Developing Need Analysis Instruments to Create Economics English Instructional Material Based on Technological Pedagogical and Content Knowledge (TPACK)

Widya Syafitri[1*] , M.Zaim[2] , Havid Ardi[3]

[1,2,3] *English Department, Faculty of Languages and Arts, Universitas Negeri Padang, Padang 25131, INDONESIA*

Abstract. This article aims at cultivating the need analysis instrument which consists of questionnaire and interview as a requirement to construct English instructional material for economics faculty students based on Technological Pedagogical and Content Knowledge (TPACK). Researcher wishes to develop an appropriate instructional material for economics students since they have been in ASEAN Economic Community (AEC) and 4.0 eras that enable the students with knowledge of technology, pedagogy and content of economics at once. To achieve this goal, it requires the need analysis instrument to elicit information concern on the need about English material, technology used and also the way to learn the subject matter. This instrument was developed by adapting and modifying ESP and TPACK theory of Basturkmen issued in 2010 & 2018 and theory of Koehler & Mishra in 2009. This elaboration generates eleven indicators to be established; target situation analysis, discourse analysis, present situation analysis, learner factor analysis, teaching context analysis, Technological Knowledge (TK), Pedagogical Knowledge (PK), Content Knowledge (CK), Technological Pedagogical Knowledge (TPK), Technological Content Knowledge (TCK), Pedagogical Content Knowledge, and the last but not least is Technological Pedagogical and Content Knowledge (TPACK). There are seventy statements for questionnaire and two questions for interview composed from the eleven indicators. The questionnaire statement and interview questions cover about the need of language skills, language components, and the subject matter of economics, the technology used and language pedagogy.

Keywords: Need analysis, ESP, TPACK, Economics English instructional material

1. Introduction

Teaching English for Specific Purposes or called as ESP becomes challenging for economics faculty lecturers. This course includes in to a compulsory subject, even though the students learn only in restricted credit hour, since, it is believed that ESP is a well method for non-English department students. It is deliberated to satisfy the students about their recent necessity and also their upcoming job demand as stated by Dudley-Evans & St. John in Iswati & Triastuti (2021).

It is also said that ESP comes to be an approach to learn language related on students' need besides it is well-known by way of an English subject learned by non-English students (Harding, 2007; Askar, 2009; Hutchinson and Water, 1987). Meanwhile Basturkmen (2010) stated that ESP lesson has smaller scope than ELT. ESP teaching held to provide students with a definite English skill level for a circumstance in which the language will be used, or known as target needs. It offers learning objectives, materials and also methods established on the base of students' needs and future of interests (Agustina, 2014). Thus, it can be

concluded ESP as specification of ELT course which conducted with reference to particular vocabulary and skill based on learners' need or related to the reasons why the learners learn English. Hence, ESP-based teaching is generally advanced based on an analysis of necessities, objectives, and learning activities in which English is required. ESP based learning is better to be conducted contextually since the ESP students learn English based on job or workplace will be.

Learning English especially economics English is supposed becomes an activity to increase the value of human resources. Therefore, English language teaching (ELT) material, media, methodology need to be well designed (Sukandi & Syafar, 2018). It means, learning that includes instructional materials has to be designed and planned by considering ELT media, pedagogy, content and language as well as utilize technology (Abu-Hardan et al. 2019). Due to demand of era, it is needed English instructional material that can aid mode face-to-face, virtual or even hybrid learning, especially in the current new normal era (Adipat, 2021), finally learning objectives can be achieved.

To gain the mandate of current education, course designers must develop English instructional materials that relate to today's condition. Since, it is still met that the English learning outcome still far from the hope of school curriculum and most of English books do not match to school curriculum, because of commercial-based books using (Syatriana, 2013). This material will lack of contextualization. While utilizing of authentic material or known as the use of real language in learning is crucial. Because through discovering these materials, learners have the chance to see and hear real language that serves a purpose. For instance, economic students need to learn material on current economic issues, it is conventional and Islamic economic as well.

