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DEVELOPMENT OF COMPUTER ENGLISH MODULES BASED ON CONSTRUCTIVISME FOR INFORMATICS ENGINEERING STUDENTS AT UNIVERSITAS DHARMAS INDONESIA

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ABSTRACT: This research is written to develop English Computer Module based on Constructivism for Informatics Engineering Students. In Informatics Engineering department, graduates are expected to have an ability to speak English in order to compete in their job profession. Therefore, it is considered necessary to compile an English Computer module that is specific to the context and purpose with the students of the Informatics Engineering course. The main purpose of this research is to produce English Computer Module for Informatics Engineering students with valid, practice, and effective. The long term goal of this research is to make Engineering students are able to master English language that can be their provision in order to compete in their job profession. This teaching module developed by Constructivism. This research used Research and Development method of ADDIE (Analyze, Design, Develop, Implement, and Evaluate). This research was conducted in the second semester of Informatics Engineering students. In the analysis stage, it was conducted needs analysis and situation analysis. Design stage was conducted by designing Computer English modules based on tasks, lesson plan, and assessment instrument of Computer English modules. Develop stage was conducted by developing teaching material. Implement stage was conducted by implementing teaching material in Engineering class. Finally, the Evaluate stage was an evaluation of the implementation each stages of ADDIE model. The data in this research were collected by using the validation sheet of teaching material, lesson plan, questionnaires respond of Informatics Engineering English lecturer and Engineering students, and students test result. The result of this English Computer Module based on Constructivism for Informatics Engineering Students is valid, practice, effective criteria and accordance to the Engineering students' needs.

Keywords: English Computer module Development, Constructivism, Informatics Engineering, English for Specific Purposes

I. INTRODUCTION

Learning English is a compulsory subject that must be studied and understood by students in universities regardless of the study program the student takes. A question will arise, will the material being taught be the same even though students study in different majors? For example, Do Management students study the same English material as Informatics Engineering students? Of course the answer will not be the same because the material and terms used in the field of Management and Information Engineering are far

different. This material is usually known as ESP or English for Specific Purposes. English teachers or lecturers are very aware of ESP material, in this section the researcher limits the discussion of ESP to English for Computer Science material (e.g., Apriyanto & Anum, 2020; Santoso & Apriyanto, 2020; Syah et al., 2020).

Based on observations in the Informatics Engineering study program at the University of Dharmas Indonesia, especially in learning English, there are still many students who have difficulty in the learning process, seen from filling in the student questionnaire as follows: 1) students ask each other in clarifying the material being taught, and students have problems understanding the description that is long, 2) students have difficulty in wording, as well as fear of speaking in English, 3) students still have difficulty understanding the main idea, how to know specific information, and guessing (special) vocabulary whose meaning is not yet known in a reading, and 4) using sentences that are not yet in accordance with grammar, besides that students also have difficulty finding topics, organizing paragraphs and choosing vocabulary that is appropriate to the context.

In addition, lecturers still have difficulty in designing learning materials that involve students directly in understanding the material. Given the importance of English, especially in the field of IT (Information Technology) which is very influential later when students are already in the field. Students are declared to have the ability to speak English both orally and in writing if they can understand the aims and objectives of learning that have been conveyed, then students of Information Engineering are required to understand English material which is the basic science for them because the material and terms in Computer Science were created on the basis of English. And seen from the analysis of needs (Learner centered) in the development of material that is still not good if the material is too high and the distribution is not balanced which causes students to have difficulty understanding it. Materials are a key component in language programs. Materials are anything which can be used to facilitate the learning of a language. According to Lander & Brown (1995), materials can be defined as any systematic description of the techniques and exercises to be used in classroom teaching. In line with Brown, Tomlinson (1998) states that materials could obviously be videos, DVDs, emails, YouTube, dictionaries, grammar books, readers, workbooks or photocopied exercises. They could also be newspapers, food packages, photographs, and live talks by invited native speakers, instructions given by a teacher, tasks written on cards or discussions between learners.

