(RESEARCH ARTICLE)

Developing reading materials using interactive multimedia to improve young learners' reading comprehension

Miske Setiawati Adipu *, Kartin Lihawa and Sartin Miolo

Universitas Negeri Gorontalo, Indonesia.

Abstract

There are four English skills that students must achieve namely speaking, listening, reading, and writing. However, some English courses focus more on speaking skills; therefore they do not provide enough reading materials for students because they tend to emphasize students' speaking ability. There are three objectives of this research

- To describe the target needs of young learners to increase their reading comprehension using interactive multimedia
- To describe the learning needs of young learners to increase their reading comprehension using interactive multimedia, and
- To develop appropriate reading materials using interactive multimedia for young learners to increase their reading comprehension.

The methodology of this research is Research and Development (R&D). The model development is adapted from ADDIE model proposed by Branch (2009) and it consisted of Analysis stage, Design stage, Development stage, Implementation stage, and Evaluation stage. There are four instruments to collect the data namely target need questionnaire, learning need questionnaire, expert judgment questionnaires and test. The data from the target needs result were analyzed quantitatively using percentage and its results were used as groundwork to develop the reading materials for English course. The quantitative data from the expert judgments were analyzed through descriptive analysis, in mean time review and suggestions from the experts also were used to revise the first draft of reading materials. After the revision, the final product was implemented into small group trial and big group trial. The result tests from students were analyzed quantitatively using KKM standards that had been set. Based on research findings, the reading materials for students aged 10 until 12 years old that have been developed is appropriate accordingly to students' target needs and learning needs.

Keyword: Interactive multimedia; Reading material; Vocabulary; Young learner

1. Introduction

There are four English skills that students must achieve; speaking, listening, reading, and writing. However, some English courses focus more on speaking skills, therefore they do not provide enough reading materials for students because they tend to emphasize students' speaking ability, whereas the four basic language skills namely speaking, listening, reading, and writing are connected. Based on the researcher's experiences of teaching as instructor in MY LIBERTY English course for more than four years, students have difficulty in productive and receptive abilities. According to Adzim (as cited in Elendiana, 2020), several things can be done to increase students' reading comprehension including parents becoming role models to children, choosing appropriate reading texts for children,

---

* Corresponding author: Miske Setiawati Adipu

and making reading time with children. Meanwhile, according to Astuti (as cited in Elendiana, 2020) efforts to increase students' reading comprehension can be done as follows: motivation from parents and teachers, promote the movement of reading fondness in the school environment, giving awards to children who like to read, and giving interesting books. Based on these findings, it can be concluded one way to encourage student's comprehension in reading is by designing interesting learning materials. Nowadays, involving technology such as the use of websites and mobile phones can be a great way to stimulate students' comprehension in reading. One of the uses of technology is to design materials using interactive multimedia. Interactive is a two-way communication which takes the form of mutual action to have an active reciprocal relationship between people who communicate, while multimedia is a combination of several elements such as audio, text, and images that are controlled via a computer. According to Green & Brown (2002), there are five main elements of technologies in interactive multimedia namely, text, graphics, audio, video, and animation. Interactive multimedia combines and synergizes all media consisting of text, graphics, audio, video, and interactivity. However in this research, the researcher would only use text and animation to develop reading material through interactive multimedia to increase young learners' reading comprehension.

Based on the problem identification, the researcher formulated several research objectives as follows

- To describe the target needs of young learners to increase reading comprehension using interactive multimedia?
- To describe the learning needs of young learners to increase reading comprehension using interactive multimedia?
- To develop appropriate interactive multimedia for young learners to increasing their reading comprehension.

2. Material and methods

This research is included in the research development because it aims to produce a learning media that would be able to answer the challenges that exist and provide products that have not been there or are better than before. The development model used in this research is ADDIE model. ADDIE is an acronym for five phases course development process, and it consists of Analysis, Design, Development, Implementation, and Evaluation. Researchers chose the ADDIE model as the research model because the ADDIE model is often used to describe a systematic approach to instructional development.

