Developing augmented reality novel games as English learning media for reading narrative texts

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ABSTRACT

Incorporating augmented reality (AR) into education is increasingly vital for fostering engagement and interactivity, particularly in language learning, where narrative text plays a central role. The objectives of this study were to (1) ascertain the participants' target demands, (2) analyze their English-language learning needs, and (3) create an augmented reality novel game as a teaching tool for narrative text. This research and development project (R&D) was conducted. Junior high schoolers were the subjects; they were 15 males and 17 females. This study was done using a 4-D model. Participants were given questionnaires to complete, and an English teacher was interviewed as part of the need analysis. The instruments used to collect the data were the needs analysis questionnaire, interview guidelines, expert judgment rating scale, and student review questionnaire. The result of this study is an augmented reality novel game as English learning media, which was created after taking into account the findings of the needs analysis, professional opinion, and student evaluation. It consists of narrative texts in general and augmented reality books that serve as instances of narrative texts. The developed media's overall average score was 3.65. The created interactive learning multimedia was therefore categorized as suitable. According to the students' review findings, most augmented reality novel games are excellent and appropriate.

INTRODUCTION

Modern education has seen a rise in mobile learning, particularly in studying English. According to Naciri et al. (2020), "Mobile learning provides a flexible and accessible avenue for remote learning and teaching, allowing students to engage in learning anywhere and at any time. However, due to their widespread use among students, smartphones are frequently used only for amusement, thereby missing meaningful learning opportunities. So, to fully utilize the educational potential of mobile devices, creative strategies that grab students' attention and meet their educational goals are required. Games, which are known for their interactivity and engagement, have the potential to boost motivation and improve learning outcomes (Gee, 2023). The educational experience can be enhanced by adding multimedia components to game-based learning, such as graphics, audio, and video (Prensky, 2001). Augmented reality (AR) technology seamlessly overlaps digital content with

the actual world and helps create immersive and engaging learning environments (Dunleavy & Dede, 2014). The application of AR in English language learning has particular potential since it can facilitate contextual language use and experiential learning (Lai et al., 2019).

Schrader et al. (2018) have advocated incorporating multimedia elements to enrich learning outcomes and engagement in digital environments. Her innovative strategies align seamlessly with the objectives of inclusive education. According to Tai (2022), Augmented reality (AR) within education creates immersive and interactive learning environments and facilitates learning through dynamic mediums. Similarly, Titus and Ng'ambi (2023) delve into the potential of narrative education and digital storytelling to craft captivating learning experiences.

Shifting the focus to game-based learning, Lai et al. (2019) are recognized for their research on the positive impact of gamification on student motivation and outcomes. His expertise harnesses the power of gaming. On a different note, Manna (2023) offers a distinct perspective that bridges pedagogical design and technology integration, her study of pedagogical strategies that fuse technology, pedagogy, and student interaction. In contrast, Kohnke (2020) delves into immersive technologies, such as augmented reality, motivation, and engagement in language learning by drawing from educational psychology and technology integration.

Lai et al. (2019) adeptly navigate the landscape of digital literacy and pedagogy, emphasizing technology's pivotal role in shaping the nature of language learning experiences. His scholarly pursuits align digital tools for dynamic and interactive learning journeys. Meanwhile, Braad et al. (2021) shape environments that foster language acquisition through engaging and challenging encounters in gamification and education. Cubeles and Riu (2018) reveal the integration of multimedia elements and technologically enhanced pedagogies, creating a supporting environment that effectively captivates students.

Furthermore, Baabdullah et al. (2022) expose instructional design and technology and employ her expertise to devise strategies for incorporating augmented reality into language programs. Her work contextualizes experiential learning and uses immersive experiences to accelerate language acquisition. Taeger and Yanchar (2019) probe how digital technologies, including augmented reality, enhance narrative-based learning, bringing the enchantment of digital storytelling and narrative pedagogy to the forefront. Becker and Nguyen (2017) delve deep into interactive media and learning technologies, illustrating how cutting-edge tools like augmented reality (AR) foster interactive and experiential language learning while enhancing engagement with real-world resources.

