



E-Learning Based Design of Teaching Materials for English as a Specific Purposes of Geography

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Abstract. This was a Research and Development (R and D) study which was conducted to design teaching materials for English as a Specific Purposes (ESP) of Geography Based on E-learning at the Department of Geography of Universitas Hazairin (Unihaz) Bengkulu, Indonesia. Furthermore, this study aimed to produce digital teaching materials that were uploaded to the Unihaz online learning application (SPADA). The teaching materials were prepared for geography students taking English courses, and the theory of development used in this study was the Jolly and Bolitho model. Meanwhile, the development theory of teaching materials was adopted by combining the theory by Hutchinson, Waters, and Tomlinson for preliminary research on needs analysis, the theory of teaching materials by Bernhard and Zemach for Specific purposes, and the theory of rapid prototyping for the process of developing digital teaching materials. The respondents of this study were students, lecturers, and experts, and data were collected from questionnaires, interviews, observations, documents, and tests. In this study, **Hi-Tech** teaching materials were produced. Based on the assessment and validation, the experts were able to ensure that the teaching material for the English Language was very useful for the Specific Purpose of Geography based on e-learning. Based on the average percentage, the English language learning materials for the Specific Purposes of Geography Based on e-Learning improved the English language skills of students from the Geography Department.

Keywords: Development of syllabus and Teaching Materials · E-learning · Need Analyses

1 Introduction

In education, English is the language of instruction in the scope of multidisciplinary science, and it leads to English for Specific Purpose (ESP), which focuses on the acquisition of professional skills integrated with various disciplines, and practices such as English in education, health, economics, law, religion, and others [1]. In Indonesia, the position of ESP in the higher education curriculum is taught only as one of the general basic course materials. Although it is considered a Specific course in practice, it does not reflect the proper implementation of ESP theory. Furthermore, this course encountered many problems in terms of teaching materials, implementation, and evaluation, including at Unihaz where this study was conducted. As a result, the learning outcomes do not

show maximum results. Furthermore, graduate learning outcomes in English courses in the context of ESP in higher education were aimed at enabling students to use English both in writing, orally, and in understanding reading in English-specific texts according to the register of each field.

Since other sectors are currently entering the digital revolution and the era of technological disruption which is known as industry 4.0, the educational sector is also involved in the learning process. The era of disruption is marked by the proliferation of computers and the automation of records in all fields. Furthermore, according to Tjandrawinata which stated that one of the unique characteristics of industry 4.0 is the application of artificial intelligence [2]. Also, the digitalization that characterizes this era requires the integration of learning with information and communication technology. For this reason, a study was conducted and entitled Development of a Model Design of English Teaching Materials for Specific Purpose of Geography to Improve English Language Skills of students in the Geography Department. The objectives of this development research are:

1. To analyze the need of lecturers and students for an E-learning Based of English Teaching Materials for Specific Purpose of Geography, which was suitable for use for students studying the Geography Program.
2. To develop an E-learning Based of English Teaching Materials for Specific Purpose of Geography.
3. To identify the feasibility of developing an E-learning Based on English Teaching Materials for Specific Purpose of Geography that was suitable for the students of the Geography Department.

To measure the effectiveness of developing an E-learning Based of English Teaching Materials for Specific Purpose of Geography that was suitable for the students of the Geography Department.

1.1 Teaching Materials

Teaching materials are defined as the set of materials that are systematically arranged in both written and unwritten form to create a conducive atmosphere for students to learn [3]. Furthermore, the same opinion was expressed by Ianah & Raharjo; Kholidya; Munir; Mulyono et al.; and Asadullah & Dasna [4-8]. Meanwhile, the Association for Educational Communications and Technology in Nurwani stated that teaching materials are all forms of materials used to assist teachers or instructors in conducting the learning process in the classroom [9]. The material in question was in the form of written or unwritten material. Based on some of these opinions, it was concluded that teaching materials are set of materials that are systematically arranged and used by teachers in delivering subject matter to achieve that the learning objectives. In this study, it was concluded that the teaching materials to be developed are a set of systematically arranged materials, in digital form such as text, videos, matrices, diagrams, voice notes, being uploaded to the campus online learning application so as to facilitate lecturers and students in the process of learning English for an E-learning Based on English Teaching

Materials for Specific Purpose of Geography to achieve the learning objectives listed in the curriculum.

Several studies have been conducted previously by Bielousova; Armawan et al.; Medriano & Bautista; Wenjhi; and Arif in relation to the development of English for Specific Purposes (ESP) teaching materials, such as the teaching materials, instructions, evaluations, as well as on the use of technology [10–14]. The results have inspired and contributed to several theories in this study.

Currently, several persons use interactive multimedia teaching materials, because, in addition to being interesting, they also make it easier for users to learn a certain field. Usually, multimedia teaching materials are designed in full, from the instructions to the assessments. Ghislandi mentions the teaching materials as learning objects, namely learning materials in digital or non-digital forms that are reused for learning purposes [15]. These non-digital teaching materials are referred to as sheets of paper containing the material. However, in the organization of online-based teaching materials, the non-digital forms of teaching materials have been converted into digital forms.

Based on the description of the opinion above, the types of teaching materials expressed by the experts have one thing in common, namely, they consist of printed and non-printed teaching materials. In this development study, teaching material which were originally in the form of print modules was developed, into reading texts of English for Specific Purposes (ESP) related to the field of Geography, which utilizes audio, text, graphics, images, animation, and or video in word, powerpoint, slide, photo, video formats in non-printed (Soft) form to be uploaded on the page of e-learning platform Unihaz (<https://spada.unihaz.ac.id/>).

