

## **Learning from the Self-Created Media: Designing the Engineering Students' ESP Autonomous Learning**

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### **Abstract**

Currently, English lecturers of non-English speaking countries in the higher institution are facing heterogeneous classes. There are fortunate students during their high schools got a chance to sharpen their English skills and others who just rely on their English school teachers. Unaffordable cost or limited facilities or access to learning are some of the factors. The learning material of ESP for Engineering for a heterogeneous class is developed. This R&D used ADDIE approach. This article focuses on the analysis of the first two phases- analysis and design. Analysis of the need of the Engineering students and English lecturers are conducted using instruments of the open questionnaire and interview list which have been validated. While in the design phase, the material is developed using an autonomous learning approach and a task-based approach. Before, continuing to the practicality test, the developed material also has been validated. This material is aimed to support the learning of *Describing a Process* which is one of the topics in ESP in the Engineering Department of Politeknik Negeri Padang. The developed material provides every meaningful task that gives a positive contribution to the students.

**Keywords:** Materials, ESP, Engineering, Autonomous, Heterogeneous

### **Introduction**

It is understood that English is an international language that must be acquired to fit in the world that rapidly changing in many sectors like industries, technology, and education. Kirkpatrick (2019) said that the vital instrument of communication across the world which is a contemporary element in the society is English. He also mentioned that English makes one understand what revolves around the world because he can overcome barriers associated with language. The fact shows that countries where English is as a second language like Malaysia or India- poor or rich- the people will still be able to be English speakers, actively and passively. While, for a country, where their neighbor country is an English speaking country, the schools will send their students there during the summer holiday for having English classes.

In contrary, people from the non-English speaking country, besides learning English at school with a limited hours, they are trying hard to be competence in English by joining an English course, reading English books, or watching English movies, but not all people able to have a chance for doing it because of several reasons. One of them is the unaffordable cost. As the consequence English teachers at schools or lecturers at universities are facing heterogeneous classes. The students have a different point of view of learning English, different proficiency levels, and different characters. This is supported by Razmerita & Armelle (2011) who said that a heterogeneous group or class is made by learners that are balanced in terms of diversity based on some criteria.

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The teachers and lecturers must developed the right materials for the learning process since learning materials make the learners become independent learners, give learners a chance to discover themselves, or give positive experiences using attractive illustration or multimedia resources (Tomlinson, 2008). The teachers and lecturers also realize that as the world change, for making a line, the materials must fit in it. As Aydin & Aytakin, (2018) said that learning materials beside should be simple, understandable, and the reflection of real life, they must also be easy to develop, revise when it is necessary.

Actually, studies related to ESP learning in heterogeneous classes were carried out by several researchers. Hadiani & Permata (2017) developed English material for Engineering students which focus on the students' communication skill need. While Etfita & Wahyuni (2020) developed English material for Mechanical Engineering using padlet. Lotan (1970) did a study on developing language and mastering content in the heterogeneous class by strengthening the teachers' instructional practices and by educating students to serve as academic and linguistic resources for one another. However, these studies do not allow learners to rely on their own linguistic and non-linguistic resources to perform the tasks. Autonomous learning must be supported. As Warhulski (2018) said that autonomous learning can be carried out effectively by having goal-setting activities. The studies also show that the four English skills are not being sharpened in the learning process.

Therefore, this article brings up on designing material using an autonomous learning approach and a task-based approach for heterogeneous class. Darici (2016) said that in the development of learning materials, need analysis on the students and teachers is very important. It will determine whether the learning goes to ESP or General English. The developing material must be from teachers' hand creations because they know their students' abilities (Aniroh, 2019). It can be said that need analysis is the combination of target situation analysis and present situation analysis (Songhori, 2008). Analyzing the present situation can be gained from the analysis on the necessities, lacks, and wants of the learners (Hutchinson & Waters, 2008) by focusing on the language, ideas, skills, and Text (Nation & Macalister, 2010). Therefore, the material which is designed is for Politeknik Negeri Padang (PNP) Engineering students who are learning ESP (English for Specific Purpose) will considered the aspects above.

PNP is one of the vocational higher institutions in Padang, of West Sumatra Indonesia. Located in a developing country where English is a foreign language, PNP that is offering Diploma III and Diploma IV level is facing students who have low living standards and low English skills. The number is increasing when the government is offering a scholarship named "Bidik Misi" to support the education of students from a poor family, and PNP is one of a higher institution that is accepting Bidik Misi students. In PNP, there will be several "Bidik Misi" students in every class, and this becomes a challenge for the English lecturers since they are not teaching General English to them, but more specific ESP and the students are heterogeneous in several sides.