Titus and Ng'ambi (2023) notably focus on language learning, promoting participation, teamwork, and practical communication skills. By creating and evaluating technology-mediated learning environments tailored to diverse learning styles, Manna (2023) has discovered technology-enhanced language education. Youngs (2021) probes the potential of augmented reality to enhance language acquisition through authentic, real-world contexts. In parallel, Kear et al. (2022) align instructional design with technological integration to fuel innovation and active engagement in language learning.

This study develops an English learning tool called augmented reality novel games to improve the learning of reading narrative texts. Innovative opportunities arise to create a more immersive and practical educational experience. Although the significance of narrative text in language education is well-established, it is vital to consider evolving learning needs and the digital age's transformative potential. While traditional approaches to narrative text teaching may take time to reveal a research gap, integrating augmented reality (AR) technology in this context presents an intriguing avenue for exploration. Research in this area can enhance narrative text comprehension, language proficiency, and critical thinking skills in a digitally mediated learning environment, ultimately bridging traditional practices with contemporary learning tools. The main objective is to create a helpful learning tool that appeals to students' interests while fitting into the rapidly changing digital environment. Based on this research, the constructivist learning paradigm emphasizes active participation, teamwork, and producing meaningful learning experiences (Vygotsky, 1980).

The goals of the study span three areas: (1) a careful examination of participants' individual learning needs; (2) a thorough investigation of students' complex learning needs in English language acquisition; and (3) the development of an augmented reality novel game, designed as a teaching tool

that complements the nuances of learning narrative texts. This study aims to create an interactive, immersive learning environment that stimulates motivation and improves understanding by seamlessly fusing narrative text resources with augmented reality technology. The project's finale is an Augmented Reality Novel Game that presents narrative texts creatively and interestingly. Insights from expert assessments, student comments, and needs analysis are combined during creation.

This study develops a suitable integration between narrative text and augmented reality technology. The contribution of this research will make a difference to the English language teaching landscape, which is expected to change due to the integration of gaming elements and multimedia engagement. We want to maximize the use of mobile devices for educational enrichment by meeting the learning demands of middle school students on a dynamic platform.

METHOD

Type of the Study

This research was classified as R & D using Semmel et al. (1974) Four-D model, which was simplified. The research comprised four stages: definition, design, development, and dissemination.

Research Subjects

The respondents of this study were grade 8 students, consisting of 17 female and 15 male students. There was also an interview with an English teacher.

The Procedure of the Study

This research was conducted using the Four-D model (4D model). The Four-D model was chosen because it is systematic and suitable for developing learning media, and the development results obtained have been revised based on expert judgment before being tested on students. The stages of the Four-D model are as follows:

Define

The initial stage in the 4D model is defining the development requirements. Simply put, this stage is the needs analysis stage. In product development, developers need to refer to development requirements, analyze, and collect information on the extent to which development needs to be carried out. According to Semmel et al. (1974), this stage aims to state and define instructional requirements. The initial phase was primarily analytical. The researcher explained the learning needs and collected various information related to the product that would be developed by conducting an analysis. In this stage, the researcher analyzed the students' condition, the material, and the tasks. In the "define" stage, the researcher would also conduct the following subcategories to comprehend the scene:

1. Front End Analysis
   Problem analysis is a process for breaking down complex substances or problems into smaller parts to gain a better understanding. This analysis determined the underlying issues in developing Augmented Reality Novel Games. At this stage, the researcher found the facts and the alternative solutions to make it easier to determine the initial step in developing the learning media.
2. Learner Analysis
   To carry out an optimal learning process, educators must first analyze their students, including general, academic, and unique characteristics that can influence their abilities, intellect, and learning process. Learner analysis was fundamental at the beginning of the planning. This analysis determined the students' characteristics, abilities, and experiences. The study included the attributes of academic knowledge, background experiences, and students' motivation to learn English.
3. Task Analysis
   Analyzing and describing how humans carry out their duties/work, whatever they do/do, what equipment to use, and what things are needed was aimed at identifying the main tasks that students would do. It analyzed the essential competencies and the indicators related to the material used in developing the media in Table 1.