The aim of this study is to provides and facilitates students with online teaching materials that are correct and in accordance with the learning objectives. Furthermore, it describes the process of developing online teaching materials (learning objects) in English courses for specific Geography purposes. The results of this development are a collection of teaching materials that are accessed online and are expected to be of use in facilitating students of the Geography Department.

1.2 ESP

There are many differences in ESP compared to General English, these differences imply that the teaching approach and the materials used are also different [16]. Nguyen & Nguyen. Stated that ESP is defined to include various characteristics of different approaches [17]. For example (Hutchinson, T. and Waters define ESP as an “approach”, not as a “product”, meaning that ESP does not necessarily involve a particular type of language, teaching material, or methodology [18]. Afterward, (Robinson, 1980) defines ESP as teaching English to students that have a specific purpose. Accordingly, these goals may be professional, academic, scientific, etc. Mackay, R., & Mountford, describe ESP as teaching English for “specific purposes” such as academic, professional, or scientific purposes, depending on the needs of the learner [19]. Also, Gatehouse stated ESP is a situational language that has been determined based on the interpretation of the needs analysis [20]. McDonough stated that, “ESP courses are those in which the syllabus and materials are determined in all essentials by prior analysis of the communication needs of the learners” [21]. In addition, Donough’s study stated that ESP materials, syllabus,

and objectives need to be designed and developed based on the needs of students and graduate users. Teaching material should be in accordance with the students' need both when they are studying and going to work. Therefore, the ESP approach is a bottom-up approach. It was also concluded that ESP is different from General English, therefore the teaching approach and materials used should also be different [16]. With the right approach and teaching materials, the teaching of ESP has a significant impact on the success of students.

1.3 Need Analysis

Hutchinson and Waters assert that what distinguishes ESP from EGP is not the presence of the learner's need but rather the awareness [18]. Consequently, all parties involved in the language learning process, be it learners, teachers, stakeholders, and potential users, are aware of the needs analysis and the importance of this process. However, the knowledge on how this analysis is being conducted and how to respond during the whole learning process including internalizing the results of needs analysis in the development of teaching materials, is an important key that distinguishes ESP from EGP. In theory, the development of ESP-based teaching materials is always in accordance with the needs analysis. According to Gholami & Samadi Osalu and Basturkmen, needs analysis is the identification of language and skills used in determining and selecting material in ESP-based learning [22, 23]. Also, this was also used to assess the process at the end of the learning period. In addition, the adoption of the concept of needs analysis as proposed by Hutchinson & Waters in Saragih summarizes the needs analysis as a construct consisting of three components, namely Target, Learning, and Current Situation Analysis. These three components cannot be separated from the concept of needs analysis as described by Hutchinson & Waters, where it was developed by taking into account three main aspects which include necessities, lacks, and wants.

1.4 E-Learning

E-learning is a relatively new application of information technology in Indonesia, which became commercially famous in 1995 when Indo-Internet opened its services as the first internet service provider. Meanwhile, E-learning consists of two parts, namely "e" which stands for electronic, and learning which means learning. It implies learning by using the services/assistance of electronic devices, especially computer devices. Also, it is often referred to as an online course [25].

The implementation of e-learning or online learning is supported by electronic services, such as telephone, audio, videotape, satellite transmission, or computers. Furthermore, it is also a process and activity of implementing web-based and computer-based learning, as well as virtual and digital classes [26].

Thus, it was concluded that e-learning is a process that uses Information and Communication Technology (ICT), both hardware and software, to promote development, convey information, assess, and facilitate the teaching and learning process. Furthermore, its activities are the application of web-based and computer-based learning, as well as virtual and digital classes.

In this study, the intended concept of e-learning is the use of computers and the internet in producing, organizing, saving, sharing, attaching teaching materials (reading text) in word, PowerPoint format, slide share, and videos. In order for both lecturers and students to have self-learning materials that have been stored in the e-learning Unihaz platform, and accessible anywhere, anytime via a computer or a smartphone.

2 Method

2.1 Research Design

This was a Research and Development study, which was aimed to produce certain products and to test their effectiveness [27, 28]. In accordance with the theory, the purposes of this study and development were to produce a product such as the English teaching materials for Geography Specific Purposes. Also, an e-learning basis referring to the English learning syllabus is used in one semester, to identify the feasibility and the effectiveness of the developed product, by conducting the preliminary study as a basic of the research and development process, through the need analysis. The design of the development of this teaching material referred to the curriculum and learning objectives of English in accordance with the needs of students of the Geography Study Program.

2.2 Research Development Procedure

The development of this teaching material was based on the steps of Jolly & Bolitho theory in Tomlinson which includes 1) Identifying the need for materials 2) Exploration of this need, 3) Contextual realization of materials, 4) Pedagogical realization of materials, 5) Production of Materials, and 6) Students use of materials [29]. The theory of developing teaching materials adapts the theory of the development of teaching materials by Tomlinson, the theory of development of teaching materials for Specific purposes by Barnard and Zemach in Bocanegra-Valle, and the theory of the development of e-learning teaching materials by Tripp & Bichelmeyer in Fauzan et al. [30–32]. Meanwhile, the Tomlinson's theory of the development of teaching materials contributed to a preliminary study in the form of needs and condition analysis, as well as literature analysis in supporting the arguments in this study. The theory of the development of teaching materials for Specific purposes by Barnard and Zemach contributes because these teaching materials are for the Specific needs of the Geography department with exercises and assignments in accordance with Bloom's theory, while the theory of the development of e-learning teaching materials by Tripp & Bichelmeyer plays a role in e-learning preliminary study and the preparation of teaching materials until uploaded to the Unihaz application.