The supplementary material is designed by taking the Autonomous Learning and Task-Based Learning as the approach. The topics are selected from the English syllabus of Civil Engineering, Electro Engineering, and Mechanical Engineering Departments. The topics which are taken for the developed material are the ones that are offered by the three departments. Although the topics are the same, the object will be different, which is based on the students' field of study. From document analysis (syllabus) observation, there are three topics that the three Engineering Department are learning, but this article only discusses the material that is developed for the topic " Describing a Process". The material for this topic is designed with the concept learners learn independently and naturally in performing tasks. The material consists of a list of tasks. There is no list of vocabulary, grammatical structures to be taught.

## Methods

The design of this research was R&D (Research and Development). The model used was the ADDIE (Analysis, Design, Development, Implementation, and Evaluation). From the four steps, this article is discussing the analysis and design phases. 75 PNP Engineering students were randomly taken to fill the questionnaire and 10 PNP English lecturers were taken to be interviewed. The taken lecturers were the ones who were presently teaching in PNP Engineering Department during the research were conducted. Those instruments which have been validated by the experts were needed to find the students 'wants and lacks the students during learning the topic " Describing the Process" and

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then the wants and lacks the English lecturers when teaching this topic. The data from these two instruments are analyzed descriptively. For the design, Autonomous learning and Task-Based Learning were chosen as the approach for designing the material, and then it was being validated by the experts. The validation was assessed from the input, content focus, language focus, and task sides.

### **Result and Discussion**

A distribution of 75 open questionnaires was given to PNP Engineering students randomly. They were from Civil Engineering, Electro Engineering, and Mechanical Engineering. The data being collected and analyzed from the open questionnaire are related to the wants and the lack of the students during the learning topic "Describing Process". From the open questionnaire, the data collected show that students are having difficulty in learning the topic "Describing Process". The students feel that the topic is not interesting. There are many new words or diction that makes it difficult to do their presentation. They think that they are not fully prepared when the presentation time comes. They also say that they have a problem in the system of English like knowing the present, past, and participle verbs, and weak in structure and grammar like making passive sentences.

While from the English lecturers, the interview was conducted. The questions were related to the strategy or technique teaching "Describing Process" and the students' reaction toward the topic. There were five questions offered to the English lecturers. The lecturers mention that they gave the students a topic that they must present. The students read the source and present it in front of the class. The students are variety, thus some did the task quickly, and others were very slow. The performance tasks were was not very satisfying since it is more like reading activities, rather than a presentation. The teachers admit that they are hoping to get the same quality or standard of every performance task.

For the design phase, Autonomous learning and Task-Based Learning approach were implemented. Several tasks must be carried out by the students before reaching the performing task. Every task has its meaning and function, and it is decided by the students themselves. In the topic *Describing a Process*, the first task given by the English lecturers is the process of a fruit canning. The lecturers show a media where there are pictures in a chain. On top of each picture, past participle verb is written. The lecturers give a presentation about the process of fruit canning based on the media. This is the phase where the students get a picture of how to tell a process in English, and also they will be aware that past participle verbs and passive voice are needed in telling a process.

In the second task, the students are let to choose the topic of their process. The English lecturers explain that they can choose the topic based on what kind of project that they want to handle later on in their career, for example, Civil Engineering students want to take a process of constructing a two-floor house. In this second task, the students must be an expert on it by looking sources of the topic. The source that the students pick must contain pictures. The pictures will be used in making the media later on.

In the third task, the students read the source like articles, try to comprehend the content. The students are allowed to use an online dictionary when there are words that they do not understand. In this phase, the lecturers must prepare themselves to discuss with the students when there is difficulty in understanding the content. After mastering the content, they take out statements, at the same time decided the past participle verbs which are important in telling the process.

The following task is constructing passive sentences using the past participle verbs that have been decided. This is the time that the students used any words that they have known. It can be words that they just get during comprehending the articles. The passive sentences must be checked by the English lecturers, just to make sure that they are on the right track. Last, the students are creating the media. All pictures are arranged like a chain, and on the top of the pictures, the past participle verbs are written. If the passive sentences that they choose do not have a matching picture, the students must draw it or try to find it in the Google. The media is then been scanned, and ready to be presented by the students.