Table 1. Basic Competencies

No.	Basic Competencies	Basic Sub Competencies
1	Explaining the text structure of narrative texts in the form of fairy tales by their contextual use.Understanding the social function, text structure, and linguistic elements of narrative texts in the form of fairy tales by their contextual use.	a. Explaining the social function of narrative texts in the form of fairy tales by their contextual use. b. Explaining the linguistic elements of narrative texts in the form of fairy tales by their contextual use. c. Explaining the text structure of narrative texts in the form of fairy tales by their contextual use.
2	I am comprehending the meaning of short and straightforward oral and written narrative texts in the form of fairy tales.	Extracting detailed information from short and simple oral and written narrative texts in the form of fairy tales

4. Concept Analysis

Concept analysis aimed to define the content of the Augmented Reality Novel Game. The study was conducted by making mind mapping, and the concept was used to achieve the specific competencies. The analysis was made by systematically identifying and compiling the main parts of the learning materials. The mind mapping can be found in the Figure 1 below.
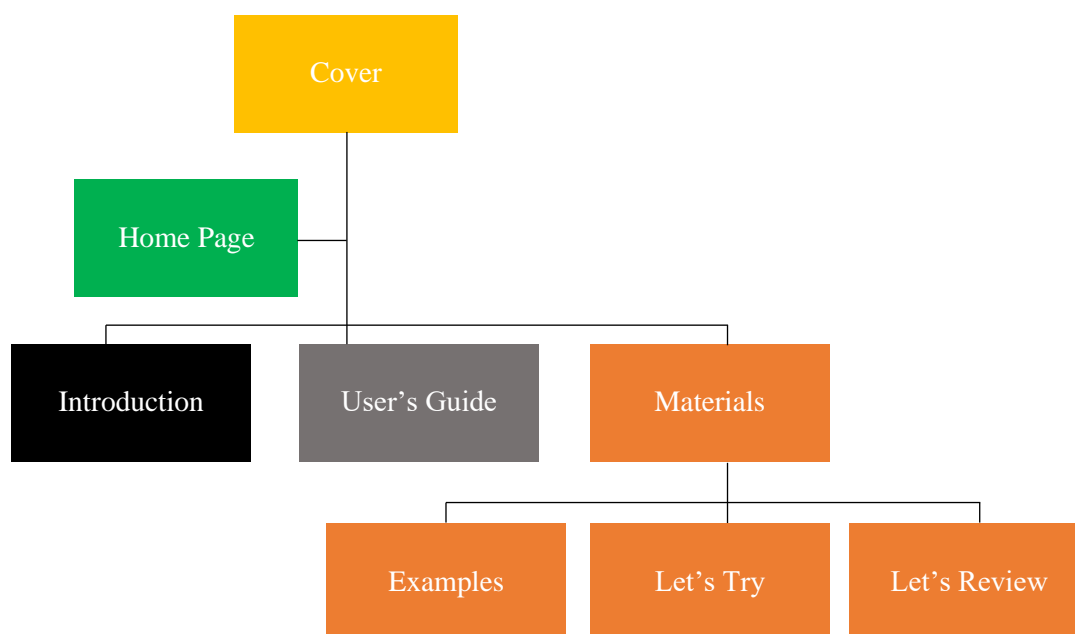

Figure 1. The Mind Map

5. Specifying Instructional Objectives

The purpose of the specifying instructional objective was to determine the achievement indicators of learning based on the material analysis and curriculum analysis. By specifying the learning objectives, the researcher could discover the contents displayed in the Augmented Reality Novel Game, the question grid, and the achievement indicators of learning.