One of the causes of this problem is the absence of teaching materials that involve or can guide students to understand the concept of English with everyday life according to their study program (English for Computer Science), so that students still consider lecturers to be the only source of learning. To overcome these problems, it is necessary to develop teaching materials in the form of modules that can help students learn

independently in understanding learning material. The module developed is based on constructivism.

Constructivism-based learning emphasizes the importance of students building their own knowledge through active involvement in the learning process, part of the process takes place based on student activities (Flick, 2014; Miles & Huberman, 1994; Wrenn & Wrenn, 2009). The lecturer must design, design conducive learning conditions so that students can express their ideas or opinions. Lecturers must guide students towards cognitive structures that are scientific in nature and avoid students by learning to memorize, but rather help students build their own knowledge in understanding the learning material. Based on the above problems, a teaching material will be developed in the form of constructivism-based modules in English courses for Informatics Engineering students at Dharmas Indonesia University.

II. RESEARCH METHOD

This research was designed in Research and Development (R & D) method. Research and development methods are methods used to produce a particular product, and test the effectiveness of the product (Irma, Azhar Arsyad, Safe'i, 2019; Olsson & Meek, 2013; Yoshikawa, 2012). Based on that opinion, it can be concluded that the development research is not a research conducted to produce theory but to produce a certain product. This research developed the Constructivism based Computer English modules for Informatics Engineering students. Computer English modules is developed and tested to its validity, practicality, and effectiveness, so it can produce Computer English modules with valid, practice, and effective. The Computer English modules is developed by using the ADDIE (Analyze, Design, Develop, Implement, Evaluate) model. The analysis stage was analyzed the needs and situation of the Informatics Engineering students. The design stage was conducted by designing Computer English modules based Constructivism. Developing stage was developed Computer English modules. Implement stage was conducted by implementing of teaching Computer English Modules in Informatics Engineering class. Finally, the evaluate stage was an evaluation of the implementation of all these stages.

The procedures of the research are described as follows:
1. Analysis stage

The purpose of the analysis stage is to identify the probable causes for a performance gap (Branch, 2009). According to Tegeh et al., (2014), the analysis stage conduct (1) competency analysis of students, (2) characteristics of students about the capacity of learning, students' knowledge, skills, and attitudes possessed by students, (3) material analysis.

However, in the analysis stage researcher only synthesized 2 aspects (1) Need analysis, (2) Situation analysis.

a. Needs Analysis

The needs analysis found out the needs of the materials for Informatics Engineering students. Material analysis aimed to identify, detail and systematically organize the main material that was learned by students, and then the material arranged systematically. Preparation of learning materials should be applied in the form of facts, concepts, principles, and learning procedures.

b. Situation Analysis

Situation analysis aimed to observe the teaching methods used in class as well as the situation of students during the learning that was the subject of research. This was conducted to find out what approach or method can be used in developing teaching material.

2. Design stage

The purpose of the design stage is to verify the desired performances and appropriate testing methods (Branch, 2009). In the design stage conducted three stages such as design the Computer English modules based Constructivism, lesson plans, and assessment instruments.

a. Design the Computer English modules Based on Constructivism

The developed Computer English modules modules should be in accordance with the based Constructivism. Therefore, Computer English modules with developed 5 components of goals, inputs, procedures, teacher and learner roles, settings. Furthermore, Computer English modules modules should be supported by the presentation of interesting material and designed in accordance with the needs of Informatics Engineering students.

b. Design the Lesson plan

Design lesson plan stage aimed to find out how the lesson plan corresponds to the Informatics Engineering courses and in accordance with the needs of Informatics Engineering students.

c. Preparation of Assessment Instrument of Computer English modules modules

1. Validation sheet of Computer English modules based on Constructivism was conducted by validating the content of Constructivism based teaching materials that are considered experts or lecturers as validator. In this section of validity there were three components of the assessment of the suitability of content, conformity with construction requirements, and conformity with language.

2. Practicality sheet of Computer English modules modules based on Constructivism was conducted by practitioners (Informatics Engineering English lecturer and Informatics Engineering students) on the practicality level of Computer English modules modules developed. In this section the components assessed about the ease of use of Computer English modules modules based on Constructivism or lecturer and students in the learning process.