This learning material will be able to build students' motivation in learning ESP since they are given a chance to choose the topic that they like. The material does not push the students to do a presentation which has been set up by someone else and make them do the presentation full of depression. This material opens the opportunity for the students to use the language that they have acquired and feel comfortable using it. It will make the students feel confident with the information

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that they are sharing in front of the class. Therefore, all the students with any level of English acquisition, they can still finish performing their task.

This supplementary material is designed not only to add the students' English language skills and knowledge but also to build their critical thinking. It will widen their insight. They will know what is happening around them. They will be aware especially with the object that they choose as their task performance. Their media as their task performance aid will encourage the students to be creative and artistic. Since the media will be used during presentation and will be seen by their classmates, the students are creating their media carefully.

This supplementary material also improves the four skills of learning English, reading, writing, speaking, and listening. They read the English article, write down the passive sentences, tell the process, and listening to their friend's presentation. By each student having a presentation, the students will get much information about a process. This material also creates the students to be an independent person who must be responsible for the story that they make. The students must make sure that the process that they are telling is valid.

### Conclusion

The material is designed for the topic *Describing a Process*. This description of the tasks can be also adopted or adapted for other topics which can be found in the three Departments Civil Engineering, Electro Engineering, and Mechanical Engineering. Furthermore, a learning process must give a description or at least a vivid picture of what the students are going to face in their working area. Fălăuș (2016) mentioned that ESP tends to be a scenario that replicates the specific working setting, and as in the material for "Describing Process", the staffs in an industry must write down a report of a production process, and present it in the meeting, and this supplementary material for "Describing Process" really gives the reflection of it.

### References

- Aniroh, K. (2019). The Challenges of Teacher-Students in Developing ESP Teaching Materials. *Asian ESP Journal*, 15(2), 42–56.
- Aydin, A., & Aytekin, C. (2018). Teaching Materials Development and Meeting the Needs of the Subject: A Sample Application. *International Education Studies*, 11(8), 27. <https://doi.org/10.5539/ies.v11n8p27>
- Darici, A. (2016). The Importance of Needs Analysis in Materials Development. In M. Azarnoosh, M. Zeraatpishe, A. Faravani, & H. R. Kargozari (Eds.), *Issues in Materials Development* (Vol. 4, pp. 31–42). Sense Publisher. <https://doi.org/10.1017/CBO9781107415324.004>
- Etfita, F., & Wahyuni, S. (2020). Developing English Learning Materials for Mechanical Engineering Students Using Padlet. *International Journal of Interactive Mobile Technologies (IJIM)*, 14(04), 166. <https://doi.org/10.3991/ijim.v14i04.12759>
- Fălăuș, A. (2016). The current challenges of teaching ESP. *IOP Conference Series: Materials Science and Engineering*. <https://doi.org/10.1088/1757-899X/200/1/012059>
- Hadiani, D., & Permata, N. N. (2017). Developing Instructional Materials For Engineering Students: Focus On The Students' Communication Skills Needs. *Advances in Social Science, Education and Humanities Research (ASSEHR)*, Volume 82 Ninth International Conference on Applied Linguistics (CONAPLIN 9, 82(Conaplin 9), 255–259. <https://doi.org/10.2991/conaplin-16.2017.57>
- Hutchinson, T., & Waters, A. (2008). *English for Specific Purposes: A Learning-Centred Approach*. Cambridge University Press.
- Kirkpatrick, J. (2019). The Asian ESP Journal. *The Asian ESP Journal*, 15(5–21).
- Lotan, R. (1970). Developing Language and Mastering Content in Heterogeneous Classrooms. In M. G. Robyn, A. Ashman, & A. Terwel (Eds.), *The Teacher's Role in Implementing Cooperative Learning in the Classroom* (Issue January 1970). Springer. <https://doi.org/10.1007/978-0-387-70892-8>
- Nation, I. S. ., & Macalister, J. (2010). *Language Curriculum Design*. In Routledge. Routledge Taylor and Francis Group.

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- Razmerita, L., & Armelle, B. (2011). Collaborative learning in heterogeneous classes: Towards a group formation methodology. *CSEDU 2011 - Proceedings of the 3rd International Conference on Computer Supported Education*, May, 189–194.  
<https://doi.org/10.5220/0003338901890194>
- Songhori, M. H. (2008). *Introduction to Needs Analysis*. English for Specific Purposes World, 4.
- Tomlinson, B. (2008). *English Language Learning Materials: A Critical Review*. Continuum International publishing Group.
- Warhulski, D. (2018). *ASIAN EFL Journal Volume 20 Issue 8 August-2018*. *ASIAN EFL Journal*, 20(8), 247–256.