The site of this research is one of the English courses in Gorontalo, namely MY LIBERTY International English Course. This English course has been around for 11 years. Established in 2011, MY LIBERTY International English Course has produced many graduates that can speak English. Currently, MY LIBERTY International English Course already has branches in all cities and districts of Gorontalo with a total of more than 330 students. Participants in this research were 16 instructors who have taught at MY LIBERTY International English School, one Front Office who works at MY LIBERTY International English School and students at the age of 10 until 12 years old. Although in the course the students came from various schools, in this research there was no limitation for the formal schools the students came from.

In this research, there would be several instruments to collect the data. First is questionnaire. Three questionnaires would be used in this research; two validation questionnaires, namely a validation questionnaire for media experts and a validation questionnaire for material experts; one questionnaire for teacher's perceptions. The first questionnaire is a validation assessment questionnaire for media experts, namely an assessment questionnaire that would be carried out by media experts to measure the feasibility of reading materials designed using interactive multimedia. The second questionnaire is a validation assessment questionnaire for material experts. This material validation assessment questionnaire will be carried out by material experts to determine whether the material content of reading materials designed using interactive multimedia is appropriate. The third questionnaire is for teacher perception to provide comments and suggestions for improving the reading material. The first questionnaire is a validation assessment questionnaire for media experts, namely an assessment questionnaire that would be carried out by media experts to measure the feasibility of reading materials designed using interactive multimedia. The second questionnaire is a validation assessment questionnaire for material experts. This material validation assessment questionnaire will be carried out by material experts to determine whether the material content of reading materials designed using interactive multimedia is appropriate. The third questionnaire is for teacher perception to provide comments and suggestions for improving the reading material.

In analyzing the data, the researcher uses calculation analysis according to Sugiyono (2013). First is validation assessment questionnaire. The instrument can be said to be valid if the instrument is able to reveal something that is being measured. The validity test of the contents of the instrument was also carried out using the Learning Multimedia

Assessment instrument compiled by Sriadhi, P.hD. This instrument was developed with reference to the theory of learning multimedia development and multimedia design principles from Richard Mayer, Alessi and Trollip, Sweller, Paivio and Baddeley. Second is students' learning outcome (post-test). To see the effectiveness of learning media, a post-test was conducted to see student learning outcomes using reading material through interactive multimedia, data analysis on student learning outcomes tests was done by looking at the percentage of students' completeness in the learning process. Students are said to be complete if they get a value greater than or equal to Kriteria Ketuntasan Maksimum (KKM) set by the course. To calculate the percentage of completeness, the calculation is carried out using the following formula:

$$P = \frac{m}{n}$$

P = percentage of student scores according to KKM
m = the number of students whose grades match the KKM
n = number of students

Effectiveness has been met if student learning outcomes after the material is completed is having 80% of all trial subjects meet learning mastery, and there is a positive student response shown by perception questionnaires and student activity sheets (Yamasari, 2010).

3. Results

3.1. Analysis of performance gap

Based on the results of questioner with research informants, the researcher could perform analysis of performance gap. This analysis is also used as to answer research questions 1 and 2 regarding target needs and learning needs.

3.1.1. Target needs

Necessities

Necessities refer to what the students need to know in order to perform well in the target setting. To put it another way, necessities also refer to what a person needs to succeed in their business. Moreover, according to Allwright (1982) wants is the skills which students see as being relevant to them.

Based on the results, the researcher found that the available reading materials are old topics such as fairy tales or articles about the daily lives of west people. The instructors explained that reading material about local culture; in this case Gorontalo culture is needed. Topic about local culture is needed because it is not only improving students' reading skills, but also to inquire students needs to understand the local culture better.