Need analysis is a must for ESP teaching. It is crucial stage to meet students' need before composing the appropriate book (Saragih, 2014). Many researchers have conducted this topic (Axmedovna et al., 2019; Iswati & Triastuti, 2021; Rachmawati et al., 2021). Mostly the prior researchers developed need analysis based on theory of Hutchinson & Water (1987) which emphasizes on necessity, want and lack. However, the rapid development of education and technology force the lecturers and course designers to think over to adjust this situation in to instructional material. Hence, in this study the researcher attempts to construct need analysis instrument by adopting the ESP theory from Basturkmen since this theory is more detail. For instance, besides highlighting about necessity, want, and lack, it also covers analysis of discourse, analysis of learner factor, and analysis of teaching context. This study elaborates the need analysis instrument with TPACK theory to fulfill technology demand in education as well. Hence, the research is: What can the need analysis questions be composed based on ESP theory of Basturkmen and TPACK issued by Koehler&Mishra?

LITERATURE REVIEW

1.1 English for Specific Purposes (ESP)

There are several experts who divide the types of ESP. According to Basturkmen, (2010) ESP consists of two main divisions that is English for Academic or called EAP and English for Occupational Purpose or EOP. This is meant by English for academic purposes (EAP) which is taught based on an academic context that is in accordance with the needs and goals of students. Meanwhile, English for Occupational Purpose (EAP) is taught for the needs of the world of work and certain professions.

Not much different from what Basturkmen said, Carver (1983) introduced three kinds of ESP. The three categories are English as a limited language English for educational and working purposes using particular topics. This means that the English teaching is separated

used for academic purposes also the needs of the world of work. The second type is English for Academic and Occupational Purposes. This is meant by the English language is intended for academic purposes and the purpose of the world of work. The last kind is English with specific topics.

1.2 Need Analysis in ESP Context

Need analysis is a must when a researcher wants to conduct ESP course, since need analysis result will become core information about students' wants, needs, and job needs (Oktavia & Suwartono, 2020). Needs analysis is a systematic process in determining goals, identifying gaps/inequalities between targets and the real situation, and setting priorities for action. Need analysis also a tool to identify problems then the researcher needs to find appropriate solution or action for that problem. Thus, analysing learning needs and learning analysis are the first steps that must be taken in developing a learning system, when facing problems regarding learning.

There are some experts who proposed need analysis types. They are Basturkmen, (2010); Basturkmen (2018); Harding (2007); Askar (2009); and Hutchinson & Water (1987). Hutchinson & Water divided learners' needs into necessities (what the learners need to know), lacks (what the students already recognize and do not), then wants (what the students consider they require). It means they classified the need in to two types, name target need and learning need. Target need is defined as the students' need for the language used in desired situation. While learning needs are the needs that require completion through learning.

Meanwhile Basturkmen (2010) and Basturkmen (2018) clarified five parts of need analysis as follows: (1) Analysis of target situation. It is to categorize tasks or describe the job, action and current expertise of learners are or in the future, and also identify what the students need to be acquainted with and capable to do. It is about to seek learners' expectation and learners' need in term of target situation (Oktavia & Suwartono, 2020). For instance, for Islamic banking students, they must understand banking, so that they can communicate successfully during conferences dealing with customers and their leaders. He should also be aware of the linguistic features – dispersal, functional, structural, and lexical – that are commonly used in the situation. (2) Discourse analysis. It is describing the language usage in the analysis of target situation. (3) Present situation analysis. This analysis is to identify what a student does and does not recognize and the students are able to do or not relate to the demands of the target situation. (4) Analysis of learner factor. It focuses on identifying of learner factor, for instance, motivation, by what method students learn and their point of view about their needs. (5) Analysis of teaching context. It relates toward identify factor about environment in which the learning process will run. Consideration about what realistically an ESP course also teacher can offer.

1.3   The Development of ESP Instructional Material

In evolving instructional materials, the main thing that must be done is to classify the constituents of subject matters. There are numerous improvement models offered by some experts. Basturkmen (2010) offered three principles to develop instructional material, namely (1) selecting teaching topics that already exist, (2) composing their own lesson, (3) adapting/modifying the materials.

Basturkmen (2010) explained that the central objective of learning a language is the language used. Therefore, the material must be arranged as well as possible so that it directs

scholars to work on a communicative task where students can utilize the material and knowledge of language, they already constructed through a particular part of teaching subject matter. As stated above, language learning purpose is that learners can practice the language they are learning. However, it is illogical for learners to be asked to complete tasks and activities when they are not equipped with sufficient knowledge of the language.

