IMPLEMENTING ICT-BASED PHONOLOGY LEARNING MATERIAL USING BLENDSPACE THROUGH CLASSROOM ACTION RESEARCH

IMPLEMENTASI BAHAN AJAR FONOLOGI BERBASIS ICT MENGGUNAKAN BLEND-SPACE MELALUI PENELITIAN TINDAKAN KELAS

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Abstract

This study reports the implementation of ICT-based learning materials using Blendspace in phonology classes. The ICT-based learning material was developed in the academic year of 2016/2017. The study was conducted in two stages. The first stage was the validation of the teaching material by two expert judges. The second stage was trying out of the teaching material in the classroom using classroom action research. The learning material developed has been validated by experts using a checklist as an instrument, which has been analysed using the Gregory formula. The expert judges showed that the content validity of the learning material is 90.9%, which means very valid. In order to test the effectiveness of the learning material, it has been implemented in phonology classes joined by the second-semester Diploma III students of the English Department of Universitas Pendidikan Ganesha, using classroom action research. Based on the teaching and learning process using the material, more than 70% of the students obtained scores between 76 and 100. Fewer than 30% of the students had scores below 75. Therefore, the learning material is considered effective for learning phonology.

Keywords: learning material, English phonology, Blendspace

Abstrak

Penelitian ini bertujuan untuk mengimplementasikan bahan ajar berbasis TIK dengan menggunakan Blendspace dalam kelas Phonology. Bahan ajar berbasis TIK ini telah dikembangkan pada tahun ajaran akademik 2016/2017. Penelitian ini dilakukan dalam dua tahap. Tahap pertama adalah proses validasi bahan ajar yang telah dikembangkan oleh dua orang pakar. Tahap kedua adalah uji coba bahan ajar yang dilakukan melalui penelitian tindakan kelas. Bahan ajar yang telah dikembangkan ini divalidasi oleh para ahli dengan menggunakan cek list sebagai instrumen yang telah dianalisis dengan menggunakan formula Gregory. Penilaian para ahli menunjukkan bahwa validitas isi atau konten dari bahan ajar adalah sebanyak 90.9% yang berarti sangat valid. Selanjutnya, untuk mengetahui keefektifannya, bahan ajar telah diimplementasikan dalam kelas Phonology dengan subjek penelitian mahasiswa semester kedua DIII Bahasa Inggris Universitas Pendidikan Ganesha, dengan menggunakan penelitian tindakan kelas. Setelah proses belajar mengajar dengan

bahan ajar tersebut, lebih dari 70% mahasiswa memeroleh skor 76 – 100. Banyaknya mahasiswa dengan skor di bawah 75 kurang dari 30%. Dengan demikian, bahan ajar dianggap efektif untuk digunakan dalam pembelajaran Phonology.

Kata kunci: *pengembangan, fonologi bahasa Inggris, Blendspace*

INTRODUCTION

In the teaching of English as a foreign language, one of the problems faced by students is how to pronounce English sounds correctly so that the expressions can be understood and do not cause misunderstanding. In learning English as a foreign language in Indonesia, a number of studies confirmed that many students experienced difficulties in producing the English sounds or in learning English in general (Habibi, 2016; Mathew, 2005; Megantari & Budasi, 2018; Tiono & Yostanto, 2008; Yuniarti, 2009). The result of research conducted by Yanti (2012) showed that there were problems in pronouncing English sounds faced by the Diploma III students of the second semester at the English Department of at Universitas Pendidikan Ganesha. To help the students to overcome these problems, Adnyani, Suarcaya, & Paramarta (2013) tried to introduce a speech analyser program in teaching, to help the students in analysing the sounds that they hear. However, the teaching technique that was implemented needs to be supported with learning materials that are easy to understand and are interesting.

The aims of this study were: firstly, to test the content validity of the ICT-based phonology learning material using Blendspace that had been developed through research and development by Sari, Adnyani, Suputra, Pastika, & Suparwa (2016); and, secondly, to test the effectiveness of the learning material produced through classroom action research.

The English phonology teaching material that has been developed is the result of joint research between Tim Peneliti Pengusul (TPP) (a team of researchers who propose a research study) of Universitas Pendidikan Ganesha and Tim Pengusul Mitra (TPM) (partners to the team of researchers who have proposed a research study) of Universitas Udayana. This study is closely related to the studies done both by TPP and TPM. Adnyani et al., (2013) used a program speech analyser in teaching English phonology in a research designed in a classroom action research setting. This study gives a very significant contribution to the effort at developing learning material that is easy to understand, effective, and interesting, which gives opportunities to the students to practice both in groups and individually.