Aside of applying local culture into reading material, the learning method used by the instructor is still limited to the teacher center. 43.75 percent instructors stated that learning process in the classroom is where the instructor explains the material and followed by the students working on worksheet individually. According to researcher, this method is still relatively traditional and needs improvement to make it more relevant to this era. Therefore, applying the 4Cs that contains creative thinking, critical thinking and problem solving, communication, and collaboration based on 21st century skill is needed. 21st century skills can advance and build up student collaboration in a group to solve certain problems. It can also increase students' tolerance for differences of opinion, students can try to think critically and creatively to solve problems about linking things.

Lacks

Lack is the difference between the student's present competence and the desire competence (Allwright, 1982).

Based on the results, the researcher found that instructors have to find additional material from various sources on the internet. This shows that the reading material provided by course is not enough to develop students' reading skills. Lack of learning resources also affects the learning process because instructors have to spend more time looking for other materials, while one of the functions of learning resources is to reduce the burden on teachers in presenting information, so that they can foster and develop students' passion for learning. Based on this result, it can be concluded that the instructors need additional materials to support the teaching and learning process in reading skill.

Wants

As indicated by Hutchinson and Waters (1987) meaning of needs is seen of emotional requirements of students. Additionally, students must be aware of what they want to learn in order to have wants. Students will put in some effort to fulfill their willingness based on that circumstance. Based on the results, the researcher found that

- Students prefer to study and share information in groups, while the reading materials provided by the course only focus on individual activities. Based on this result, it can be concluded that reading material should be more centered on group activities where students can communicate with each other.
- Instructors need the internet as part of the learning media and discussion as a part of learning methods.

3.1.2. Learning needs

Analyzing what students do will tell the instructor a little bit what they are learning. To find out the lessons needed by students, researcher must know the learning situation. The learning situation is the need for a task that is fun, satisfying, manageable, and generative.

Based on result, the researcher found out that;

- Students take English courses because they are asked by their parents and want to stay in an environment where they can apply English.
- The available learning resources are only provided by the course, namely textbooks. Meanwhile, due to limited learning resources, instructors need more time to look for additional materials and worksheets.
- Students who take courses at MY LIBERTY International English School come from various schools with varying ages and genders. However, due to the elimination of English subjects in elementary schools, many students have lack of knowledge in English subject. For that, focus on improving vocabulary is very necessary.
- Course schedule is held every 2x a week with 90 minutes for each meeting. So, in a month students learn English for 720 minutes.

3.2. Setting learning objectives

From the results of the performance gap, the researcher formulated the learning objectives as follows;

- After observing the examples of passages contain text and pictures, students can identify the vocabulary used in the passages
- Students are able to discuss related material topics

3.3. Resource analysis

Resource analysis is needed because the development of reading materials using interactive multimedia is required to have the availability of technological instruments, such as laptops and cell phones that are connected to the internet. Based on the results of the questionnaire filled out by the MY LIBERTY International English Course front office, internet is available 24 hours in the course environment.

3.4. Work plans and design content display

From the learning objectives that are conducted based on the results of the performance gap, researcher can design display content according to the needs of instructors and students.

Considering MY LIBERTY is an English course, therefore the course uses informal curriculum. Informal curriculum is different with formal curriculum. Formal curriculum is specifically design by government, whereas informal curriculum is customarily flexible. It means the material is arranged according to the needs of the participants.

Based on the learning objectives, there are 4 material topics that the researcher developed, namely:

- Daily activity,
- My city (Tourism object),
- Recount text (Unforgettable story),
- Local story.

3.5. The first draft of reading material

The first draft of the interactive multimedia in this research presents several slides in different topics. Those slides are described below.

The first slide is starting screen of interactive multimedia. The first slide contains topic title and learning objective. The starting screen is designed with several animations that can attract students' attention. The second slide contains passage that students will read. The third and the fourth slide contain vocabularies and the pictures.