1.4 Technological Pedagogical and Content Knowledge (TPACK)

Technology has influenced all zones of societies' life style including education. Computers become a crucial thing for peoples' peculiar also professional lives. A revolutionary change occurs in how information is generated, saved, transmitted, then how it is processed (Rahimi & Pourshahbaz, 2019). The enormous transformation technology cause directs publics and stimulated studies on how technology is integrated to the way students are raised up and educated. In learning a language, there is Computer-Assisted Language Learning (CALL) which advanced toward a comprehensive discipline and settled in research. After 1980s, CALL looks to be dominant of the whole of language experts particularly (Rahimi & Pourshahbaz, 2019).

Many researches have proved that CALL in form of educational technology aid language learners increase their language skills (M. Kim, 2002; Meskill & Anthony, 2007; Yamada & Akahori, 2007; Valk et al., 2010). However, there are also other studies that regarded as limitation of CALL usage. Logically, technology without human being is like a useless means. It needs pay attention to personal, pedagogical, technical, institutional and social-cultural. In this case, lecturer play important role.

Some researches exposed predictors on behalf of quality of lecturer namely certifications of teacher, grade, qualification, length of experience, completed with base of knowledge. Conceptualizing teacher's knowledge base defined as complex chore because knowledge base is interconnected with the understanding about teaching and learning process, also about knowledge concept, and also method. Then these knowledge are functionalized in the class (Guerriero, 2013).

TPACK, as one of knowledge, is an approach that is able to utilize technology to a curriculum appropriately (Syamdianita & Cahyono, 2021). It was developed from theoretical framework of Shulman (Shulman, 1987; Santos & Castro, 2021; Ariani et al., 2014; Koehler & Mishra 2006). TPACK locates what suitable specific technology is used, the reason technology is used, and the way technology used to teach learning content. TPACK is also defined as framework which aids teacher deliberate how the understanding domain interconnects so that they successfully teaches and involve the learners by means of technology.
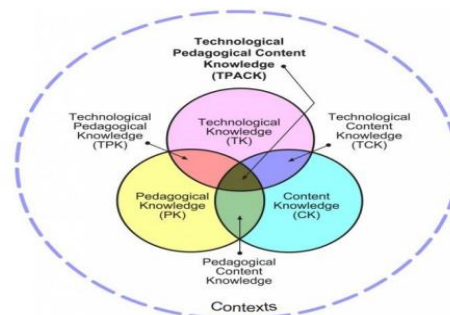

Figure 1. Mishra and Koehler's Framework

Based on Venn diagram above, TPACK outline constructed by Mishra and Koehler (2006) consist of seven information or known as knowledge; Technological Knowledge (TK), Pedagogical Knowledge (PK), Content Knowledge (CK), Technological Pedagogical Knowledge (TPK), Technological Content Knowledge (TCK), Pedagogical Content Knowledge (PCK), and Technological Pedagogical Content Knowledge (TPACK).

2. Methods

This study is an educational research and development (R&D). It aims at developing a product in form of need analysis instrument then established becomes TPACK instructional material for economic faculty students. It is in line with Gall et al., (2003)'s explanation that education developmental research constitute a procedure utilized to cultivate and also validate educational products.

2.1 The Model of Research and Development

This research will implement ADDIE model (Branch, 2009) which stand for Analyze, Design, Development, Implement and Evaluation. Since this model is more practical and easier to be carried out, yet it fulfills the important element in R&D. The procedures of the ADDIE model will be explained as follows:

Figure 2. ADDIE Model

2.2   Procedures of Research and Development

In conducting this kind of research, this model provides an organized and systematic five-step cyclical process. This operational procedure is needed in order to arrange and guide the researcher during the study. The five-step operational procedure ADDIE model used in a research and development. This study, however, just implement the analysis stage since it develops need analysis instrument only. In this phase, course objectives are studied, gaps are examined, and the audiences identified (Shelton & Saltsman, 2006).

2.2.1 Analysis of Learning Needs

This analysis includes identifying information from learners, alumni, lecturer and the head of economics study program about learners' needs. It is also about the learning need of teaching English material. In order to uncover problems, lecturers who taught English economic subjects are asked to fill in the questionnaire and also interviewed on the process of teaching, the media (including technology) and strategy used, the learning resources, classroom management, evaluation, students' achievement and solution.