In addition to the research that has been conducted by TPP, researches in phonology that have been done by TPM are also closely related to this study. The head of TPM, Pastika (2005), wrote about Balinese phonology by using a generative approach. In 2006 Pastika also produced a book entitled *Voice Selection in Balinese Narrative Discourse*. A member of TPM, Suparwa (2008) conducted a study on the easiness and difficulties in phonology experienced by Japanese speakers in learning Indonesian as a foreign language. In addition, Suparwa (2009) also wrote a book that discusses theories in phonology from the perspectives of generative theory and optimality theory. The research works in phonology that have been

produced by TPM make a very significant contribution to developing teaching material in English phonology, both theoretically and practically. The research team of Sari et al., (2016) have produced a course book to facilitate the understanding and improve the skill of students in an English phonology course entitled *A Course in English Phonetics and Phonology for Indonesian Students*. The course book comprises nine topics: (1) introduction to phonetics and phonology; (2) the speech organs; (3) manner of articulation, place of articulation and voicing; (4) the English vowels; (5) English plosives; (6) English fricatives; (7) English affricates and English nasals; (8) English approximants; (9) suprasegmental sounds, stress and intonation. The teaching material produced in 2016 is ready to be validated. In addition, the supplementary teaching material was also written and can be accessed at http://www.tes.com/lessons/my-lessons. The result of research in the first year has been discussed at the *International Conference on English across Cultures* (ICEAC) on 11-12 November 2016 (Sari, Adnyani, Suputra, Pastika, & Suparwa, 2016a).

The uploading of the teaching material through the aforementioned website gives the students unlimited space and time to understand and practice expressing sounds in the English language. The examples of audio and video recorded and pictures for practice written by the research team can be accessed by the students through the website. The advantage of using http://www.tes.com/lessons/my-lessons is that it also provides space to access the students' understanding and feedback, and reinforcement, which can be given both by the instructor and the students. By looking at the authentic examples, it is expected that the students' understanding in the phonology course will be improved.

Hence, based on the output that has been achieved by Sari *et al.*, (2016b), it is very important to continue this research. In 2017, the research processes that were taken were: (1) testing the content validity of the teaching material that had been produced; and (2) field testing the effectiveness of the teaching material produced in teaching English phonology through classroom action research.

This study was a continuation of the research process that had been conducted in 2016. In the first year, as described above, the research produced a course book that covers nine topics under the title *A Course in English Phonetics and Phonology for Indonesian Students*. In addition, supplementary material was also written and can be accessed at http://www.tes.com/lessons/my-lessons (Testeach, 2016). In 2017, research was conducted to try out the effectiveness of the teaching material through content validity testing and empirical testing through classroom action research.

METHOD

This study was conducted in two stages. The first stage was the validation of teaching material by two expert judges. These experts have been teaching phonology for more than ten years and have conducted researches in the field of phonology. This stage of experts' judgments was conducted to collect inputs or suggestions about the substance (content) of the teaching material that has been produced. After being evaluated by the expert team, the teaching material was then revised. The second stage was the trying out of the teaching material in the field. The teaching material that had been revised by the research team based on the inputs given by the team of experts was tried out by using the materials in teaching English phonology through classroom action research.

Figure 1 Research Plan
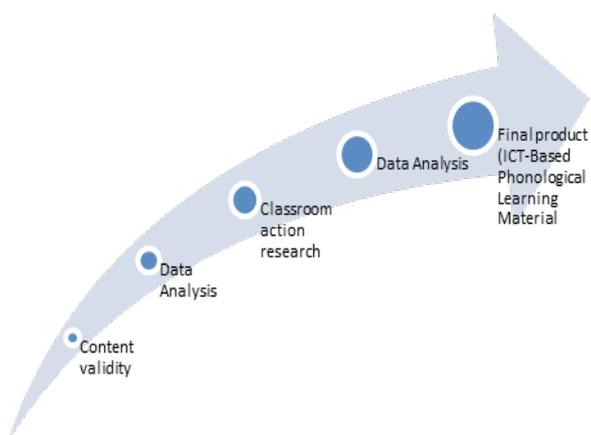
There were three different research subjects. The first subject of this research was the literature that is related to the phonology course, namely the curriculum, syllabus, and vision and mission statements that give information about the competencies that have to be mastered by the students. The second subject of study was the experts in phonology, or at least in linguistics, who gave input about the content of the teaching material. The third subject was the students studying English phonology who were involved in the try-out of the use of teaching material through classroom action research.