Each topic has its own link that teachers and students can access using technology devices such as smart phones or laptops that are connected to the internet. To simplify links, researcher used the website Bitly, Inc., a URL shortening service and link management platform. This shortening of the link aims to make it easy for teachers and students to remember material links and can be accessed anytime and anywhere.

The access links namely:

- Daily routine: bit.ly/3EBG2WW;
- Tourism object: bit.ly/3ggdBEz;
- Unforgettable moment: bit.ly/3tDuBI0;
- Local folklore: (https://bit.ly/3tBcpyz)

3.6. The expert judgments and revision

Following the designing of the first draft of the reading materials, expert judgment was used to determine whether or not the product's content and design were appropriate. Two design and content-related questionnaires served as the expert judgment instruments. Both questionnaires were adapted from Instrumen Penilaian Multimedia Pembelajaran by Drs. Sriadhi, ST., M. Pd., M.Kom., Ph.D.

As there were two questionnaires distributed, there were also two credible experts who evaluated the interactive multimedia in terms of the content and design.

3.6.1. Result

Content aspect

In the first questionnaire, there are 13 statements categorized into two groups, which are content of material and evaluation appropriateness. For content acceptance as a whole, it gets a mean of 4.46. The results of the assessment stated that the learning content developed was acceptable at a very high level of acceptance.

Media aspect

In the second questionnaire, there are 10 statements. The results of the assessment stated that the learning content developed was acceptable at a very high level of acceptance.

3.6.2. Revision

The revision of content aspect

The revision of content aspect would be shown on the table.

Table 1 The revision of content aspect

Topic	Slide	Point of Revision	Revision
Daily routine	1	Learning objective	First draft: *Learning Goal: Students will be able to mention* Final draft: *Learning Objective: Students are able to identify*
	1	Instruction	First draft: *See the picture* Final draft: *Look at these pictures*
	3 and 4	Pictures	First draft: *four pictures in one slide*

			Final draft: *one picture for one slide*
	-	Link	First draft: *bit.ly/3EBG2WW* Final draft: *bit.ly/MYdaily_routine*
		Reference	First draft: *there is no any reference of any pictures that have been used* Second draft: *the reference is located in the last slide*
Tourism Object	1	Learning objective	First draft: *Learning Goal: Students will be able to mention* Final draft: *Learning Objective: Students are able to identify*
	-	Link	First draft: *bit.ly/3ggdBEz* Final draft: *bit.ly/MYtourism_place*
		Reference	First draft: *there is no any reference of any pictures that have been used* Second draft: *the reference is located in the last slide*
Unforgettable Moment	1	Learning objective	First draft: *Learning Goal: Students will be able to mention* Final draft: *Learning Objective: Students are able to identify*
	-	Link	First draft: *bit.ly/3tDuBI0* Final draft: *bit.ly/MYunforgettable_moment*
		Reference	First draft: *there is no any reference of any pictures that have been used* Second draft: *the reference is located in the last slide*
Local Folklore	1	Learning objective	First draft: *Learning Goal: Students will be able to mention* Final draft: *Learning Objective: Students are able to identify*
	-	Link	First draft: *https://bit.ly/3tBcpyz* Final draft: *bit.ly/MYlocal_folklore*
	-	Reference	First draft: *there is no any reference of any pictures that have been used* Second draft: *the reference is located in the last slide*

The revision of media aspect

All of the methods used to evaluate the media demonstrate that the reading materials are appropriate in terms of language, navigation buttons, and screen appearance. However, there are some revisions that should be done. The revision of content media would be shown on the table.

Table 2 The revision of media aspect

Suggestion	Action
Better has reading text, not only assignment task	Provide more reading text in the textbook
Provide grammar focus to help students finish the task because the questions are related to verb form	Provide grammar focus in the textbook
Pay attention to the quality of pictures	Change the pictures into better quality
Use parallel structure	Correct the sentences in the instructions

3.7. The final draft of reading material

Based on the expert judgment's feedback, the final draft of reading materials using interactive multimedia was created. The final version of the interactive multimedia is described in the explanation that follows.