2.3 Research Subject and Data

The subjects of this study include 2 experts which consist of material and media experts, 4 lecturers, and 30 students. Furthermore, both quantitative and quantitative data were used in this study. Data were collected using the test method, documentation, interview,

and questionnaire. The effectiveness test in Research and Development was shown in the results that were followed by students. The feasibility test resulted from the validation of the expert team that was taken from two aspects, which includes the material and display aspect of the learning media.

3 Result and Discussion

3.1 Analysis of Needs

Specific needs are the difference between English for Specific Purposes (ESP) and general English (GE). According to the opinion of Paltridge and Starfield in the context of General English, the main feature of ESP learning is that its content and objectives are oriented to the specific needs of learners [33]. Furthermore, ESP learning focuses on language, skills, and genres or fields that correspond to the specific activities that learners need to perform in English. The key issues in ESP teaching are how to identify the needs of the learner, the nature of the genre or field that the learner needs to be able to produce and participate in, and how to determine the capability of learners. To fulfill the above features, in ESP learning, it is very necessary to pay attention to the suitability of the teaching materials provided for the realization of the objectives in accordance with the existing theory.

Hutchison mentions needs or ‘Target Needs’ consisting of necessities, deficiencies, lacks, and wants [34]. Whereby, necessities are ‘determined by the demands of the target situation. This procedure involves estimating the skills required for the learner to work efficiently in the target situation. Secondly, deficiencies are the gap between the target’s skills and the existing student’s skills. Thirdly, wants are learners’ perceptions of their own needs [34]. Descriptively from the point of view of teaching materials, Hutchinson’s theory of needs is being exemplified when a student needs to be proficient in English language skills to become a geographer (necessities), but the student has the following weakness of low ability in English (lacks) and wants to be a geographer (wants). From the example above, the design of teaching materials takes advantage of the gap that exists in the example, namely by minimizing or eliminating deficiencies to realize the student’s wishes. For this reason, teaching materials are needed to support the wishes of these students.

The needs analysis carried out on the target situation analysis component, contains sixteen questionnaire statements that included information on the questions “Why is the language needed?”, “How will the language be used?”, “What will the content areas be?”, “Who will the Learner use the language with?”, and “Will the language be used?”. This questionnaire was given to lecturers and students, and from the overall percentage results, the average respondent obtained a percentage of 81.2% for each item of the questionnaire given. Therefore, it was concluded that both students and lecturers need appropriate teaching materials in learning English for Specific Purposes of Geography.

The needs analysis which was conducted on the learning situation component, contains twenty-four questionnaire statements that included information on the questions “Why are the learners taking the course?”, “How do the learners learn?”, “What resources are available?”, “Who are the learners?”, “When will the ESP course take place?”. This questionnaire was also given to lecturers and students, and from the overall percentage

results, the average respondent also obtained a high percentage of 83.2% for each item of the questionnaire. Therefore, this implies that students and lecturers need appropriate teaching materials to enhance the learning of English for Geography Specific Purposes.

Learners should be involved in decision making about learning process (Tomlinson 2007). Furthermore, student involvement needs to be achieved by channeling their energy into making existing materials more relevant and motivating such as making their own material outside of existing materials for learning and adjusting the teaching materials to their interests and learning levels. Apart from the need analysis which was conducted by Hutchinson, the Tomlinson's theory was adopted as a reinforcement to know the desired needs of participants, lecturers, and institutions with a set of questionnaire instruments. The information was extracted from this theory to discover the available current situation analysis. Also, additional information was obtained from interviews with the parties involved and direct field observations, especially to determine the readiness of the various parties when this teaching material would be presented.

The questionnaire adopted from Tomlinson's theory provides information on three aspects, namely: psychological aspects (psychological aspects), pedagogical aspects (pedagogical aspects), and content, as well as methodological aspects (content and methodological aspects). The questionnaire items contained several questions that had been submitted to the institution. Furthermore, the questions which were asked concerning the condition of teaching materials and syllabus such as the desired topic, methodology, display of teaching materials, layout, and evaluation are based on the evaluation theory developed by Tomlinson (2003) in Ampa et al. [35].

The maximum score for availability in all aspects was 47, and the highest score for each question item was 1, whereby the number of items was 47 and the number of respondents was 1. Furthermore, the total score of the result of the data collected was 12. Thus, it was concluded that the teaching materials for English courses at the Language Institute for was not available, according to a respondent the score was $47 = 25.53\%$ of the maximum value, as shown in Table 1.

From the Table 1, it was concluded that there is an urgent need to provide e-learning based Teaching Materials of English for Specific Purposes of Geography to address the unavailability of teaching materials at Unihaz.

Data from observations and interviews with the Lecturers and Head of the Language Institute in term of the existing syllabus and teaching materials in Unihaz shows that: 1) the existing syllabus and teaching materials for General English was applicable to all departments in Unihaz; 2) the preparation of the syllabus and teaching materials had not been based on the results of the analysis of the needs of students majoring in Geography, 3) the preparation of the syllabus and teaching materials were also not based on certain theoretical studies, therefore, it was not clear what types and approaches were used in the

Table 1. Aspects of Availability of English Teaching Materials

No	Average Score Criteria Availability	Aspect	Description
1	0 – 21,99	Not available	Held
2	22 – 47	available	Not held

existing syllabus, 4) the learning objectives and achievements were available but general in nature, 5) the evaluations and assignments had been designed but were not specific to one department and 6) the competencies at each face-to-face were not described in detail.

The information above showed the unpreparedness and lack of seriousness of the Unihaz in the implementation of English courses. Furthermore, the lack of needs analysis showed the absence of student participation as users of teaching materials, and this makes the needs and desires of students unfulfilled. When each department receives the same materials with different majors and the material is in General English, then there is no specificity for each department either. The teaching materials need to be followed by tasks and exercises, hence, the learning objectives are measured or not achieved. Also, the teaching materials, assignments, and exercises must be well prepared and planned, otherwise this learning would be haphazard and only fulfills completeness instead of meets learning outcomes.