Design

This stage intends to design Augmented Reality Novel Games that can be used as English learning media. The design stages include.

1. Constructing Criterion-Referenced Tests

Constructing criterion-referenced tests based on the learning objectives at the learners' cognitive level. Criterion-referenced tests bridge Stage 1, Define, and the Design Process. Criterion-referenced trials convert behavioral purposes into an outline for the instructional material. The learning objective is identifying narrative texts' social functions, structures, and linguistic

elements. According to that learning objective, can be constructed the question lattices of test such as about what is the purpose of the text, analyzing the structure of the text (orientation, complication, and resolution), exploring the language features of narrative text such as the specific participants, the use of past tense, the use of action verbs, the time conjunctions, the adverb of time, the use of direct speech, and whether what is said in the text is relevant to the student's experience. These tests evaluate a learner's abilities and familiarity with reading, comprehending, and evaluating narrative texts. Each task has a specific objective or criterion the learner must achieve to complete successfully. Each task fits with the idea of criterion-referenced testing in the following ways:

a. Explaining the Social Function

In this activity, students are tested on their ability to comprehend and explain the social function or aim of narrative texts (fairy tales) in the context in which they are used. Most of the time, with an accuracy of 80% or higher, accurate descriptions of the social role may be one of the success criteria.

b. Explaining Linguistic Elements

In this activity, students are assessed on their understanding of the linguistic components—such as using a particular language, vocabulary, or literary devices in narrative texts. A specified percentage may be used as the success threshold, and the success criterion may suitably detect and explain linguistic features in a certain number of the tested texts.

c. Explaining Text Structure

In this activity, students practice identifying and describing the structural components of narrative texts, such as the introduction, the development of the plot, the climax, and the resolution. Success might be characterized as correctly describing the text structure in 90% or more examples.

2. Media Selection

It was carried out to determine which instructional media would best suit the learners' demands and the subject's features. Matching the learner analysis, task analysis, concept analysis, and distribution plans was a step in this approach. The choice of media was crucial in assisting students in meeting their learning goals.

3. Format Selection

Format selection is closely related to media selection. Format selection was conducted so that the selected format was appropriate to the learning material and the media. Format selection in the media development was made by designing content, choosing the proper approaches and learning resources, and organizing and designing visual novel games (layouts, images, and text).

4. Initial Design

The researcher developed the Augmented Reality Novel Game idea during this phase and shared it for comments. Before production, the Augmented Reality Novel Game media was improved with the help of the feedback gathered. This concept eventually advanced to the validation stage, representing the first draft of the Augmented Reality Novel Game media after changes were made based on suggestions for improvement.

Develop

The development phase is intended to modify the Augmented Reality Novel Game. Semmel et al. (1974) explained that feedback was received through formative evaluation in the development stage, and the media were suitably revised. The revision is based on input from experts. The steps in this stage are:

1. Expert Validation (Expert Appraisal)

Expert validation aimed to obtain suggestions for the improvement of the media. The expert validation is intended to validate the content of the Augmented Reality Novel Game. Before the developmental testing, the validation results would be used to revise the initial product of the game. Experts from English lecturers would assess it and were media experts and material experts. Therefore, it could be known whether the media was feasible or not.

2. Developmental Testing

Developmental testing involves trying out the material with actual learners to identify the sections that need revision. Based on the learners' responses, reactions, and comments, the media is then revised. This testing, revising, and retesting cycle is repeated until the material consistently and effectively works.

Dissemination Phase (Disseminate)

After reaching its final production stage, the Augmented Reality Novel Game was disseminated to only English teachers, with consistent results from developmental testing and positive expert appraisal.

Instrument and Data Collection

The study utilized questionnaires and interview guidelines to collect data and support media development. For data collection instruments to be considered feasible, they must meet specific criteria for reliability and validity in the scores they collect. Experts have validated the interview guidelines, need analysis questionnaire, expert judgment questionnaire, and a student review questionnaire.

