (Needs assessment) is obtained by collecting the questionnaires distributed to 46 respondents, including 4 subject lecturers and 24 second year students of 2005/2006 academic year of Business Administration Department of State Polytechnic of Malang. The question item on the need analysis covers: (1) respondents' interest on the computer software in general; (2) needs of Entrepreneurship Subject Development to develop based on the Constructivisticism and to be used as the learning resources for the students of Business Administration Department of State Polytechnic of Malang; (3) the utilization of the constructivisticism-based Entrepreneurship learning method; (4) the appropriateness of the design content in the Entrepreneurship subjects; and (5) the topics necessary and appropriate to develop.

The Data of Review Results of Subject Experts, Learning Design Experts, and Computer Experts, Individual, Small Group and Field Tryouts (Tryouts I, II, III, IV)

The data collected from the subject subject experts, learning design experts, and computer experts, individual, small group and field tryouts from the development product are presented in Table 1.

Table 1. Recapitulation of the Data Analysis Results

No	Componen	Try Out Stage	Try Out Stage	Try Out Stage	Try Out Stage
		I	II	III	IV
1	Need Analysis	92.7			
	Interest-Generating				
2	Material	84.5	85.25	86.4	92.8
3	Prerequisite Test	80.3	75	77.45	89.3
4	Pretest	75	78.9	82.5	82
5	Learning Objective	91	81	85.25	87.3
	Discussion Content				
6	Explanation	74.9	77.3	80.3	93.5
7	Exercise Items	77.4	76	79.5	87.8
8	Summary	78	79	82.1	93.2
9	Post test	74.8	78.2	78.2	83.4
10	Support	80	82	80.8	90.5

Source: processed primary data

Discussion

The development of constructivism-based Entrepreneurship learning method in fact can help achieve the academic competence and motoric skill in Entrepreneurship. Theoretically, the academic achievement is possible from the result of the motivational effect leading to the improved attention and the intensity of the students' involvement in the learning process period using their conceptual knowledge so that it broadens and deepens (Waras 2003). Besides, the constructivism-based learning (project) bases on the constructivist perspective, where learning is not purely stimulus-response phenomenon as the perception of the behaviorists. Then the project assignment selected and determined by the students is likely based on the conceptual knowledge they have had. In this context, the real activity done in the constructivism provides a learning experience that helps the reflection/abstraction and put the real life activities close to the underlying conceptual knowledge so that the academic knowledge develops more widely and deeply.

The advantages of constructivist learning can also explained from the Constructive Learning theory. Simmons (1996) states that the memory representation is divided into three, namely semantic, episodic, and action representations. The semantic representation refers to the concepts and principles of a discipline with the accompanying characteristics. The episodic representation is based on the affective and personal experiences, while the action representation refers to the things done with the semantic and episodic information, for example, the settlement of a certain problem with certain knowledge. Thus, constructivism-based learning has more opportunities to develop the students' efforts to build the complex and rich memory representation and develop a strong relationship between semantic, episodic and action knowledge. This finding is line with the researches done by some researchers: Watson, Prieto & Dillon (1995), concluding that the concept comprehension on the discussion of the students learning through constructivism is better than those who learn traditionally. Springer, Stanal & Donovan (1999) and Johnson, Johnson & Stanne (2000) studied some subjects, concluding that the learning collaboratively in small groups in constructivism with projects may improve the academic competence. Bragg & Reger IV (2000) conclude that the integration of the academic and technical (vocational) learning may improve the academic and technical competences. Thomas (2000) concludes that the constructivism-based learning improves the academic competence. While Waras (2003) points out that the academic competence (concept and principle comprehension) of student machinery following classes based on the project is higher than that of training method but lower in the technical achievement than that of the training method.

But the improvement of the motoric competence from the theoretical perspective can be explained with the Motoric Learning theory on the "development rate" of the motoric competence (Schmidt, 1988) stating that it covers: 1) learning the technical (motoric) operation competence is a process of capacity achievement to perform; 2) Learning the technical operation competence is a result of practice/experience; and 3) The process results in the relatively permanent competence change. Thus, this finding is in line with the research done by Knoll (2002) stating that the constructivism-based learning (project) improve the academic and technical competences. Santiyasa (2004) found a difference of concept comprehension between the students learning with the setting of Group Investigation (GI) cooperative learning and Student Team-Achievement Division (STAD). Thomas (2000) & Bragg & Reger IV state that the technical competence improves together with the academic competence from the learning that integrates the academic and vocational aspects. Autio & Hansen (2002) concluded that the constructivism-based learning (project) that integrates the academic and occupational domains will excel in the technical thinking achievement than that of the technical motoric competence.