Since this was a teaching material based on e-learning, it was necessary to analyze the readiness of lecturers, students and institutions. In terms of readiness to organize e-learning instruction, the results of observations, interviews, and documentation were obtained. The observations, interviews, and documentation are based on the guidance grids as shown in Table 2.

Based on the result of the interview, observation, and documentation, it was concluded that Unihaz was feasible and able to conduct online instruction. Since 2019, Unihaz has provided a space for this by creating online instruction that is integrated with the campus information system under the name SPADA (e-learning platform of Unihaz) which modifies the Moodle application into a program or platform only, that is not useful without a content. Since the 2019 academic year, Unihaz has massively provided

Table 2. Interview Guidance Grids of the readiness of e-learning media

No	Institution	Lecturer	Students
1	Availability of an e-learning app	Knowledge of an e-learning app	Knowledge of an e-learning app
2	Readiness of an e-learning app	Readiness to ICT skills	Readiness to ICT skills
3	Socialization of an e-learning app	Participation in the Socialization	Participation in the Socialization
4	Training to use an e-learning app	Participation in the Training	Participation in the Training
5	Readiness of technician		
6	Readiness of ICT expert		
7	Readiness to do Maintenance		
8	Evaluation of an e-learning app		

ICT socialization and training as well as an application for all lecturers and students. Furthermore, an account was created on SPADA for all lecturers and students with the terms and conditions set. Also, all lecturers that meet the requirements are given an account to provide content for the SPADA application according to the curriculum and syllabus of each subject. Every semester, retraining is held for lecturers and students and when students are on vacation it is used to make repairs and improvements to the smart applications. Over time, the platform prepared by Unihaz continues to be evaluated and its features are increasingly equipped in order to enable all lecturers to use the Spada platform to teach and provide UTS and UAS services.

3.2 Design of E-Learning Based Teaching Materials of English for Specific Purposes of Geography Department

After conducting a preliminary analysis, the current situation was analyzed for both documents and the results of interviews as well as observations, the e-learning-based teaching materials were designed for the English for a Specific purpose of geography named **Hi-Tech**. This design was discovered through a study process by adopting several theoretical models for the development of teaching materials.

Development of teaching materials based on the steps of the developmental theory of Jolly & Bolitho according to Tomlinson in Emzir [36]. The theory of developing teaching materials by Tomlinson is in accordance with the theory of developing teaching materials for Specific purposes by Barnard and Zemach, and the theory of the development of e-learning teaching materials by Tripp & Bichelmeyer in Fauzan et al. [32]. Tomlinson's theory contributed to a preliminary study in the form of needs and condition analysis, as well as literature analysis in supporting the arguments in this study. The theory of the development of teaching materials for Specific purposes, the theory of Barnard and Zemach contributes because these teaching materials are meant for the specific needs of the Geography department with exercises and assignments according to Bloom's theory, while the theory of the development of e-learning teaching materials by Tripp & Bichelmeyer in Fauzan et al. plays a role in the preliminary study of e-learning and the preparation of teaching materials until they are uploaded to the SPADA e-learning application [32].

It was explained that the construct of need analysis from Hutchinson & Waters was adopted in Saragih and it consists of three components, namely Target, Current, and Learning Situation Analysis [24]. In addition, the theory of the necessity of teaching material from Tomlinson was applied to the theory of teaching materials for Specific needs from Barnard and Zemach. Based on the theories above, the initial design of the teaching materials produced by the author was shown in Fig. 1.

Since English was designed as the area of specialization for the field of Geography, the design of English Teaching Materials for this Specific Purpose adopted the theory of the development of teaching materials from Barnard and Zemach, and the stages involved are needs analysis, language context determination, language category determination, skills determination, speaking English, designing the syllabus, designing activity forms, setting guidelines/instructions on the use of teaching materials for lecturers and students, produce and evaluate teaching materials, revise the final product, and review the final

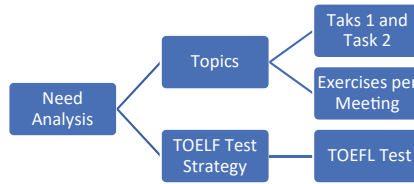


Fig. 1. Design based on the theory of Tomlinson, Barnard and Zemach and Hutchinson

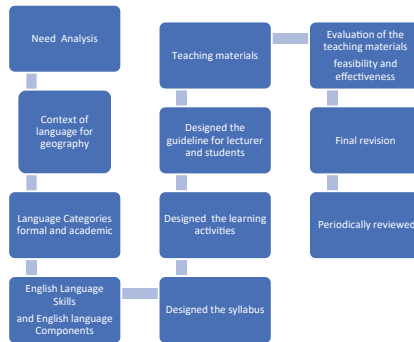


Fig. 2. Design of teaching materials for specific purposes based on barnard and zemach theory

product periodically. Figure 2 is the sequence of stages of the design of teaching materials based on the theory of Barnard and Zemach.