3.7.1. Learning objectives

In the first draft, the researcher used word 'Learning Goal' in the first slide to show the learning objective to students. After the revision, the word changed into 'Learning Objective'.

3.7.2. References

In the first draft, the researcher did not put any references to pictures or passage in the material; however after the revision the researcher put references in the last slide.

3.7.3. Revising pictures and vocabularies

In the first draft, the pictures used are a combination of cartoon pictures and real people, also without paying attention to the quality of the pictures, so that in some places the pictures look less pleasing to the eye. After the revision, the researcher replaced several cartoon pictures with original human pictures and also replaced low quality pictures with high quality ones.

3.7.4. Revising link

In the first draft, all available links to the material are made through Bitly to simplify the links, however the expert suggested changing the link to make it easier for students to remember.

3.7.5. Adding task

In the first draft, the given task consists of four tasks consisting of different instructions, such as matching picture, fill the blank and truth or false. After the revision, the researcher added some task so students will not feel bored.

3.7.6. Small group trial

In small group trial, the researcher asked an instructor to teach the reading material that had been developed, which is daily routine topic. The number of students in the small group trial was three students who were chosen heterogeneously, namely students with high, medium, and low abilities. After the instructor taught reading material, students are asked to take a test. From the results it was found that,

Table 3 Small group trial

Student	Task 1	Task 2	Task 3	Total score	Nilai dalam KKM
1	8 correct	6 correct	9 correct	23	100
2	8 correct	6 correct	9 correct	23	100
3	8 correct	6 correct	7 correct	21	91

The instructor then gave a response that the material that had been developed was able to increase students' vocabulary, especially in describing daily activities.

3.8. Big group trial and result of test

In big group trial, the researcher conducted the trial in two different classes that have been put together. The class consists of eleven students, namely four students aged 12 years old, five students aged 11 eleven years old, and two students aged 10 years old.

In the big group trial class, the material taught is local folklore. From the evaluation results in this trial, it was found that;

Table 4 Big group trial

Student	Task 1	Task 2	Task 3	Total score	Nilai dalam KKM
1	4 correct	5 correct	3 correct	12	75
2	4 correct	5 correct	7 correct	16	100
3	4 correct	5 correct	2 correct	11	68
4	4 correct	5 correct	7 correct	16	100
5	4 correct	5 correct	1 correct	10	62
6	4 correct	5 correct	5 correct	14	87
7	4 correct	5 correct	3 correct	12	75
8	4 correct	5 correct	7 correct	16	100
9	4 correct	5 correct	6 correct	15	94
10	4 correct	5 correct	5 correct	14	87
11	4 correct	5 correct	7 correct	16	100

From the results of the post-test, it was found that 81.8% of students were able to get a complete score based on the KKM that had been set.

4. Discussion

The objectives of this research are to find out what is the target needs and learning needs of students to develop appropriate interactive multimedia for young learners to increasing their reading comprehension. The result of this research is reading material that focus on increasing students' vocabularies.

The research was conducted in MY LIBERTY International English School, an English course located on Sultan Botutihe Street. The population sample of this research was 16 instructors who have taught at MY LIBERTY International English School, one Front Office who works at MY LIBERTY International English School and students at the age of 10 until 12 years old.

A needs analysis ought to be carried out when designing the interactive multimedia reading materials that are designed to the preferences of the students' needs. To get specific information about students' learning and target needs, a needs analysis is necessary. However, because students between the ages of 10 and 12 were not yet capable of providing opinions that could be explained, the researcher substituted 16 instructors to provide opinions. Based on their prior experience teaching with reading materials, the opinions of these teachers were gathered. Through the distribution of a questionnaire to the instructors and front office, the data for the needs analysis were gathered.