3. Results and Discussion

3.1   Instrument guideline

Before constructing need analysis instrument, researcher must arrange the instrument guideline first that can be seen as follows:

Theories	Indicators	Sub Indicators	Questionnaire	Interview
Need analysis (Basturkmen 2010:17 & Basturkmen 2018:3)	Analysis of target situation	Language-related task	1-5	1
		Activities that relate to language	6-10	2
		Skill which students must have capable to perform	11-15	3-4
	Discourse analysis	Language used for target situation analysis	16-20	
	Analysis of Present situation	Learners' ability level and what a learner recognizes and does not in relative to target situation demands	21-26	5-8
	Learner factor analysis	Learner factors, for instance motivation, in what way learners acquire knowledge, also perception of need as well as preferences in kin LSP course	27-30	9-11
	Teaching context analysis	Learning environment factor	31-35	12-14
TPACK (Koehler & Mishra (2009: 63)	Technological Knowledge (TK)	Lecturers are able to determine standard ICT and ICT technology and its functions	36-40	15-16
	Pedagogical Knowledge (PK)	Organizing classes that are managed through various methods, strategies, assessment and learning models	41-45	
	Content Knowledge (CK)	Determining the material and explain the concepts of the material to be taught to students	46-50	17
	Technological Pedagogical Knowledge (TPK)	Determining the technology (ICT and standard ICT) and its functions, which can be used to organize the class, which begins with the planning stage so that the implementation process goes well	51-55	18
	Technological Content Knowledge (TCK)	Lecturers are able to determine ICT and standard ICT technologies that can be used to help convey economic English concepts	56-60	19

Pedagogical Content Knowledge (PCK)	understanding teaching understanding strategies, evaluations	language orientation, teaching conducting	61-65	
Technological Pedagogical and Content Knowledge (TPACK)	Organizing ICT and non-ICT technologies in teaching English to the economics faculty		66-70	20

The indicators above generate some statements for questionnaire and several questions for interview. Those two instruments are addressed to students, alumni, lecturers, and head of economics study program.

3.2 Need analysis instruments

3.2.1 Questionnaire

The instruments are established based on instrument guideline which generally developed relate to language skills, language components, classroom management, and technology used in learning process. The respondents need to examine their choices in four options: (4) strongly agree; (3) agree; (2) less agrees; and (1) disagree. If the respondents don't meet their need, they are asked to fill in their need and also suggestion on the last point. Researcher explores the questionnaire as the sequence of indicators:

1.   Target situation analysis

There are three sub indicators for this point: language-related task, activities which based on language and skill must have to be performed. The representative statement for this indicator likes following:
"The listening task that I need is………"
    (a) Listening to short conversation
    (b) Listening to television
    (c) Listening to advertisement
    (d) Listening to tutorial
    (e) Listening about direction of an office
    (f) Listening about share information
    (g) Listening to the news of market and banking
    (h) Others please explain!

2.   Discourse analysis

Discourse analysis means to investigate Language used for target situation analysis. The statement composed as below:
"Language used which I need to learn for speaking skill that relates to purpose and function is…"
    (a) Inviting
    (b) Apologizing
    (c) Offering

(d) Suggesting
(e) Others please explain!

3.   Analysis of present situation

This indicator aims to distinguish level of learners' ability and what learners know and do not in relation to the demands of the target situation. The statement composed as follows:
"My current English ability is on level…."
(a) Beginner
(b) Intermediate
(c) Advance

4.   Learner factor analysis

It is about factors that influence learners, for instance motivation, by what method learners gain knowledge then need perception and want accordance with LSP course
"The following statement is the factor that motivates me to learn English..."
(a) English is essential for future career
(b) English become obligatory course in tertiary level
(c) I want to be good at speaking to foreigners
(d) I want to work for foreign company
(e) I want to study in abroad
(f) Good relationship between lecturers and students
(g) Others please explain!

5.   Analysis of teaching context

This point relates to learning environment factor
"I feel comfortable studying English in…"
(a) Inside the classroom
(b) Outside the classroom
(c) Library
(d) Language laboratory
(e) Others, please explain

6.   Technological Knowledge (TK)

This indicator asks lecturers are able to determine standard ICT and ICT technology and its functions
"I enjoy studying reading course, if the teacher uses..."
(a) Pictorial short text
(b) PPT
(c) Newspapers
(d) Announcement
(e) Others please explain!

