

EMERGED LANGUAGE TEACHING METHODOLOGIES IN POLYTECHNIC: CORPUS LINGUISTICS AND DIALOGIC PEDAGOGY

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ABSTRACT

This study discusses the emerged language teaching methodologies practiced in Engineering Fields. There are many methods applied in teaching language. However, the needs of technical fields in English learning, especially for workforce, academic and social demand, seemed to have appropriate treatment. Career choice has given a great impact influencing the study of English language. In addition, there are specific needs in the engineering workplace that are inevitably used by engineers to correspond with their colleagues or customers. This situation leads to some thought in English for specific purpose practices. Recently, there are two teaching methodologies adjusted for the needs of technical school students that are being studied. First, Corpus linguistics: the lexical approach has been mostly practiced before. Innovated by data-driven corpus, this methodology arises as to the new common method applied in the engineering area. Second, Dialogic Pedagogy: the thought of dialogism is grounded by the sociocultural theory that considers learning as a social act. Social engagement is believed in improving one's ability to be a decider and problem solver. Through dialogic pedagogies, students learn to eliminate some problems related to language barriers, such as the anxiety to speak English and apprehensiveness in making mistakes.

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INTRODUCTION

Technical universities, including polytechnic, put high expectations in teaching English to their students. Most of the technical institutions provide English as a mandatory course for every student on campus (Bobyreva, 2015). Considered as a lingua franca in the technical world, English becomes a compulsory subject, usually taught in first grade to learn by everyone. Undoubtedly, this is required in hope to open an extra perspective of intellectual, career growth and professional in engineering fields that have been industrial needs in this era (Greculescu, Todorescu, & Popescu-Mitroi, 2014; Jantassova, 2015). Therefore, many educational institutions put much effort into developing not only students' technical skills but also their English language level (Simona, 2015).

It is realized that polytechnic functions not only to provide the students with a sum of technical knowledge and skills but also to develop students' skills in effectively utilizing professional information, presenting in a local and foreign language and participating in society they involved in. They must know how to behave confidently in a different context of communication (Simona, 2015).

In fact, the expectations have not dealt with the reality. Most of the graduates cannot conform to this hope. We can easily find a graduate who works in the advanced company, can interact socially in English, but neither can understand nor present information given academically in English. English is used only for social interaction, and therefore the need to understand the instruction academically is less important. On the other hand, an engineer who has skill in engineering feels that the point of working is on the ability of engineering they possess. In contrast, some others can make use of some technical information in English but do not work with their work colleagues or consumer in terms of associating or negotiating.

As a result of this demand, English lecturers need to be aware of the choice of syllabus and method they apply in teaching English. First, to meet the demand of engineering fields, the English learning process needs to address the technical purpose. Second, as the students are also involved in academic fields, they also need academic English to boost their understanding. Finally, as they take part as a member of a group or

community, they must have a polite language that suits to socially engage in their further group.

To meet the requirement, engineering students must learn the technical purpose and the lecturers apply proper designs and teaching approaches by placing students' needs as a central issue in learning design. It is in line with English for Specific Purpose (ESP) in which learners and their needs are put into main consideration in deciding the process and learning direction to achieve effective and efficient results (Hutchinson & Waters, 1987). The main goal of this learning approach is to help a learner to appropriately and concisely master English in their field. The same thing is also applicable for academic or social purposes. However, since the social purpose can be gotten in the place where the transaction is conducted, English for engineering and academic purpose should be as the main asset for the students in technical studies. In short, an English lecturer needs to find applicable and suitable methods to help students to cope with English for engineering, academic and social purposes.

Applying English for Specific Purpose (ESP) in Engineering Studies

The shift of language learning from understanding formal features of language usage to discovering how the language is used in communication has changed educators' paradigm in teaching language (Widdowson, 1978). Traditionally learning a language focused on rules of language usage, including structure and grammar. However, it has changed as people realize that the nature of language use is for communication.

Later, new thought assigns that the language used in speaking and writing may considerably vary depending on different ways and contexts (Hutchinson & Waters, 1987). In English language learning, experts become more concern about the different use of different contexts, such as the use of English for Engineering and that for economics. It led to the idea that language features can be determined based on specific situations. The feature, then, was applied for the basis of the learners' course. According to Hutchinson and Waters (1987), the development of English for specific groups or learners becomes the guiding principle of ESP.