3. Effectiveness sheet of Computer English modules modules based on Constructivism in the form of exercise questions to see student learning outcomes. At this stage, the assessment was derived from the classical results that get the effective criteria.

3. Develop stage

The purpose of the develop stage is to generate and validate the learning resources that will be required during the life of the instructional modules (Branch, 2009).

The purpose of this stage is to develop Computer English modules modules based on Constructivism for Informatics Engineering students with valid, practical, and effective criteria. The steps to be undertaken at this stage of development are:

1. Validity test

Computer English modules based on constructivism developed was validated first by experts or lecturers who act as validators. The purpose of validation is to look at the form, concepts, and grammar used in Computer English modules modules that was developed. Furthermore, to see the suitability of teaching materials based on the duties of English to the needs of Informatics Engineering students. Validation can determine whether or not a product was developed against a particular object. Invalid teaching material must be revised until they were valid by the validator. Validation was said to be complete, if the validator declare valid against the Computer English modules based on Constructivism so that it was ready to be tested.

Validation was conducted by using validation sheet of Computer English modules filled by validator. The steps to test the validity of Computer English modules based on Constructivism for Informatics Engineering students to the experts are as follows;

1. Requests the expert's willingness to see the eligibility of Computer English modules based constructivism created.

2. Experts were required to provide an assessment of Computer English modules that have been made based on items in the validity test questionnaire.

3. After the assessment was conducted, continuous revision of Computer English modules based constructivism in accordance with the advice given by the validator.

Validation stage began with preliminary analysis and expert assessment consisting of 4 lecturers of University of Dharmas Indonesia, and practitioner from Informatics Engineering English lecturer and Informatics Engineering students. Validation was conducted by lecturers aimed to gain input on the suitability and feasibility of the design form of the development of Computer English modules based on constructivism developed. From the validation results, the researcher conducted the analysis, if the analysis is not valid yet, then the revision after that continued to be tested on the subject of the study of Informatics Engineering students to test the effectiveness of Computer English modules modules based on constructivism .In addition, to measuring the validity

of Computer English modules modules, researcher also validated the lesson plan, practicality test sheets and effectiveness test sheets.

2. Practicality Test

Practicality test which is a test of practicality level of Computer English modules developed. Practicality obtained from the results of data analysis using teaching material that have been declared valid by the validator. Then, to know the practicality of Computer English modules based on constructivism for Informatics Engineering students asked the response of Informatics Engineering English lecturer and Informatics Engineering students to the implementation of Computer English modules based on constructivism for the Informatics Engineering students by using practicality sheet.

3. Effectiveness test

The effectiveness test of Computer English modules based on constructivism for the Informatics Engineering students aimed to find out whether the teaching material was effective or ineffective. The purpose of effective is the level of success in the use of Computer English modules modules based on constructivism. To measure the effectiveness of Computer English modules can be known when testing that is during the learning process.

4. Implement stage

The purpose of the implement stage is to prepare the learning environment and engage the students (Branch, 2009). Implementation is a real step to implement the learning system created. At this stage, after the experts declare Computer English modules have been feasible to use, then the next stage was the implementation of Computer English modules based on constructivism in second semester of Informatics Engineering students at the University of Dharmas Indonesia.

5. Evaluate stage

The purpose of the evaluate stage is to assess the quality of the instructional products and processes, both before and after implementation (Branch, 2009). Evaluation is a process to see if the learning system being built is successful, as expected or not. In the evaluation stage, the quality analysis of Computer English modules modules based on constructivism is evaluated from all the stages of ADDIE model.

The product testing intended to collect data that can be used as a basis for establishing the level of practicality and effectiveness of the resulting product. The goal is to know the ease and success of the use of Computer English modules based on constructivism for lecturers and Informatics Engineering students.

To find out the validity of Computer English modules based on constructivism obtained from the expert or lecturers assessment. While the practicality and effectiveness of Computer English modules modules based on constructivism each obtained from the results of Informatics Engineering students' questionnaires responses and Informatics Engineering English lecturer as well as evaluation of student learning outcomes.