From need analysis, the researcher found out that in terms of reading, most instructors prefer to have texts based on local culture. Meanwhile, the learning methods used still tend to be traditional, such as using scanning and scamming. This is certainly not in accordance with technological developments. On the same hand, from the summarized analysis it was also found that students preferred the internet to be involved in the teaching and learning process with a group discussion system. In addition, based on interview with front office, the researcher found out that students take English course because they are asked by their parents and want to stay in an environment where they can apply English. This situation requires that the instructor must be able to create an interesting atmosphere so that students can enjoy learning English. Using interesting material can make students interested in learning, especially learning foreign languages. Furthermore, the available learning resources are only provided by the course, namely textbook. Meanwhile, due to limited learning resources, instructors need more time to look for additional materials and worksheets. This can make the instructor lose a lot of time, thus developing reading material is very necessary. Students who take courses at MY LIBERTY International English School come from various schools with varying ages and genders. However, due to the elimination of English subjects in elementary schools, many students have lack of knowledge in English subject. For that, focus on improving vocabulary is very necessary. Additionally, course schedule is held every 2x a week with 90 minutes for each meeting. So, in a month students learn English for 720 minutes. With this, material design must be able to take advantage of the time available. As non-formal education, namely an educational path outside of formal

education that can be carried out in a structured and tiered manner, students are not required to complete all the programs offered. So the material provided must be right on target.

The next step after conducting needs analysis was setting the learning objectives. After the analysis was conducted, it is easier to set the goal for each reading topics. After learning objectives are set, the next step was analyzing the resource, which is internet availability at the research site. the researcher found that the provider used by the course was a commonly used provider, namely Telkom. In general, there are rarely problems during students' use of the internet, but if there are problems with the connection, the course staffs contact the internet provider operator so that the problem is resolved immediately.

The next step was developing the first draft of reading material. In the developed interactive multimedia, there are four topics that have been chosen. These four topics are studied in different months. The titles of the topics are *Daily Routine, Tourism Object, Unforgettable Moment,* and *Local Folklore.* Each topics consist of several slides that divided into title as the first slide, second slide is the text that students need to read, the next few slides are vocabularies in focus that students need to study, the last slide is references. After studying the material connected to the internet, students then work on the tasks provided in the textbook. There are four types of tasks, namely matching picture, fill the blank, truth or false, and discussion.

The expert judgment is the next step after the reading material has been completely designed. Through the distribution of questionnaires related to the content aspect and the media aspect, the product is evaluated by two reputable experts. Two design and content-related questionnaires served as the expert judgment instruments. Both questionnaires were adapted from Instrumen Penilaian Multimedia Pembelajaran by Drs. Sriadhi, ST., M.Pd., M.Kom., Ph.D. For the content aspect there are 13 statements categorized into two groups, which are content of material and evaluation appropriateness. For the media aspect, there are 10 statements provided.

Based on research findings, the reading material for students aged 10 until 12 years old that has been developed is appropriate with the students' target needs and learning needs.

The final step is to evaluate the material that has been developed with a small group trial. Two classes were used as trial groups. The first class consisted of five students. The results obtained from the post-test were as much as 80% of students were able to get more than the KKM standards that had been set. While the second class of six students got 83.3% of the post-test results. The learning outcomes after the material is completed are having 80% of all trial subjects meet learning mastery, then the effectiveness has been met (Yamasari, 2010).

5. Conclusion

This research has three main research objectives namely describing the target needs and the learning needs of young learners and developing appropriate interactive multimedia for young learners to increasing their reading comprehension. Based on the research findings, the target needs are listed below:

- The available reading materials are old topics such as fairy tales or articles about the daily lives of west people. The instructors explained that reading material about local culture; in this case Gorontalo culture is needed. Topic about local culture is needed because it is not only improving students' reading skills, but also to inquire students needs to understand the local culture better.
- 43.75 percent instructors stated that learning process in the classroom is where the instructor explains the material and followed by the students working on worksheet individually. This method is still relatively traditional and needs improvement to make it more relevant to this era.
- Instructors have to find additional material from various sources on the internet. This shows that the reading material provided by course is not enough to develop students' reading skills.
- Students prefer to study and share information in groups, while the reading materials provided by the course only focus on individual activities. Based on this result, it can be concluded that reading material should be more centered on group activities where students can communicate with each other.
- Instructors need the internet as part of the learning media and discussion as a part of learning methods.