Conclusions

Based on the results of the data analysis from the developer, important points related to the component of the constructivism-based Entrepreneurship learning method are identified as follows: 1) based on the results of the need analysis, it is concluded that the development of constructivism-based Entrepreneurship learning method is very necessary by both the students and lecturers; 2) the components of the interest generating materials in the constructivism-based Entrepreneurship learning is to develop by considering the following: (a) using varied games; (b) creating energizer; (c) using the software business plan; and (d) making a proportional presentation composition (letters and pictures are not too small); 3) the components of Prerequisite Test and pretest needed as one of the business plan components are: (a) the sentences and language used should be simple and easy to understand; (b) the problem items given are sequenced from easy to difficult, but the presentation is randomly arranged; 4) the components of the entrepreneurship learning objectives are arranged to refer to the (a) learning objective formulation, (b) results of the need analysis and the early students' competence, and (c) objective formulation more rather than cognitive aspects; 5) the components of the Learning Material developed are (a) presenting the relationship between topics; (b) packaging the business plan materials as the main materials; (c) presenting the illustration and example to clarify the content; (d) Packaging the materials into games, energizer and business plan software to facilitate the students' comprehension and efficiency in presentation; 6) the components of the problem items (a) are arranged as a form of evaluation for improvement of the learning material acquisition by the students; (b) arranged by prerequisites to learning achievement of a learning unit before the following unit; (c) arranged based on the difficulty level; (d) arranged with reference to the main material; (e) is a combination of calculation and explanation exercises; 7) the components of post test (summative) (a) are arranged as a form of the learning results after following the entire learning process; (b) are arranged based on the difficulty level; (c) are arranged in reference to the main materials learned; and (d) are arranged with more calculation exercises than that of explanation; 8) the components of constructivism-based Entrepreneurship learning development product are tried out through five stages and revisions on the students and lecturers show very good and good results; 9) the business plan software is feasibly used as the alternative learning source and can be used in the real learning; 10) the learning system through the software business plan is very interesting, useful and facilitating to learning. With this system the students will feel the change of learning; 11) the business plan software is suggested for development in this subject because it helps the students in the Entrepreneurship subjects a lot. It is also possible for other subjects; and 12) the business plan software as the result of this development is very good and feasible to be used as the alternative learning resources.

Reference

- AECT (1996) Definisi Teknologi Pendidikan. Jakarta: CV Rajawali.
- Autio O & Hansen (2002) Defining and Measuring Technical Comprehensive Schools. *Journal of Technology Education* 14(1):5-20. Digital Library & Archive.
- Bragg DD & Reger IV WM (2000) Toward a More United Education. *Academic & Vocational Education Research* 25(3):237-272. Digital Library & Archive.
- Banathy BH (1987) Instructional System Design. In: Gagne RM (ed.) *Instructional Technology Foundation*. Hallsdale: Lawrence Erlbaum Associations.
- Briggs LJ (1978) *Principles of Instructional Design*. New York: Holt, Rinehart and Winston.
- Dick W & Carey L (1990) *The Systematic Design of Instructional*. London: Scott L Foresman Company.
- Knoll M (2002) The Project Method: Its Vocational Education Origin & International Development. *Journal of Industrial Teacher Education* 34(3):59-80.

- Mustaji (2000) Pengembangan Desain Pembelajaran dengan Pendekatan Konstruktivistik pada Mata Kuliah Difusi Inovasi Pendidikan. Tesis, Universitas Negeri Malang, Malang.
- Santiyasa IW (2004) Pengaruh Model & Setting Pembelajaran Terhadap Remediasi Mis Konsepsi, Pemahaman Konsep & Hasil Belajar Fisika pada Mahamasiswa SMU, Disertasi, PPS UNM, Malang.
- Springer L, Stanal ME & Donovan SS (1999) Undergraduates in Science, Mathematic, Engineering & Tehnology, A-Meta Analysis. Review of Research 61(1):21-51.
- Thomas JW (2000) A Review of Research on Project-Based Learning. <http://www.autodesk.com/foundation>.
- Waras K (2003) Pengaruh Model Pembelajaran dan Gaya Belajar Terhadap Kecakapan Akademik, Teknikal & Pemecahan Masalah Bidang Permesinan. Unpublished paper.
- Watson R, Prieto T & Dillon JS (1995) The Effect of Practical Work on Students Understanding of Combustion. Journal of Research in Science Teaching 32(5):487-502.