As English becomes the accepted language in many fields, including engineering, technical students begin to be aware of the importance of English, besides their origins of discipline. They know specifically why they need to study English. This awareness, then, must be supported by

the teacher by providing suitable material helping learners to go along with their field-global demand.

The growth of multinational companies employing engineering graduates as their employers shows that an engineering student must prepare himself or herself to have competence not only in reading and writing English but also in direct interaction, listening and speaking (Spence & Liu, 2013). Most multinational companies adopt English as their workplace language in order to increase efficiency in global communication around the world. Realizing this circumstance, Educators in the engineering field must equip the students with English for engineering purposes before they are ready to go to the workplace.

In recent years, English for engineering purpose is not merely put attention on technical terms in its field. Besides the engineering field as a common subject learned by students in polytechnic, they also have workplace needs related to important communicative events in the workplace. Therefore, teaching English for engineering purposes cannot solely present material related to what they want commonly in the technical field. There must be additional competences in using English they need to cover.

English Language Learning Needs among Students

Identifying students' needs is of interest because it affects individuals' educational life that will lead to someone's future career. Students feel more motivated to learn something when they know what s/he learns will affect his or her dream. By knowing the target needs, those who are responsible for providing the syllabus can design the track to achieve the goal (Karimi & Sanavi, 2014). Furthermore, language teaching will be more meaningful when it is designed for certain purposes of identified groups of students.

For example, Greculescu et al. (2014) identify that career choice can be the most influencing aspect in the study of foreign language. They analyze the correlation between social demand and engineering education requirements regarding the study of English. The study indicate that most of the students believed that the ability of English takes an important role in the engineering domain. Even mostly the failure of graduates to take English-workforce selection test is not due to the lack of understanding of the material asked, but rather due to inability to express ideas about the subject matter in English. It means that motivation for studying English is higher when students have a career

choice in the engineering field. This is evident in the case in which English is considered *sine qua non* for the job (Millrood, 2014).

Kassim and Ali (2010) investigate more specific needs that were faced by engineers in the workplace. They found that engineers used English orally in the workplace mostly for teleconference and giving an oral presentation with colleagues, customers, and suppliers. Other communicative events conducted orally were: informal meetings, networking for acquiring contact and information, instructing, explaining and demonstrating. Most of these events were conducted in a situation where engineers needed to deliver the idea and convince others of their opinion. It indicates that most of the situations require engineers to build and maintain networks through oral communication. Meanwhile, for written communication, engineers used it frequently for writing reports, proposals, presentation slides, minutes of the meeting, formal letters and memo as it is normally used in the workplace.

Another research about students' needs in English courses written by Liu, Chang, Yang, and Sun (2011) shows the importance of need analysis at the beginning of the course. The students had different necessities, wants and lack of language skills. They suggested teachers and students use need analysis before starting the English course. Certainly, not all teachers have a desire to do deep need analysis as it is time consuming and also needs more resources. However, a simple need analysis is still highly needed in every language course. Needs analysis may represent one's learning objectives. In turn, it helps teachers to portray what features they want to teach as an attempt to improve the existing syllabus and develop new modules.

In addition, technical college itself has also targeted the outcome as a clear focus from each major it has. Outcome-based education usually has designed the standard that must be achieved by students. There is a criterion that is used to recognize the outcome. It actually helps teachers and students to focus on the expectation required by the government. The availability of standard of competence becomes a guide for the lecturer to teach their students. It is very helpful for students to be acquainted with the target of the course as they can pay more attention to the several outcomes targeted. It is also useful for lecturers to arrange the syllabus and to suite the method of teaching because there has been a target that must be achieved. Through the designed target, lecturers can identify what should they do in their teaching practice. It also functions to keep students on track.