And the subject of the research was the second semester of Informatics Engineering students at the University of Dharmas Indonesia that consisted of 25 students. The types of data used in this research were qualitative and quantitative data. Qualitative data was obtained from validity sheet filled by validator and practicality sheet filled by practitioners from Informatics Engineering English lecturer and Informatics Engineering student. While quantitative data obtained from the learning result of Informatics Engineering students' test.

4. Instruments of the Data Collection

In this research developed Computer English modules based task Constructivism product for good and decent Informatics Engineering students. Therefore, required data collection instruments used in this research were:

1. Validation sheet

The validation sheet consists of a Computer English modules validation sheet, lesson plan, lecturer's responses assessment sheet, students' test sheet, and students' questionnaires sheet. The validation sheet given to the experts (validators) along with Computer English modules based on constructivism that has been validated for feedback or assessment of Computer English modules based on constructivism. This validation sheet was used to see the correctness of the concept and the presentation of the material in assisting the implementation of the learning process.

2. Practicality Sheet

Practicality sheet was used to collect information on the practicality of developing Computer English modules based on constructivism for Informatics Engineering students. Practicality sheet was appraisal sheet of Informatics Engineering English lecturer and Informatics Engineering students' practitioner on Computer English modules based on constructivism.

3. Effectiveness Sheet

This instrument was used to collect data on the effectiveness of Computer English modules based on constructivism developed during the learning process. Effectiveness instruments consist of the students' test sheet of learning result.

4. Technique of the Data Analysis

Technique of the data analysis was conducted on this development as follow:

a. Validity Analysis

The validity analysis was conducted using Likert scale 1-4

Table.1. Using Likert Scale

Score	Category
1	Disagree
2	Less Agree
3	Agree

4	Strongly agree

(Modification from Riduwan, 2009)

Scores that have been obtained by using Equation (1)

$$V = \frac{f}{n} \times 100\%.$$

Formula: V : Validity value
             f : Score obtained
             n : Maximum score

The validity of Computer English modules based on the final score obtained on a scale (0-100) can be seen in Table. 2

Table.2. The Validity Category of Computer English modules

Score	Category	Percentage of indicator achievement
1	Invalid	$0 \leq V \leq 25$
2	Quite valid	$25 < V \leq 50$
3	Valid	$50 < V \leq 75$
4	Very valid	$75 < V \leq 100$

(Modification from Riduwan, 2009)

b.   Practicality Analysis

Questionnaires responses of Informatics Engineering English lecturer and Informatics Engineering students related to the practicality of the use of Computer English modules based on constructivism that has been made. Scoring for each category conducted using Likert scale with provisions such as Table.3.

Table.3. The Practicality Category of Computer English modules Based on Constructivism

Interval	Category
$0 \leq P \leq 25$	Not practice
$25 < P \leq 50$	Quite practice
$50 < P \leq 75$	Practice
$75 < P \leq 100$	Very practice

(Modification from Riduwan, 2009)

The calculation of final value data for each category analyzed on a scale (0 - 100) performed using Equation (2):

$$P = \frac{f}{n} \times 100\%.$$

Where P is the value of practicality f is the score obtained, n is the maximum score.

c. Effectiveness analysis

Effectiveness analysis was known by analyzing students' test of learning result, which used for practicality of Computer English modules. Effectiveness analysis obtained from the effectiveness sheet instrument that was related to the effectiveness of the time that has been achieved the use of Computer English modules based on constructivism that has been made. The scoring for each category performed using the final value data calculation for each category was analyzed on a scale (0-100) performed using equation (3).

$$E = \frac{f}{n} \times 100\,\%$$

Description: E: Effectiveness value

f: Total number of completed students

n: Total number

Table.1. The Effectiveness Category of Computer English modules Based on Constructivism

Interval	Category
$0 \leq E \leq 25$	Not Effective
$25 < E \leq 50$	Quite effective
$50 < E \leq 75$	Effective
$75 < E \leq 100$	Very effective

(Modification from Riduwan, 2009)

The test of learning result was conducted by using test of exercise that has been validated in Computer English modules. Assessment is conducted on a scale of 0 -100. Then, compared with the minimum criterion that has been determined.