Triangulation was the data collection method used in this study. This was done to ensure the validity of data collected. The methods used were observation, interview, and questionnaire. The instruments used for collecting the data, in order for the experts to validate the contents of the course book, were observation sheets, interview guide, and checklist. The instruments used in this research were based on the theory of instructional material development.

This study used a validation process, which was carried out through focus group discussion (FGD), while the content of the product in the form of the teaching material was validated by phonology experts using the Gregory formula. The teaching material produced was also tried out empirically through classroom action research. Specifically, the method and procedure of data collection are shown in table 1.

Table 1 Method and Procedure of Collecting Data

Research aim	Data collection procedure	Research instrument	Data analysis	Data source	Output
Year 2					
Testing of the teaching material's content validity through experts' judgement	Documents and focus group discussion	Checklist and experts' judgment	Descriptive analysis using the Gregory formula	Phonology experts	English phonology learning material based on ICT using Blendspace
Empirical testing of the effectiveness of the teaching material through classroom action research	Observation Interview Document Study	Observation sheet Interview Guide	Descriptive	Researcher, phonology experts and students	A course book with ISBN and teaching material that has been uploaded to www.blendspace.com

In the second year of research, steps were taken to achieve the aim of the research, namely, to know the correctness of the concept embodied in the teaching material through content validity testing done by experts. The teaching material produced was first validated through focus group discussion and its content was then validated again by using a checklist instrument and was analysed descriptively by using the Gregory formula, as shown in Table 2.

Table 2 Gregory Formula

		Expert 1	
		Irrelevant	Relevant
Expert 2	Irrelevant	A (- -)	B (- +)
	Relevant	C (+ -)	D (+ +)

$$\text{Validity content} = \frac{D}{A + B + C + D}$$

Notes:

A: Expert 1 and Expert 2 do not agree

B: Expert 1 does not agree and Expert 2 agrees

C: Expert 1 agrees but Expert 2 does not agree

D: Expert 1 and Expert 2 agree

After the content validity testing was finished, the second step was to test the effectiveness of the teaching material produced in the English phonology course through classroom action research. The classroom action research was not aimed at solving the students' problem, but at testing the effectiveness of the learning material produced through teaching. The data produced were analysed descriptively. The success indicator of this classroom action research is as follows: (a) the teaching material is effective if the students reach passing grades A, A-, B+, B, B-, and C based on the evaluation guide as shown in Table 3; (b) the teaching material is effective if more than 65% of the students manage to obtain the minimal grade B-.

Table 3 Table score conversion

Score Percentile	Grade in Scale	Grade In Letter
96-100	4.00	A
91-95	3.75	A-
86-90	3.25	B+
81-85	3.00	B
76-80	2.75	B-
65-75	2.00	C
40-64	1.00	D
0-39	0.00	E

RESULTS AND DISCUSSION

This part discusses the profile of the course book which has been designed. The materials of the course book has been published online using the Blendspace platform. The course book includes the competencies expected for the learners to be acquired as well as the description of the course, the aims and the topics included in the course book.

Profile of Course Book on ICT-based Phonology Learning Material Using Blendspace

The result of the identification of the competencies that have to be reached by the students in the English phonology course was obtained, among other things, through a review of the Department of English, Diploma III Curriculum as stated in *Buku Pedoman Studi Program Sarjana and Diploma Fakultas Bahasa dan Seni Universitas Pendidikan Ganesha tahun 2014* (Guide to Study at the Sarjana Program and Diploma Program at the Faculty of Languages and Art of Ganesha University of Education) (Universitas Pendidikan Ganesha, 2014). In the curriculum, it is stated that the

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English phonology course is one of the courses within *Kelompok Mata Kuliah kompetensi Dasar* (Basic Competencies Course Group with 2 semester credit units). After the curriculum analysis process was done, the research team also reviewed some literature related to the English phonology course, which included a review of the syllabus and some course books that have previously been used in the course. Some teaching materials that have been reviewed are *A Course in Phonetics* (Ladefoged, 2001), *An Introduction to Phonology*, (Katamba, 1989), and *Vowels and Consonants: An Introduction to the Sounds of Languages* (Ladefoged, 2001). The review was then continued with a discussion with a team of experts in phonology to get input about the development of English phonology teaching materials. In addition to the input from the experts, the research team also carried out an analysis by reviewing input from the students who took the course in the previous semester.