Furthermore, the advent of the Internet and the web has provided educators with opportunities to distribute digital learning materials and support new forms of web-based learning. Correspondingly, the development of e-learning systems, which support the sharing of digital learning materials and facilitate communication between students and educators, has become an important issue in educational platforms. Also, to meet the need of supporting access to education and training for anyone, anytime, anywhere, the e-learning industry has experienced rapid growth over the past decade to become the second-largest industry growing around the Internet and the web (second only to the e-Health industry) [37]. Therefore, e-learning based English Teaching Materials for Specific Purposes of Geography were developed, in order to support digital access to education, learning, and educational technology with e-learning-based teaching materials in Unihaz. The theory of the development of teaching materials (or commonly called LO (learning object) was adopted as proposed by Tripp & Bichelmeyer, in Fauzan et al. known as the theory of Rapid Prototyping [32]. This theory also contributes to the preliminary research on the aspect of availability and readiness of the e-learning platform/application as media to upload the online teaching materials, exercises, and other activities. Figure 3 shows the stages of developing teaching materials based on Tripp’s theory.

During the post development process according to the design of each underlying theory, and getting input from peers, as well as experts, the final model for the design of English Teaching Materials for Specific Purposes was designed and labeled as **Hi-Tech**

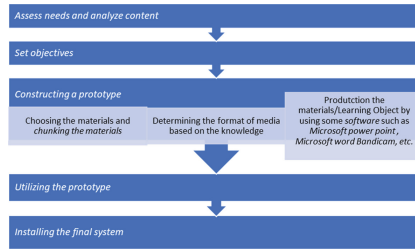


Fig. 3. Design of e-learning teaching materials based on the rapid prototyping

Teaching Material Design proposed by Nila Kencana. Picture of the design is shown in Fig. 4.

Based on the steps of Hi-Tech design, teaching material was produced materials and uploaded to the Unihaz e-learning application, available to students of Geography taking English courses. The first step was **H for Highlight the students' needs/prioritizing the needs of students** and the second step, **I for Illuminate the current situation**. In these two steps, a need analysis was conducted as described in the early part of the results of this development research. From the need analysis, it was discovered how the situation of the available teaching materials and what students and lecturers need in this English Teaching Material, especially for the Geography Department.

The third step is **T for Tighten the materials to the Learning Outcomes**. According to the need analysis, an overview of what information students and lecturers need in learning English for Specific Purposes was obtained, and analysis was performed of the current situation of the syllabus and existing teaching materials. In this step, the document regarding the Graduate Learning Outcomes in the Geography Department Curriculum was analyzed and guided to develop the Learning Outcomes for the Courses that would be related to the content of the teaching materials to be developed. As a result, a semester/syllabus learning plan for English courses for the Specific purpose of Geography was compiled.

The next step is **E for Elevate the students' English competencies by implementing teaching materials with interesting topics in accordance with the field and Geography Curriculum**. In the preliminary study and need analysis stage, information was collected about what students needed and topics that were relevant to their majors. It was known that the topics they want and need were related to their field of science, namely Geography, and would be in line with the courses in the Curriculum, including Social Geography, Geology, Geomorphology, Cartography, Hydrology, Meteorology, and Climatology as well as others. At this stage, the teaching materials were produced, and links to interesting topics were searched as required by the Geography Department, completed the content of the linguistic component, and produces digital formats of teaching materials for twelve meetings of the course.

The fifth is **C for completing the materials with Language Components, exercises and tasks to increase English language skills**. At this stage, adding and completing teaching materials with exercises would add and test students' language skills. It was explained that the English skills that would be adapted in this teaching material were listening, speaking, reading, and writing. These skills are supported by good grammar