Furthermore, when students take a major in a specific field, they are expected not only either to acquire discipline-specific outcomes (knowledge and skills) or to be able to engage with the content, but also to have good communication skills in English as an international language. Colleges should remind students of the fact that it is difficult to succeed in their future careers unless they start to be aware and learn to develop their communication skills in English (Simona, 2015). Again, although English is not a major in their engineering field, they are also demanded to demonstrate an ability to articulate their ideas following the discipline they have in English (Nekrasova-Beker; 2019). Therefore, recognizing students' needs is vital to facilitate teachers with a good lesson plan. As the lesson plan is designed to achieve an expected outcome, methodologies should be relevant to the specific learning outcome.

Emerged Methodologies Used in Teaching English for Engineering Purpose

Educators believed that there is no certain efficacious method in learning. Prabhu (1990) said that there is no best method for teaching English because it all depends on a teaching context. A teacher needs to consider for whom the learning process is conducted, in what circumstances and for what purpose and many other reasons why a certain method is used. In addition, all of our students do not learn in the same way. They are simply very different. However, many practitioners of teaching have conducted some researches to find effective methods in particular places, circumstances and subjects. Recently, the following attempt has been conducted in some technical schools that can be considerably applied in different engineering schools.

Corpus Linguistics for Lexical Approach

Recently, corpus linguistics have mostly been used together with language teaching in which a teacher find some frequently used words or phrases in their discipline. Corpus linguistics as a collection of frequently used words computed electronically in certain fields made an "outstanding contribution" for English Language Teaching (Partington, 2011; Bennett, 2010). According to Mudraya (2006), the availability of corpora is very helpful for learners and teachers. It allows students to set up their own languages. In the past, learners normally wrote the frequently used words in their special notebook. Nowadays, it is easier

because smart devices now will automatically record the most commonly used word in a specific discipline.

The idea actually is almost the same as the lexical approach; it believes that language consists of 'chunks'. They are combined and produced repeatedly. As an illustration, young children learning their first language need simplified input. Likewise, low level adult foreign language learners need graded input supplied by a teacher.

There are some researchers who focus on this corpus linguistic, such as Mudraya (2006) who offers a useful study that the lexical approach with a data-driven corpus-based methodology can improve students' knowledge towards English and their ability to use the language effectively. She builds a representative corpus of Engineering English by selecting thirteen English language textbooks in different disciplines of engineering such as Engineering Mechanics, Engineering Materials, Mechanics of Materials Mechanic of Fluids, etc. After putting text corpus into machine readable-form, she conducted a computational analysis of the material and listed most frequent word families found in engineering fields. The research convinced us that the use of language corpora in the classroom is very helpful for the students. It is not only improving students' knowledge of the language but also using it effectively.

In addition, the view that the use of corpus is applicable for engineering students is also supported by Nekrasova-Beker (2019) who considered that some commonly used words in discipline-specific use are very useful for students in the discipline-specific area. She did empirical research on specific discipline discourse to provide students in his college with the data of authentic language patterns that are specifically used in their area of study. Investigating five different engineering disciplines, she stipulated that "there was considerable overlap among the corpora of teaching materials from five engineering disciplines in terms of the phrase-frames, as well as the primary discourse functions performed by these constructions." It indicates that there are some of the identical vocabularies, academic literacy conventions as well as structural features of academic genres found in different engineering disciplines.

Both studies show that innovation of the lexical approach which turns into the form of corpus linguistics brings a fabulous impact on the new techniques in language learning practices. Applied in various disciplines, corpus linguistic seems to be one of the influential methods in learning English for specific purposes.

Dialogic Pedagogy

Dialogic teaching is a method to encourage students to ask thoughts and opinions from their peers, teachers or any other resources to create greater construction of knowledge (Alexander, 2008 cited in Teo, 2019). This teaching approach is inspired by Bakhtin (1981) who introduces the thought of dialogism from old perspectives brought by Vygotsky, Cole, John-Steiner, Scribner, and Souberman (1978) about the sociocultural theory of learning. In his interesting analysis of learning theory, Vygotsky et al. (1978) claimed that learning is a social act. It is achieved through active engagement with social settings. Teo (2019) considered that an individual who socially interacts with others tend to have higher-order thinking skill, especially in problem solving. According to Vygotsky et al. (1978, p. 90) learning process occurs when someone interacts with their peer. A child mostly internally develops when s/he interacts with his or her peers in his or her environment.