The questionnaire of the materials was adapted from BSNP, which evaluates the appropriateness of the content, language, presentation, and layout. A student questionnaire and interview guidelines were used for need analysis. Media and material experts evaluated the first draft, revised it, and improved it based on expert judgment. A student review questionnaire was used for developmental testing.

Analysis Data Technique

The collected data analysis will determine the resulting product's assessment and opinions. The percentage of each answer on the needs analysis questionnaires was calculated using a specific Formula 1.

$$P = \frac{f}{n} \times 100\% \tag{1}$$

The tendency of the students related to the condition is determined by marking the highest percentage of responses for each question. Qualitative data was collected from the interview. Besides that, qualitative data was also obtained from experts' comments or opinions on their assessment of the materials and media. The data from the teacher's interview were presented as transcripts and analyzed qualitatively through descriptions. The teacher's interview was analyzed using thematic analysis.

The Likert scale is used to measure the results of an expert judgment questionnaire. The questionnaire results are calculated using Formula 2 proposed by (Suharto, 2006), where R (range), Xh (the highest score), Xl (the lowest score), and 4 (range of Likert-scale). Besides that, Suharto (2006) suggested converting the data to descriptive analysis and measuring using the Mean (χ) in Formula 3 quantitative data conversion in Table 2 below (Suharto, 2006).

$$\mathcal{R} = \frac{Xh - Xl}{4} \tag{2}$$

$$Mn(\chi) = \frac{\Sigma fx}{n} \tag{3}$$

Table 2. Quantitative Data Conversion

No.	The Interval of The Means Score	Descriptive Categories
1	$3.25 \le X \le 4.00$	Very Good
2	$2.50 \le X \le 3.24$	Good
3	$1.75 \le X \le 2.49$	Fair
4	$1.00 \le X \le 1.74$	Poor

A media review questionnaire was given to students after they used the Novel Augmented Reality Game. The questionnaire consists of closed questions with answer choices on a Likert scale. The Likert scale is a quantitative data measurement scale obtained or often found in questionnaires when conducting specific surveys regarding what will be researched. The Likert scale is a research scale used to measure a person's or group's attitudes and opinions regarding an event or social phenomenon based on the operational definition established by the researcher. This scale is used to complete a questionnaire that requires respondents to indicate their level of agreement with a series of questions. Likert scale (1-5), including Strongly Agree, Agree, Disagree, Disagree, and Strongly Disagree.

RESULTS AND DISCUSSION

Results

Define

1. Front End Analysis
   Most visual novel games for Android are on itch.io. Visual novels are interactive stories. Graphic novels are adventure games that focus on storytelling, so players often only read narratives on personal computers/smartphones that display images, text, and sound. Visual novels are distinguished from other types of games by their very minimal gameplay. Player interaction is usually mostly limited to clicking to continue on text, graphics, and sound. Recent visual novels offer the option to "play" or "fast-forward" so that this can not happen but still provide narrative choices. They focus mainly on character development and plot rather than action and gameplay. Title of the Visual Novel Game: Country Mouse and City Mouse and Bait Line. Some visual novel game creations also have to rely on coding skills. To overcome this, the researcher used a more straightforward platform, Powerpoint, which can be accessed quickly and widely. The researcher used the UniteAR application to process the AR media because it was user-friendly. The application was easy to use and applicable to various types of smartphones. UniteAR is an augmented reality (AR) platform that allows everyone to create white-labeled AR Apps, WebAR plugins, and AR experiences without coding.

2. Learner Analysis
   After that, the researcher distributed a questionnaire to know the analysis of the students. The researcher chose the students to be the respondents. The students primarily wanted to improve their reading fluency and comprehension, enrich their vocabulary, and accurately answer questions based on the texts. They believed reading activities would help them overcome difficulties with vocabulary, grammar, and text structure. Additionally, they expressed an interest in learning about the English language and culture to improve their communication skills. Students are motivated to learn with pictures and audio-visual and printed media, often using smartphones. They can learn independently or in groups. Media and technology are effective, and teachers and friends are available to help.