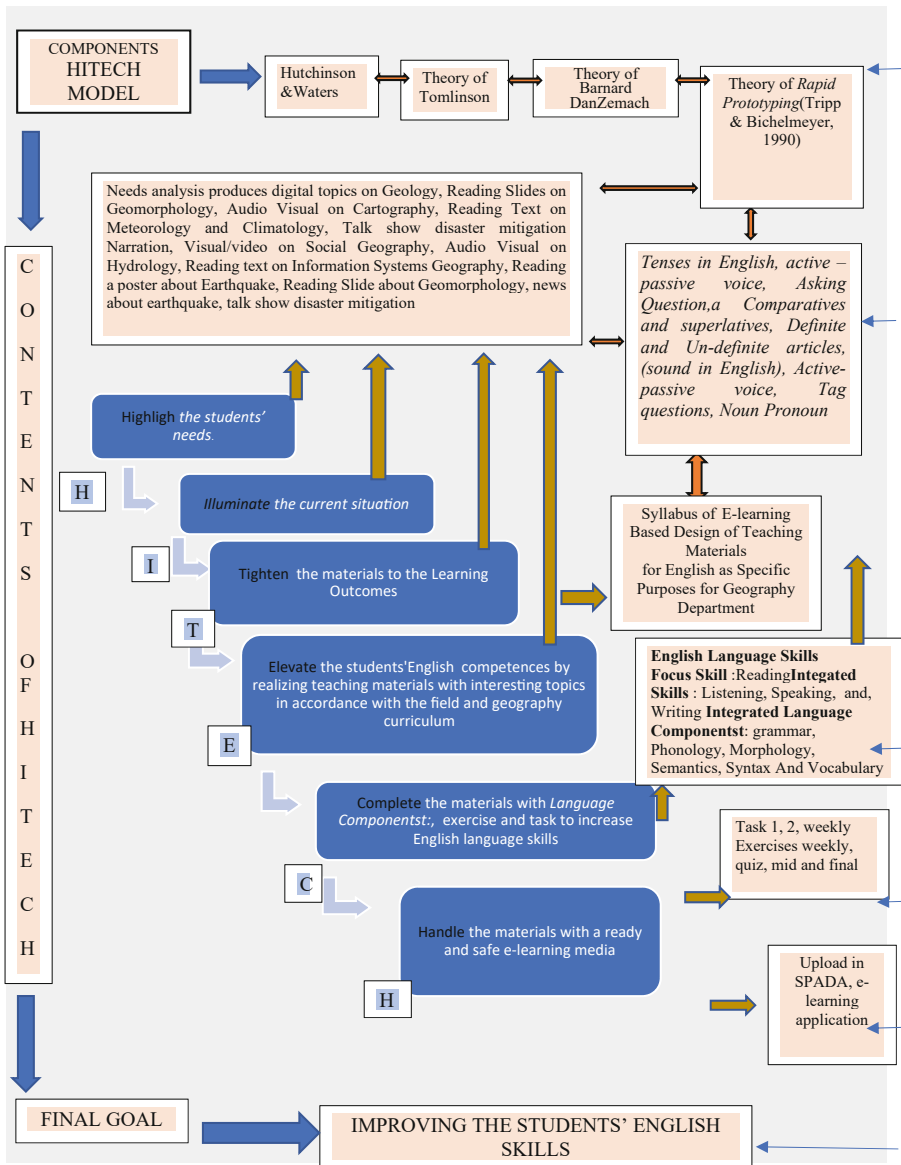


Fig. 4. Hi-Tech Teaching Material Design Model by Nila Kencana

skills and extensive mastery of vocabulary, especially technical vocabulary majoring in Geography. The topics of the teaching materials developed would be complemented by exercises in each unit or meeting, which are arranged in such a way that all skills were fully integrated.

Lastly is *H for Handle the materials with a ready and safe e-learning media*. The design of **Hi-Tech** teaching materials is the design of e-learning-based teaching materials. When developing this educational material, quality and ready-to-use applications for teachers and students are very important. This application becomes a platform where students can access teaching materials, download, access exercises for each teaching material, and serves as media for collecting assignments and also prepare online communication media between lecturers and students. In analyzing the institution's desire to introduce e-learning, it was mentioned that Unihaz had implemented an application based on Moodle, the Unihaz E-Learning System (SPADA). This application has been in use since 2019 and is constantly being updated to make it a viable and standard application for online learning.

After completing the production processes, these teaching materials were uploaded to the Unihaz e-learning application before starting the teaching process period at the beginning of the semester. At this stage, the teaching materials created were tested. The inputs during the effectiveness and feasibility test were analyzed in order to improve and refine the teaching materials. The contribution of the lecturers, students, experts through questionnaires, interview, field observations were very valuable for the improvement of these teaching materials. By being open to criticism and suggestions, this teaching material is more updated in line with technological developments. Weaknesses encountered during the pilot process would also be minimized. In the end, the benefits of e-learning media and the usefulness of these teaching materials for students majoring in Geography can be maximized to improve English language skills and increase students' knowledge in the field of Geography.

This e-learning based design of teaching materials of English for Specific Purposes of Geography proved and strengthened the research conducted by Raharja et al. which summarizes several functions of Information and Communication Technology (ICT) in learning activities [38].

3.3 The Feasibility of E-Learning Based Teaching Materials of English for Spesific Purpose of Geography

Four English Lecturers and two experts in English learning and e-learning media (ICT) provided an assessment to validate the teaching materials developed. In terms of the feasibility of teaching materials, it was explained in the previous section that the Tomlinson Theory, which was adopted stated that there are three major aspects that are divided into twelve sub-aspects that underlie the development of a teaching material, namely the psychological aspect, which contains Rational and learners needs, Independence and Autonomy, Self-development, Creativity and cooperation, pedagogical aspect, which consists of guidance, choice, reflection, exploration and innovation and content and methodological aspects related to Content, authenticity, layout, design, and flexibility. By this theory, 104 items of the questionnaire were set and 2 experts were questioned.

Using Likert Scale with four categories of choice, very feasible, feasible, less feasible, not feasible. Therefore, in terms of the feasibility of teaching materials, the maximum score for a total of 2 experts, the English Education expert, and media/ICT expert were 447. The highest score for each question item is 4, the number of aspects was 24, the number of items was 104 and the number of experts was 2. The total score gained was

350. Therefore, based on the results of the assessment and validation of the experts, it can be concluded that E-learning Based Teaching Materials of English for Specific Purposes of Geography were very feasible to use which had been determined according to four respondents to be $350:447 = 78,2\%$ of the maximum value.

In terms of e-learning media (SPADA), based on Rapid Prototyping Theory, there are 4 (four) aspects that must be considered in e-learning-based teaching materials, namely the Design aspect, which consists of a display, colors, letters, images, and menus (icon); Information Media Aspect, which consists of flexibility and language and Educational Technology Aspect, which consists of the simplicity of images and animations, websites, e-learning, simplicity of terms, symbols, icons and the suitability of the website with user characteristics and aspects of learning media. By the 13 aspects of consideration to e-learning-based teaching materials above, 55 items of the questionnaire were prepared, and 3 lecturers were questioned. Using the Likert Scale with four categories of choice, very eligible, eligible, less eligible, not eligible, the maximum score of lecturer's perceptions for a total of three English lecturers was 660. Furthermore, the highest score for each question item = 4, the number of aspects was 13, the number of questionnaires item = 55, and the number of lecturers = 3, the total score of data collection results = 540. Therefore, it can be concluded that e-learning media, called SPADA Unihaz, was highly recommended to be used as a platform for E-learning Based instruction and E-learning Based Teaching Materials of English for Specific Purposes of Geography suitable for use in e-learning instructions.

The percentage of eligibility that had been determined according to three respondents was $540:660 = 81\%$ of the maximum value.