III. LITERATURE REVIEW
1. **Computer English modules Development**
    a. Definition of Materials and Material Development

Materials are a key component in language programs. Materials are anything which can be used to facilitate the learning of a language. According to Brown (2007) materials can be defined as any systematic description of the techniques and exercises to be used in classroom teaching. In line with Brown, Tomlinson (1998; 2010) states that materials could obviously be videos, DVDs, emails, YouTube, dictionaries, grammar books, readers, workbooks or photocopied exercises. They could also be newspapers, food packages, photographs, and live talks by invited native speakers, instructions given by a teacher, tasks written on cards or discussions between learners.

Material is everything which is used to help to teach language to the students (Kusuma & Apriyanto, 2018; Meganathan, 2008). Based on the theory above, it can be concluded that materials are all of the things which support teaching and learning process. One of the material that can be developed is Modules that are arranged in a systematic

and interesting manner that includes the content of materials, methods, and evaluations that can be used independently to achieve the expected competencies. Khan et al., (2014) said that modules are the smallest unit of teaching and learning programs, which are studied by students themselves individually or taught by students to themselves (self-instructional). Besides, Winkel (2009), a module is a teaching package that contains a unit of concepts rather than learning material. Module teaching is an effort to organize individual teaching that allows students to master one unit of subject matter before moving on to the next unit (Kusen, 2016).

Based on the understanding of the modules above, it can be concluded that a module is a teaching material that is formed and packaged in an orderly and attractive manner so that it is easy to learn independently. The module is useful for students to be able to study the material independently. A good module must be organized, interesting, and clear the contents of the material so that it can be used anytime and anywhere by students. Anwar (2010) states that the characteristics of the learning modules are   as follows:

a. Self-instructional, Students are able to learn themselves, not dependent on other parties.

b. Self-contained, all learning material from one competency unit studied is contained in one whole module.

c. Stand alone, the module developed does not depend on other media or must be used together with other media.

d. Adaptive, Modules should have a high adaptive power to the development of science and technology.

e. User friendly, Modules should also meet the rules of friendly / familiar with the wearer.

f. Consistency, Consistent in the use of fonts, spaces, and layout.

b. *Second Language Acquisition and Materials Development*

According to Tomlinson (2010), there are some of the basic principles of second language acquisition relevant to the development of materials for the teaching of languages:

1. Materials should achieve impact

2. Impact is achieved when materials have a noticeable effect on learners that is when the learners' curiosity, interest and attention are attracted. The characteristics of materials should achieve impact are: Novelty (e.g. unusual topics and activities), variety (e.g. give unexpected activity; using many different types of sources), attractive presentation (e.g. use of attractive colors; use of photographs), appealing content (e.g. topics of interest to the target learners), achievable challenge (e.g. tasks which challenge the learners to think).

3. Materials should help learners to feel at ease.

4. Materials should help learners to develop confidence.

5. What is being taught should be perceived by learners as relevant and useful.

6. Materials should require and facilitate learner self-investment.

7. Learners must be ready to acquire the points being taught.

8. Materials should expose the learners to language in authentic use.

9. The learners' attention should be drawn to linguistic features of the input.

10. Materials should provide the learners with opportunities to use the target language to achieve communicative purposes.

11. Materials should take into account that the positive effects of instruction are usually delayed.

12. Materials should take into account that learners differ in learning styles.

13. Materials should take into account that learners differ in affective attitudes. Materials should permit a silent period at the beginning of instruction.

14. Materials should maximize learning potential by encouraging intellectual, aesthetic and emotional involvement which stimulates both right- and left-brain activities.

15. Materials should not rely too much on controlled practice.

16. Materials should provide opportunities for outcome feedback.

17. Based on the basic principles of second language acquisition above, it can be concluded that materials should provide different things to give variety of learning materials accordance with the students' needs.

2. Constructivism
a. Definition of Constructivism

Constructivism is one view of the learning process that (knowledge acquisition) begins with the occurrence of cognitive conflict that can only be overcome through self-knowledge and at the end of the learning process, knowledge will be built by children through their experiences from the results of interactions with their environment (Creswell, 2014).