Furthermore, the learning needs are listed below:

- Students take English courses because they are asked by their parents and want to stay in an environment where they can apply English.

- The available learning resources are only provided by the course, namely textbooks. Meanwhile, due to limited learning resources, instructors need more time to look for additional materials and worksheets.
- Students who take courses at MY LIBERTY International English School come from various schools with varying ages and genders. However, due to the elimination of English subjects in elementary schools, many students have lack of knowledge in English subject. For that, focus on improving vocabulary is very necessary.
- Course schedule is held every 2x a week with 90 minutes for each meeting. So, in a month students learn English for 720 minutes.

The developed reading materials using interactive multimedia can be categorized as very high appropriate based on expert judgment. In developing the reading material, the researcher followed ADDIE development model proposed by Branch (2009) with some adaptation. The steps are Analysis, Design, Development, Implementation, and Evaluation.

- In the Analysis step, the researcher analyzed needs based on the theory of Hutchinson and Waters, which are divided into target needs and learning needs. Thus the researcher analyzed setting, students' needs, and materials from instructors' questioner.
- In the Design step, the researcher designed the reading material based on the target need and learning need that has been obtained from the previous step. After the first draft have been was developed then first draft of the reading material was evaluated by two credible experts using instruments from Learning Multimedia Assessment instrument compiled by Sriadhi, P.hd. The researcher then revised the reading materials on the basis of the expert judgment's findings then the reading materials' final draft was created.
- In the Development step, small group trial has been done by one instructor with three students who were chosen heterogeneously, namely students with high, medium, and low abilities. Following the small group trial, the respective instructor gave the opinion regarding of the reading material that have been developed. According to the instructor, the material that had been developed was able to increase students' vocabulary, especially in describing daily activities.
- In Implement step, the research taught the reading material to eleven students.
- In Evaluation step, the researcher evaluated students' learning outcomes (test). The result was 81.8% of students were able to get scores past the KKM standards that had been set.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

References

[1] Allwright, R. 1982. Perceiving and Pursuing Learner's Needs. In M. Geddes, & G. Sturtridge (Eds.), Individualization. Oxford: Modern English Publications.

[2] Branch, R. M. 2009. Instructional Design-The ADDIE Approach. New York: Springer. Teori dan Pengembangannya. Yogyakarta: Andi Offset.

[3] Dikembangkan, & Sriadhi, S. & Pd, M & Kom, M. (2019). INSTRUMEN PENILAIAN MULTIMEDIA PEMBELAJARAN.

[4] Elendiana, M. 2020. Jurnal Pendidikan dan Konseling. Indonesia: Universitas Kristen Satya Wacana.

[5] Green, TD & A. Brown, 2002. Multimedia Project in the Classroom. USA: Corwin Press, Inc.

[6] Hidayati, D. N & Haryati, S. 2018. Target and Learning Needs in English for Midwifery Students. Leksema, 3(1), 72.

[7] Hutchinson, T. & Waters, A. 1987. English for Specific Purposes: A Learning-Centered Approach. Cambridge: Cambridge University Press.

[8] Sugiyono. 2013. Metode Penelitian Kunatitatif, Kualitatif, Dan R&D. Bandung : Alfabeta.

[9] Yamasari, Y. 2010. Pengembangan Media Pembelajaran Matematika Berbasis ICT yang Berkualitas. Surabaya: Seminar Nasional Pascasarjana X-ITS.