Furthermore, qualitatively, based on the perception of the lecturers, it can be concluded that: 1) E-learning Based Teaching Materials of English for Specific Purposes of Geography had been equipped with a syllabus and well planned; 2) E-learning Based Teaching Materials of English for Specific Purposes of Geography had a clarity and complete plan of exercises and assignments; 3) E-learning Based Teaching Materials of English for Specific Purposes of Geography completed with the content of the teaching materials is in accordance with the Geography department; 4) E-learning Based Teaching Materials of English for Specific Purposes of Geography accompanied by well-prepared tasks according to pedagogical goals; 5) E-learning Based Teaching Materials of English for Specific Purposes of Geography had integrated all language skills and aspects of English language; 6) E-learning Based Teaching Materials of English for Specific Purposes of Geography made digitally and uploaded properly on the e-learning application instruction and lastly 7) E-learning Based Teaching Materials of English for Specific Purposes of Geography were very helpful for students as well lecturers in the process of instruction.

3.4 The Effectiveness of E-Learning Based Teaching Materials of English for Specific Purpose of Geography

Effectiveness of E-learning Based Teaching Materials of English for Specific Purposes of Geography generated from a TOEFL test. Questionnaire-based on Tomlinson's theory

with three main aspects, which are divided into twelve sub-aspects that form the basis for the development of educational material, namely the psychological aspect which contains Rational and Learners' needs, Independence and Autonomy, Self-development, Creativity, and Cooperation Pedagogical aspect which consists of guidance, choice, reflection, exploration and innovation, and content and methodological aspects related to Content, Authenticity, Layout, design, and Flexibility.

Furthermore, the test instrument used was the TOEFL test, which consists of three parts of the test, namely listening, comprehension, structure, written expression, and reading comprehension, which was carried out at the beginning of learning as an initial test and after passing through learning the test were given again at the end of learning as a final test, the test takers were all students. Based on the results of the effects test in the field test, about 30 students were given the TOEFL test, after being given the test, the average score was always increased since the first, second, third, and fourth tests.

From the test results, it was found that the average increase in T1 to T2 was 57%, the increase in T2 to T3 was 57% and the increase in T3 to T4 was 75%. Based on Gain T4-T1, the overall results are as follows. The first respondent was 72%, the second was 72%, the third was 72%, the fourth was 76%, and the fifth was 80%. Based on the average percentage of effectiveness tests obtained, it was 74.4%. Therefore, it can be concluded that e-learning-based English for Geography-Based Teaching Materials can increase the students' ability to speak English.

4 Conclusion

One of the determinants of success in learning is the existence of good teaching materials, which are arranged in a systematic, measurable, and well-planned system. These teaching materials not only fulfill the student's desire for the right teaching materials and their needs but are also in accordance with the learning objectives and are beneficial for them both in learning, in completing studies, which will further benefit them later when they enter the world of work. Good teaching materials can also help lecturers in facilitating the learning process and help students achieve their desires, namely the fulfillment of maximum learning outcomes.

The latest learning media, which follow the very rapid development of technology, makes it easier to access teaching materials, and the learning process also really needs to be adopted by lecturers and students. This will enable them to participate in the development of digital technology in the 4.0 era, including in the education process.

This development research resulted in an E-learning Based Teaching Materials of English for Specific Purposes of Geography, which was labeled **Hi-Tech**, model of Teaching Material Designed by Nila Kencana. In terms of the theory of teaching materials, based on the results of the assessment and validation of experts, it can be concluded that the English Language Teaching Materials for Specific Purposes Geography based on e-learning are very feasible to use. In terms of e-learning learning media, English Teaching Materials for Specific Purposes Geography based on e-learning, it can be concluded that e-learning media, namely the Unihaz SPADA application, is highly recommended to be used as a platform in E-learning Based Teaching Materials of English for Specific Purposes of Geography. Based on the result of the effectiveness through the test

given, it was concluded that e-learning-based English Language Teaching Materials for Geography-Based can improve the English language skills of Geography Department students and are effectively used and deserve to be maintained.

References

1. Nurindah, S. L., & Nggawu, L. O. (2019). English for nursing purposes (ENP): Investigating the students, academicians, and administrators language needs at mandala waluya health institution. *The Asian ESP Journal*, 15(1), 248–271.
2. Tjandrawinata, R. (2016). *Industri 4.0: revolusi industri abad ini dan pengaruhnya pada bidang kesehatan dan bioteknologi*. April. <https://doi.org/10.5281/zenodo.49404>
3. Hernawan, A. H., Permasih, & Dewi, L. (2008). Panduan Pengembangan Bahan Ajar. *Depdiknas Jakarta*, 1–13. http://file.upi.edu/Direktori/FIP/JUR._KURIKULUM_DAN_TEK._PEN_DIDIKAN/194601291981012-PERMASIH/PENGEMBANGAN_BAHAN_AJAR.pdf
4. Ianah, I., & Raharjo, H. (2014). Pengembangan Bahan Ajar Berbasis Komputer dalam Pembelajaran Matematika Pada Pokok Bahasan Kubus dan Balok. *Eduma: Mathematics Education Learning and Teaching*. <https://doi.org/10.24235/eduma.v3i2.59>
5. Kholidya, C. F. (2016). Pengembangan Bahan Ajar Mata Kuliah Media Pembelajaran PAI di STAI Al-Khairat Pamekasan. *Teknologi Pendidikan*, 4(2001), 17–23.
6. Munir, S. (2014). Pengembangan Materi Ajar Bahasa Inggris untuk Agen Travel (Sebuah Kajian English for Occupational Purposes). *Dr. Ragam*, 14(3), 260–274.
7. Mulyono, A. E., Suharno, & Musadad, A. A. (2018). Pengembangan Bahan Ajar Bahasa Inggris Berbasis Kompetensi Kerja. *Teknodika, Jurnal Penelitian Teknologi Pendidikan*, 16(01), 1–9.
8. Asadullah, G. M., & Dasna, I. W. (2008). Pengembangan bahan ajar kimia anorganik berbasis E-Learning. *Jurnal Pendidikan Kimia Universitas Negeri Malang*, 1, 1–8.
9. Nurwani. (2017). *Pengembangan Bahan Ajar Materi Aljabar Pada Pembelajaran Matematika Smp*.
10. Bielousova, R. (2017). Developing materials for English for Specific Purposes online course within the blended learning concept. *TEM Journal*. <https://doi.org/10.18421/TEM63-28>
11. Armawan, I. K., Darma, M., & Suyasa, S. (2017). *Pengembangan Materi Ajar English for Guiding Berbasis kearifan local*, 796–802.
12. Medriano, R. S., & Bautista, A. S. (2020). Integrating business English communication in the contextualized teaching of an ESL graduate course. *Asian ESP Journal*, 16(2), 70–88.
13. Wenjhi, S. (2020). ESP instruction and evaluation: A case of business English for Master Programs in China. *The Asian ESP Journal*, 16(2).
14. Arif, A. (2019). Development of mobile learning framework for ESAP for technical and engineering context. *The Asian EFL Journal*, 23(63), 27–45.
15. Ghislandi, P. (2012). adAstra: A Rubrics' set for quality elearning design. *ELearning - Theories, Design, Software and Applications*. <https://doi.org/10.5772/30411>
16. Alfheid, A. (2019). Teaching ESP and General English: Similarities and differences between native- and non-native - English-speaking teachers in a Saudi tertiary context. *The Asian EFL Journal*, 23(3), 5–21.
17. Nguyen, H., & Nguyen, T. (2017). English for Specific Purposes (ESP): Perceptions of students and teachers of learning needs at a Vietnamese school. *International Journal of Advanced Research*, 5(4), 793–803. <https://doi.org/10.21474/ijar01/3877>
18. Hutchinson, T., & Waters, A. (1987). *English for specific purpose - A learning-centred approach*. CUP.