The results from the review of the curriculum and the syllabus for the English phonology course, the literature review, including teaching materials that have so far been used, discussion with the team of experts, and input from the students were summarised in a list of competencies that have to be achieved in the English phonology course. Based on this list of competencies, the research team then wrote the description of the course (course description) and wrote the course objective, as a stated in Table 4.

Table 4 Competencies, Description, and Aims of the English Phonology Course

Basic Competence	Course Description	Course Objectives
(1) Students know a number of technical terms related to phonetics and phonology; (2) students are able to distinguish between phonetics and phonology; (3) students are able to describe the production of English sounds; (4) students are able to differentiate between consonants and vowels; (5) students are able to transcribe sounds in IPA symbols; (6) students are able to identify sounds in English that do not exist in Indonesian sound systems; (7) students are able to distinguish between phonemes and allophones; (8) students are able to know the structure of English syllables; (9) students are able to know different phonological processes such as assimilation, substitutions, etc.; (10) students are able to know the different types of suprasegmental sounds; (11) students are able to use technology in transcribing English sounds.	Introduce students to the basic practical English sound system and gain some basic theoretical knowledge of English phonetics and phonology. Concerning phonetics, the course covers the vocal tract and its function in producing speech sounds; consonants and vowels are described in articulatory terms, and phonetic transcription. There is also an emphasis on problems in pronunciation faced by Indonesian students in learning English pronunciation. Regarding phonology, contrastive sounds of language, phonemes, phonological processes, and suprasegmental sounds are introduced. Moreover, the course will also introduce the use of technology in phonetics.	(1) Learn a number of technical terms related to phonetics and phonology; (2) distinguish between phonetics and phonology; 3) describe the production of English sounds; (4) differentiate between vowels and consonants; (5) transcribe sounds in IPA symbols; (6) identify sounds in English that do not exist in Indonesian sound systems; (7) distinguish between phonemes and allophones; (8) know the structure of English syllables; (9) know different phonological processes such as assimilation, substitutions, etc.; (10) know the different types of suprasegmental sounds; (11) use technology in transcribing English sounds.

The written competencies that have to be achieved by students in the phonology course, along with the description of the course and the objective of the course, were then exported to Blendspace: https://www.tes.com/lessons/dashboard. The Blendspace display of basic competencies, course description, and teaching objective can be seen in Figure 2.

Figure 2 English Phonology Course Syllabus
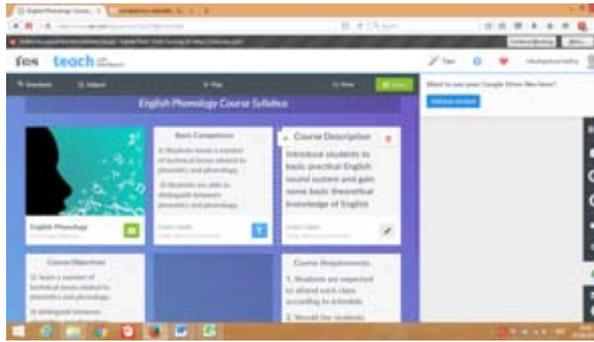
As the competencies that need to be achieved by the students have been listed, and the course description and course objective written, the topics could then be developed in the English phonology course book, and the activities or tasks and exercises for the students to attain the required competencies can be seen in Table 5.

Table 5 Topics and Students' Activities in the English Phonology Course

| No.	Topics	Experience/Activities
1	Introduction to Phonetics and Phonology	1. become acquainted with the technical terms to be used in the fields of phonetics and phonology
		2. distinguish between phonetics and phonology and their position within linguistics
		3. know the symbols used in phonetics and phonology
		1. know the different organs of speech
2	The Speech Organs	2. know the function of each organ in the production of speech sounds
		3. know the different production of sounds
3	Manner of Articulation, Place of Articulation and Voicing	1. know the manner of articulation
		2. know the place of articulation
		3. distinguish between voiced and voiceless sounds
4	The English Vowels	
	4.1 English Short Vowels	1. learn the production of English short vowels
		2. listen to examples of words containing short vowels
		3. practice pronouncing words containing short vowels
		4. provide words containing short vowels in all positions and transcribe them
	4.2 English Long Vowels	1. learn the production of English long vowels
		2. listen to examples of words containing long vowels
		3. practice pronouncing words containing long vowels
		4. provide words containing long vowels in all positions and transcribe them
5	English Plosives	1. learn the production of English plosives
		2. listen to examples of words containing English plosives
		3. practice pronouncing words containing English plosives
		4. provide words containing English plosives in all positions and transcribe them
6	English Fricatives	1. learn the production of English fricatives
		2. listen to examples of words containing English fricatives
		3. practice pronouncing words containing English fricatives
		4. provide words containing English fricatives in all positions and transcribe them
7	English Affricates and English Nasals	
	7.1 English Affricates	1. learn the production of English affricates