Basically, when people interact, they communicate with each other. This notion implicates that language itself is a tool for communication in which people think more deeply as well as sharpen their use of language to communicate. Seeing the history of paradigm shifts in foreign language education, Lin (2010) argued that the notional/functional syllabus designers started the communicative language teaching (CLT) approach around the 70's. Formerly, early structuralist approached the syllabus design with vocabulary and Grammar or structural method, and then it turned into a direct method and audio-lingual method.

In the structural methods, mostly teachers only taught about the structure of sentences and continued by understanding the meaning in learners' mother tongue. This method was applied generally in academic circles in purpose to learn more literature in English. As language practitioners realize that a language needs to be practiced, the method was diverted into a direct method in which the students learned a language by seeing the object and the action directly in the target language without any translation. The same thing happened in the Audio-lingual method; the slight different is in forms of a sequence of conversation that has been set by the teacher to be adapted by learners. The language learning methodology slowly changed in decades. Language scholars with notional-functional paradigms proposes a communicative approach to language teaching.

Communicative approach has been received and implemented in diverse contexts. It led to considering that social context plays a significant role in determining the need for the norms, perspectives and

pedagogies (Lin, 2010). This approach also underlies the dialogic teaching that encourages students to ask ideas and opinions from others. We inevitably acknowledge that sociocultural theory perspectives again has attracted educators to be involved in teaching and learning practices.

Simeon (2016) did research on learners' writing strategies through sociocultural theory perspectives. She considered peer-scaffolding as a strategy used by students during a group writing exercise. She viewed peer interaction as an effective way to develop ideas, reduce anxieties, and gain awareness of their performance. By doing so, students can finish their revision tasks with more input coming in. She found without peer help, students might have not been able to have such kind of progress. It proved that peer's intervention played an important role in making students more able to advance. Dialogic teaching through peer-scaffold showed that the peer's role triggered a conscious cognitive process to make a connection among ideas during learning activities.

In this millennial era, besides being applied to language classroom, dialogic pedagogies is also considered as 21st – century pedagogy (Teo, 2019). In line with this, Klarin (2016) added that twenty-first century education must generate new experiences and new educational processes to transform the holistic experience. Demanding the real world's skill, students must possess communication skills, collaboration skills and critical thinking skills to perform together with people from different contexts, countries and cultures. The skills get more crucial because people now interact with a borderless, networked and globalized world. It also means that everyone, including technical students, can get and share knowledge from various resources. In another world, it is not enough to teach students solely basic literacy or numeracy. It is no longer about what to learn; instead, educators need to teach them how to learn (Beers, 2011; Moylan, 2008).

Dialogic teaching improves students' ability to think and make a decision by themselves. In addition, it also teaches the students itself how to get increasing needs after that. It becomes more interesting when it is realized that dialogic pedagogies are not only about asking the answer but also about caring by actively listening to others, contributing ideas and also giving arguments in terms of reasons and evidence. Furthermore, through dialogic pedagogies, students learn to eliminate some problems related to language barriers, such as the anxiety to speak English, apprehensiveness in making mistakes, tendency to be native like and so on. It might happen because they feel more freedom when they talk to their peers with less restriction.

CONCLUSION

Lecturers' concern towards students' ability in English, especially for specific purposes, can only be accomplished by appropriate methodology. Corpus linguistics, which is now used frequently in teaching technical fields, commonly works for English for specific purposes. As the extension of the lexical approach, it does not mean that it also will be applicable to certain social fields. In addition, dialogic pedagogy coming from sociocultural perspectives emphasizes that learning takes place when students interact with others as Vygotsky et al. (1978) claimed when someone interacts with people in his environment s/he operates a variety of internal development processes so called learning.

In short, lectures must understand the institution and personal needs of students to be resolved. The availability of emerged methodology is not simply practiced well in any condition. It is only reflections of methods matched with the needs of students in a particular place. Furthermore, to see the significant result of applied methodology in particular context needs more focused research on it.