Constructivism is the flow of philosophy of knowledge which holds that knowledge is the result of construction (formation) of people who are learning. It means that each person forms his own knowledge (Sze-yeng, 2013). Constructivism starts from the formation of knowledge and knowledge reconstruction, namely changing the knowledge possessed by someone who has been built or constructed before and the change is as a result of interactions with the environment.

Based on some experts' understanding above, it can be concluded that Constructivism is the flow of educational philosophy that focuses on building one's knowledge through the results of interactions with their environment and produces change as a result of these interactions.

b. Benefits of Constructivism

Constructivism learning is useful in building one's knowledge based on the knowledge they have and producing change caused by the process of interaction.

Here are the characteristics of constructivist learning according to some literature as follows (Hartikainen et al., 2019; Köksal et al., 2014; Wrenn & Wrenn, 2009):

a. Knowledge is built on experience or prior knowledge

b. Learning is a personal interpretation of the world

c. Learning is an active process in which meaning is developed based on experience

d. Knowledge grows because of the negotiation of meaning through various information or agreeing on a viewpoint in interacting or cooperating with others.

e. Learning must be set in a realistic setting, assessment must be integrated with the task and not a separate activity.

c. Constructivism Process

Piaget known as the first constructivist (Dahar & Wilis, 2009), asserted that the emphasis of constructivism theory is on the process of finding theories or knowledge that are built from field reality. The role of the teacher in learning according to constructivism theory is as a facilitator or moderator. The more recent constructivist view of children developed from Piaget's cognitive learning theory states that science is built in the mind of a child with assimilation and accommodation activities in accordance with its schemata.

The process of constructing, as Jean Piaget explained is as follows:

1. Schemata.

Schemata are a set of concepts that are used when interacting with the environment called a schemata. Since childhood, children already have a cognitive structure which is then called a scheme. Schemes are formed by experience. For example, children like to play with cats and rabbits who are both white fur. Thanks to its frequency, it can capture the difference between the two, namely that a four-legged cat and a two-legged rabbit. In the end, it is thanks to that experience that in the cognitive structure of children a scheme of four-legged animals and two-legged animals is formed. The more mature the child, the more perfect the scheme he has. The process of perfecting the schema is done through the process of assimilation and accommodation.

2. Assimilation.

Assimilation is a cognitive process in which a person integrates perceptions, concepts or new experiences into a scheme or pattern that is already in his mind. Assimilation is seen as a cognitive process that places and classifies new events or stimuli in an existing scheme. This assimilation process continues. Assimilation will not cause a change in the schemata but the development of the

schemata. Assimilation is one of the individual processes in adapting and organizing themselves with the new environment the understanding of the person develops.

3. Accommodation.

In the face of new stimuli or experiences one cannot assimilate new experiences with existing schemata. The new experience may not be at all compatible with the existing scheme. In such circumstances people will hold accommodation. Accommodation takes place to form a new scheme that matches the new stimulus or modifies the existing scheme so that it matches the stimulus.

4. Balance.

Equilibration is a balance between assimilation and accommodation while discilibration is a state where the imbalance between the process of assimilation and accommodation, equilibration can make a person unite external experience with the inner structure.

3. English for Informatics Engineering Students (English for Specific Purposes)

English for Informatics Engineering students is English that goes into the category English for specific purposes. According to Nihal (2010) and Radwan (1990) ESP courses are narrower in focus than general ELT courses because they Centre on analysis of learners' needs. Students in specific fields need to focus their attention on the kind of language used within their particular field (Baihaqi et al., 2020). These materials are geared specifically toward people working in different service industry occupations such as hotel employees, restaurant chefs, factory workers and secretaries as well as toward students in academic. Based on the above explanation, English for Informatics Engineering students is English that will be studied for the purpose of his work.