		2. listen to examples of words containing English affricates
		3. practice pronouncing words containing English affricates
		4. provide words containing English affricates in all positions and transcribe them
	7.2 English Nasals	1. learn the production of English nasals
		2. listen to examples of words containing English nasals
		3. practice pronouncing words containing English nasals
		4. provide words containing English nasals in all positions and transcribe them
8	English Approximants	1. learn the production of English approximants
		2. listen to examples of words containing English approximants
		3. practice pronouncing words containing English approximants
		4. provide words containing English approximants in all positions and transcribe them
9	Suprasegmental sounds; Stress and Intonation	
	9.1 Stress	1. practice different stress patterns
		2. provide examples of stress patterns in simple and complex sentences
	9.2 Intonation	1. distinguish the different intonation patterns of English
		2. provide examples of the different intonations in English
		3. know the symbols used in phonetics and phonology

From Table 5, it can be seen that there have been nine topics developed in the course materials. The topics are introduction to phonetics and phonology, the speech organs, manner of articulation, place of articulation, and voicing,

the English vowels, English affricates and English nasals, English approximants, and suprasegmental sounds; stress and intonation. The topics that have been developed in the English phonology teaching material were also transferred into Blendspace with the URL https://www.tes.com/lessons/my-lessons − as seen in Figure 3.

Figure 3 English Phonology Course Topics in Blendspace
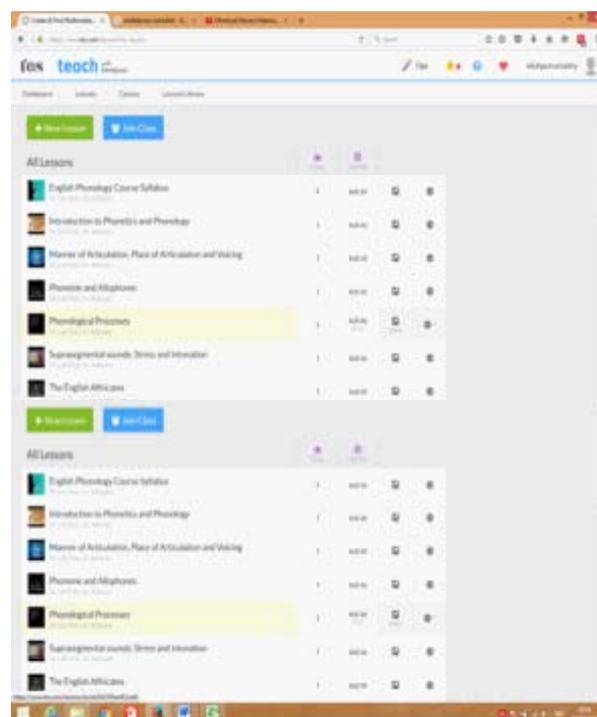
The validity testing of the English phonology course book that was produced was done through content validity testing, which was carried out by two phonology experts. The result of content validity testing was then analysed by using the Gregory formula. The indicators used in evaluating the quality of the English phonology course book produced are. First, the course book structure, which consists of the appearance of the course book and the consistency between the materials and the basic competencies. Second, the organisation of the course book presentation, which consists of the

presentation system, the depth of the material presented, the pictures and tables presented, whether the activities presented are able to be done, the material presented in Blendspace to help the students to understand phonology, and the match between the description of students' activities and instructors' activities for each of the activity stages. Third, the language aspect, which consists of good English usage both in terms of grammar and diction. The language use should suit the level of understanding and language ability of the students and the language use should be communicative and easy to understand. The determination of content validity, obtained through expert judgement, is entered into the Gregory table below.

Table 6 Gregory Table for Phonology Course Book Instrument

		Judge 1	
		Not rel-evant	Relevant
Judge 2	Not rel-evant	A (0)	B (1)
	Relevant	C (0)	D (10)

In Table 6, Cell D shows that 10 items out of 11 items of the instrument were declared to be relevant by both experts who judged the content of the course book produced. One item of the aspects evaluated is in Cell B, which shows that that Expert 1 and Expert 2 differed in their views about the item. Expert 1 thought that the item relevant but Expert 2 did not. The problematic item was that the activity that was to be done by the students should be more varied. Therefore, the level of validity obtained from the experts' validation testing –that is, the percentage of validity according to the experts–is 90.9% (very valid).