REFERENCES

- Alexander, R. J. (2008). *Towards dialogic teaching: Rethinking classroom talk*. Dialogos York.
- Bakhtin, M. (1981). *The dialogic imagination: Four essays*. Texas: University of Texas Press.
- Beers, S. (2011). *21st century skills: Preparing students for their future*. Retrieved from [Http://www. Yinghuaacademy. Org/wp Content/uploads/2014/10/21st_century_skills](http://www.Yinghuaacademy.Org/wpContent/uploads/2014/10/21st_century_skills). Pdf.
- Bennett, G. R. (2010). *Using corpora in the language learning classroom: Corpus linguistics for teachers*. Ann Arbor: University of Michigan Press.
- Bobyreva, N. N. (2015). Peculiarities of teaching English as a foreign language to technical students. *Procedia-Social and Behavioral Sciences*, 182, 104–109.
- Greulescu, A., Todorescu, L.-L., & Popescu-Mitroi, M.-M. (2014). The career choice and the study of English in higher technical education. *Procedia-Social and Behavioral Sciences*, 128, 140–145.
- Hutchinson, T., & Waters, A. (1987). *English for specific purposes*. Cambridge: Cambridge University Press.

- Jantassova, D. (2015). The solution of teaching English as a foreign language integrating with Kazakh and Russian languages to students of Kazakhstan technical universities. *Procedia-Social and Behavioral Sciences*, 177, 136–141.
- Karimi, P., & Sanavi, R. V. (2014). Analyzing English language learning needs among students in aviation training program. *Procedia-Social and Behavioral Sciences*, 98, 852–858.
- Kassim, H., & Ali, F. (2010). English communicative events and skills needed at the workplace: Feedback from the industry. *English for Specific Purposes*, 29(3), 168–182.
- Klarin, M. V. (2016). Twenty-first century educational theory and the challenges of modern education: Appealing to the heritage of the general teaching theory of the secondary educational curriculum and the learning process. *Russian Education & Society*, 58(4), 299–312.
- Lin, A. M. Y. (2010). Curriculum: Foreign language learning. *Language*, 3, 131–146.
- Liu, J.-Y., Chang, Y.-J., Yang, F.-Y., & Sun, Y.-C. (2011). Is what I need what I want? Reconceptualising college students' needs in English courses for general and specific/academic purposes. *Journal of English for Academic Purposes*, 10(4), 271–280.
- Millrood, R. (2014). Teaching English to engineers at a tertiary level in Russia. *Procedia Social and Behavioral Sciences*, 154, 199–203.
- Moylan, W. A. (2008). Learning by project: Developing essential 21st century skills using student team projects. *International Journal of Learning*, 15(9).
- Mudraya, O. (2006). Engineering English: A lexical frequency instructional model. *English for Specific Purposes*, 25(2), 235–256.
- Nekrasova-Beker, T. M. (2019). Discipline-specific use of language patterns in engineering: A comparison of published pedagogical materials. *Journal of English for Academic Purposes*, 41, 100774.
- Partington, A. (2011). Corpus Linguistics: What it is and what it can do. *Cultus: The Journal of Intercultural Mediation and Communication*, 4, 35–58.
- Prabhu, N. S. (1990). There is no best method—Why? *Tesol Quarterly*, 24(2), 161–176.
- Simeon, J. (2016). Learner writing strategies of Seychellois ESL (English as a second language) secondary school students: A sociocultural theory perspective. *Learning, Culture and Social Interaction*, 8, 1–11.

- Simona, C. E. (2015). Developing presentation skills in the English language courses for the engineering students of the 21st century knowledge society: A methodological approach. *Procedia-Social and Behavioral Sciences*, 203, 69–74.
- Spence, P., & Liu, G.-Z. (2013). Engineering English and the high-tech industry: A case study of an English needs analysis of process integration engineers at a semiconductor manufacturing company in Taiwan. *English for Specific Purposes*, 32(2), 97–109.
- Teo, P. (2019). Teaching for the 21st century: A case for dialogic pedagogy. *Learning, Culture and Social Interaction*, 21, 170–178.
- Vygotsky, L. S., Cole, M., John-Steiner, V., Scribner, S., & Souberman, E. (1978). The development of higher psychological processes. *Mind in Society*, 1–91.
- Widdowson, H. G. (1978). *Teaching language as communication*. Oxford: Oxford University Press.