There are some definitions of ESP according to some experts. Anthony (1997) explain that ESP (English for Specific Purposes) involves teaching and learning the specific skills and language needed by particular learners for a particular purpose. ESP may be considered as an approach to course design and teaching that targets groups of learners who have a common goal or purpose in learning English (Hartig, 2016; Hutchinson & Waters, 1989). It can be concluded that, ESP is English that learned to meet specific needs of the learners.

In addition, Anthony (1997) gives two characteristic of ESP:

    a. Absolute characteristics
       1. ESP is designed to meet specific needs of the learner.
       2. ESP makes use of the underlying methodology and the activities of the discipline it serves.
       3. ESP is centered on the language (grammar, lexis, and register), skills, discourse and genres appropriate to these activities.
    b. Variable characteristics
       1. ESP may be related to or designed for specific disciplines.
       2. ESP may use, in specific teaching situations, a different methodology from that of general English.

3. ESP is likely to be designed for adult learners, either at a tertiary level institution or in a professional work situation. It could, however, be used for learners at secondary school level.

4. ESP is generally designed for intermediate or advanced students. Most ESP courses assume basic knowledge of the language system, but it can be used with beginners.

Based on the explanation above, it can be concluded that the absolute characteristics of English for Informatics Engineering students is designed to meet the students needs. Then, the language use should be appropriate with the learning activity of the Informatics Engineering students . Furthermore, for characteristic variables, English for students is specially designed and do not use English in general. Furthermore, English for Informatics Engineering students is designed to facilitate learning English for those who basically cannot understand more deeply about the English language.

IV. FINDINGS AND DISCUSSION

Based on the results of the Development of Constructivism based Computer English modules for Informatics Engineering students that has been tested, Computer English modules met the desired criteria that were valid, practice and effective. The following was a discussion of each category of Computer English modules based on a Constructivism.

1.   Validity of the Computer English Modules

The validity of the Computer English modules was conducted to measure whether the English teaching modules is worthy to use or not. In this research, there were three component assessments of Computer English teaching modules consisting of content, construction, and language. One of the validity assessments was construction for Computer English teaching modules. This is in accordance with Riduwan (2009) explaining that to test the validity of the construction, it can be used by experts. Based on validation results from 4 experts or lecturers from the University of Dharmas Indonesia toward Computer English teaching modules based on Constructivism has an average value of 88.1%. The value belongs to a very valid category. Then, it can be concluded that the Computer English modules met the criteria.

2. Practicality of Computer English Modules

Practicality of Computer English teaching modules based on Constructivism refers to the ease and benefits for lecturers and Informatics Engineering students in learning. Practicality assessment of Computer English teaching modules based on Constructivism was conducted by lecturer and students using questionnaires.

According to Riduwan (2009), the percentage of practical criteria is 75-100%, while the average value of practitioners by Computer English lecturer was 80%, while the average value of Informatics Engineering students was82.06%.

Assessments from both practitioners are categorized as very practice. Therefore, i t can be concluded that Computer English teaching modules based on Constructivism can help and facilitate lecturers in the learning process.

3. Effectiveness of the Computer English Modules

Effectiveness of the Computer English teaching modules refers to learning outcomes. This was seen from how far the target was reached. Effectiveness can be defined as the level of success in the use of a product. The effectiveness of the use of Computer English teaching modules was seen from the learning outcomes of obstetric students with a percentage of 92.65% and was included in very effective category. This is supported by Riduwan (2009) which states that the percentage of effective criteria is 75-100%.In this case, the Computer English modules can be said effective category because the students can answer the 20 test questions correctly. In addition the questions provided include with the contents of the text, so that students can easily answer questions. Therefore, Computer English teaching modules was declared very effective by the validator because the Computer English teaching modules developed has been in accordance with the objectives achieved

V. CONCLUSION

Based on the result of development and tested on Computer English teaching modules based on Constructivism in Informatics Engineering students, it can be concluded that Computer English teaching modules was on valid, practice and effective category. The valid category was seen from the assessment of content, construction and language conformity. The practice category can be seen from the material presented in accordance with the purpose of learning, interesting, and easy to be understood materials. The effective category can be seen from the questions of the test using clear language, easy to understand, did not contain double meaning and in accordance with the goals to be achieved.

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