The suggestions for improvement obtained from the content validity testing result can be listed as follows: 1) the language needs to be passed by English native speakers who are professional proof readers, whether individuals or from professional organisations, 2) some words need to be rechecked to see the correct pronunciation, 3) to write more varied exercises for the students, 4) to add some exercises and examples regarded to be important, 5) the use of phonetic font needs to be standardised.

The Empirical testing of the course book

Based on the validation results and the experts' suggestions for improvement, field testing was carried out through classroom action research to obtain information about the effectiveness of using the book in teaching. The trial was conducted at the English Department (Diploma III level) at the Faculty of Language and Art, Universitas Pendidikan Ganesha, and involved the second semester students of 2016/2017. The field trial was conducted from February to June 2017. The effectiveness of the course book in teaching was evaluated by looking at the students' learning achievements and their comments about the course book. A course book is regarded to be effective in teaching if the students attain at least B-.

Twenty-one students of the second semester took up English phonology. The implementation of the empirical testing was done according to the schedule for the English phonology course at the English Department (Diploma III level), and involved three researchers who were at the same time instructors on the English phonology course. The three instructors taught the topics consecutively, according to the material that has been developed.

Based on the results of the teaching and learning process and the task results, the results of the first and second tests, the scores can be seen in Table 7, while the percentages indicating students' learning achievements are shown in Figure 4.

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Table 7 Students' Learning Achievements

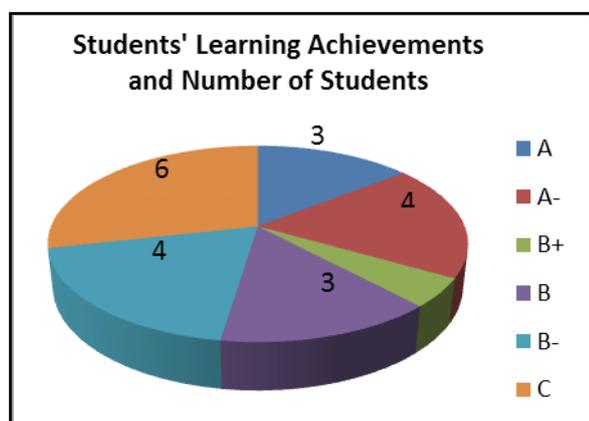| Number of students	Percentile Score	Grade in Scale	Grade in Letter
3	96-100	4.00	A
4	91-95	3.75	A-
1	86-90	3.25	B+
3	81-85	3.00	B
4	76-80	2.75	B-
6	65-75	2.00	C
Total: 21			

Figure 4 Learning Achievement

Table 7 shows that by implementing phonology learning material using Blendspace, students had obtained learning achievements with scores A, A-, B+, B, B-, and C. By obtaining a learning achievement with those scores, it shows that the course book that had been developed was effective for use in teaching.

Figure 4 shows that, from 21 students, only six students could not meet the minimal standard. In other words, 15 students– around 70%–could obtain the minimal score (B-). This shows that the English phonology course book that had been developed is effective for use in teaching.

The students gave good comments about the use of the book for teaching. Some comments given by the students are summarised as follows: 1) the course book has covered the topics that they need in learning the English phonology course, 2) the course book can train them in pronouncing sounds of English words that do not exist in Indonesian, 3) the materials in Blendspace are very helpful for them in terms of listening to the English sounds, 4) the materials in Blendspace also give an illustration about how to produce certain sounds, especially the sounds that do not exist in Indonesian.

However, the students also gave the following suggestion for improvement: it would be better if, in Blendspace, the students' videos, which contain the pronunciations of English sounds and examples of the words that contain them, were displayed. By displaying those videos, the students can recognise errors in pronunciation individually and in peer groups. Those pronunciation errors can be discussed so that the students can learn from their errors until they can pronounce the words correctly.

CONCLUSION

Based on the problems, aim, and result of the research, the conclusions that can be made are as follows. Firstly, based on the experts' content validation result, the English phonology learning material that has been developed has met the validity criteria. Secondly, the result of empirical testing through classroom action research shows that this course book is effective for use in the English phonology course. It is expected that this research can be developed further by adding materials that have not been presented in the book, for example, the use of technology in teaching English phonology. Additionally, the Blendspace displays in the phonology class can be improved.

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