7.   Pedagogical Knowledge (PK)

It organizes classes that are managed through various methods, strategies, and assessment and learning models
"Learning strategy for writing class I need is..."
(a) Collaborative writing
(b) Sentence combining
(c) Inquiry activities

(d) Study of model
(e) Others please explain!

8.   Content Knowledge (CK)

This indicator is to determine the material and explain the concepts of the material to be taught to students
"The topic I want to learn for listening class is..."
    (a) Listening conversation through telephone
    (b) Listening to someone who is holding presentation
    (c) Listening to conversation in a meeting
    (d) Listening negotiation
    (e) Others please explain!

9.   Technological Pedagogical Knowledge (TPK)

It determines the technology (ICT and standard ICT) and its functions, which can be used to organize the class, which begins with the planning stage so that the implementation process goes well
"I want the subject matter for speaking skill is served by..."
    (a) Discussion with friend based on available picture in course book
    (b) Retelling picture series individually
    (c) Orally explaining about the graph found in course book
    (d) Doing presentation based on PPT provided with group
    (e) Others please explain!

10.   Technological Content Knowledge (TCK)

Lecturers are able to determine ICT and standard ICT technologies that can be used to help convey economic English concepts
"Material for reading skill course I want should be in form of…"
    (a) text accompanied by the appropriate image
    (b) mind mapping diagram to map the answers
    (c) In the form of several announcements accompanied by a short video
    (d) Others please explain!

11.   Pedagogical Content Knowledge (PCK)

This indicator refers to understanding language teaching orientation, understanding teaching strategies, conducting evaluations. The statement as bellows:
"Teaching materials for listening skills that I want are presented in the form of…"
    (a) Audio containing short conversations and exercises done individually and learning in the language laboratory
    (b) Audio containing conversations and tables that will be ticked as a measuring tool for student understanding and done individually in the language laboratory
    (c) The lecturer reads a short story about the tutorial to be a customer of a bank and the exercises are done in pair
    (d) Others please explain!

12.   Technological Pedagogical and Content Knowledge (TPACK)

It purposes to organize ICT and non-ICT technologies in teaching English to the economics faculty.
"I want teaching materials for vocabulary in form of..."

(a) Matching banking and finance vocabulary using the quizzes application, and students are allowed to consult dictionaries and exercise done in groups
(b) Complete the incomplete sentence in the Kahoot application and do it with a partner that has been determined by the lecturer
(c) Others please explain!

3.2.2 Interview Question

Interview questions were also developed from the instrument guideline as in table 4.1. There were about 20 (twenty) questions created which aim at examining the consistent of respondents' answers toward questionnaire above. The questions are as follows:

1. Do the Economics faculty students need to learn English?
2. Do they have to comprehend the way to compose business letter?
3. What activities for learning speaking skill do you prefer?
4. What skills and language components should the economics faculty students have? Why?
5. Do those students need good pronunciation?
6. Among the four English skills, which of the most difficult one do you think?
7. What level is your English right now?
8. What topic of English do you need?
9. What English skills do you master better?
10. Do you like learning English with practice?
11. What is your learning style?
12. Mastering English will have positive impact to future, how do you think?
13. Do you like studying individually or in group?
14. According to you, where the most conducive place to study is?
15. Instructional material which can accommodate online and face to face is essential. How do you think?
16. Must the lecturers be able to utilize technology in learning process?
17. Are topics about conventional economics and Islamic economics necessary for economics faculty students?
18. The educators need to be able to operate technology to motivate students. If so, please give example!
19. Should the lecturers design quiz in order the students get enough exercise?
20. A lecturer must be able to deliver teaching material through appropriate strategy and technology. Do you agree? If so, why?

4. Conclusions

Instructional materials for economics faculty students need to meet the requirement of the course. The lecturers have to provide appropriate materials concern on students' academic purposes and also their future career demand. The findings showed the need analysis instrument which were developed by theory ESP of Basturkmen issued in 2010 & 2018 and theory of TPACK. Before being distributed, these instruments must be validated by experts to examine whether they are valid and reliable or not. Through this need analysis, hopefully the lecturers can create appropriate instructional material that can facilitate the fulfillment to the demand of economics material and nowadays technology development.

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