19. Mackay, R., & Mountford, A. (1978). *English for specific purposes: A case study approach*. Longman Press.
20. Gatehouse, K. (2007). *Key Issues in English for Specific Purposes (ESP) Curriculum Development*. Kristen Gatehouse khoey, www.khae-service.com. Kristen Gatehouse khoey, www.khae-service.com
21. McDonough, J., Shaw, C., & Masuhara, H. (2000). *Materials and methods in ELT: A teacher guide*. Blackwell.
22. Gholami, J., & Samadi Osalu, M. (2012). Developing courses in English for specific purposes. *Journal of English for Academic Purposes*, 11(2), 170–171. <https://doi.org/10.1016/j.jeap.2011.07.004>
23. Basturkmen, H. (2010). Developing courses in English for specific purposes. <https://doi.org/10.1057/9780230290518>
24. Saragih, E. (2014). Designing ESP materials for nursing students based on needs analysis. *International Journal of Linguistics*, 6(4), 59. <https://doi.org/10.5296/ijl.v6i4.5983>
25. Darmayanti, T., Setiani, M. Y., & Oetojo, B. (2007). E-Learning pada pendidikan jarak jauh: Konsep yang mengubah metode pembelajaran di perguruan tinggi di Indonesia. *Jurnal Pendidikan Terbuka Dan Jarak Jauh*, 8, 99–113.
26. Badge, J. L., Cann, A. J., & Scott, J. (2005). e-Learning versus e-teaching: Seeing the pedagogic wood for the technological trees. *Bioscience Education*, 5(1), 1–11. <https://doi.org/10.3108/beej.2005.05000007>
27. Cresswell, J. W. (2012). Educational Research. In *University of Nebraska*. Pearson Education Inc.
28. Nunan, D. (1995). *Language teaching methodology*. Prentice Hall.
29. Tomlinson, B. (2013). *Developing materials for language teaching*, 1st edn.
30. Budasi, G., & Anggayana, I. W. A. (2019). Developing English for housekeeping materials for students of Sun Lingua college Singaraja-Bali. *Asian EFL Journal*, 23(6), 164–179.
31. Bocanegra-Valle, A. (2018). Evaluating and designing materials for the ESP classroom. *English for Professional and Academic Purposes*, January 2010. <https://doi.org/10.1163/9789042029569>
32. Fauzan, A. N., Siregar, E., & Imbar, K. (2019). Pengembangan Bahan Ajar Online (Learning Object) pada Matakuliah Landasan Teknologi Pendidikan. *Jurnal Pembelajaran Inovatif*, 2(1), 46–54. <https://doi.org/10.21009/jpi.021.07>
33. Paltridge, B., & Starfield, S. (2013). The handbook of English for specific purposes. In: *Blackwell handbooks in linguistics this*. Willey. <https://doi.org/10.1002/9781118339855.ch16>
34. Hutchinson, T., & Waters, A. (1989). *English-for-specific-purposes_hutchinso.pdf*.
35. Ampa, A. T., Rasyid, M. A., Rahman, A., Haryanto, Basri D., M. (2013). The Students' needs in developing Learning Materials for Speaking skills in Indonesia. *Journal of Education and Practice*, 4(17), 171–178.
36. Emzir. (2008). *Metode Penelitian Pendidikan Kuantitatif & Kualitatif*. Rajawali Pers.
37. Karagiannidis, C., Politis, P., & Karasavvidis, I. (2018). *Research on e-learning and ICT in education* (pp. 224–227). <https://doi.org/10.1007/978-3-319-95059-4>
38. Rahardja, U., Lutfiani, N., Harahap, E. P., & Wijayanti, L. (2019). iLearning: Metode Pembelajaran Inovatif di Era Education 4.0. *Technomedia Journal*, 4(2), 261–276.

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