3. Task Analysis
   Each task that has been designed certainly has defined core competencies and essential competencies. Therefore, based on the Core Competence-Basic Competences, students were expected to compare social functions, text structures, and linguistic elements of some texts in narrative text. Based on the teacher interview, the learning method usually used is home learning and assignment. Therefore, in this research, the students will be given two narrative texts to be analyzed as the assignment during distance learning.

4. Concept Analysis
   The first step for researchers is to create the opening of a Visual Novel Game. The door contains a menu that will guide students to the learning material. This aims to attract students' attention and motivation before entering the core of teaching and learning activities. It displays the narrative text's social function, structure, and linguistic elements. There are examples of narrative texts below in Figure 2.
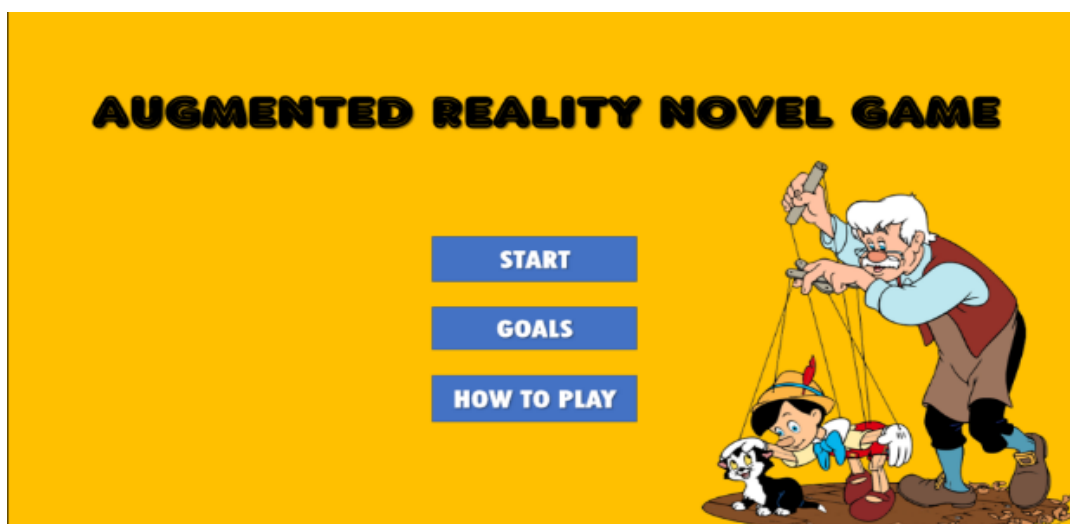
Figure 2. The Menu

The next stage focuses on developing students' narrative text analysis skills, covering aspects such as text purpose, structure (orientation, complication, and resolution), language features (participants, past tense, action verbs, time conjunctions, adverbs of time, and direct speech), and relevance to the student's experience. There are two narrative texts in the augmented reality book that students analyze. The book contains the narrative text, related vocabulary, and tasks/discussions on the narrative's social function, structure, and language features.

5. Specifying Instructional Objectives
The learning objective of this material is to identify the social function, text structures, and linguistic elements of narrative texts, particularly fairy tales.

Design

1. Constructing Criterion-Referenced Tests
The construction of criterion-referenced tests is based on the learning objectives at the learners' cognitive level. The learning objective is identifying narrative texts' social functions, structures, and linguistic elements. Test question lattices can be constructed based on learning objectives, including analyzing text purpose, structure (orientation, complication, resolution), and language features such as participants, past tense, action verbs, time conjunctions, adverbs, direct speech, and relevance to the student experience. The pictures beside the text are examples of AR below Figure 3.

Figure 3. The Type of Narrative Text

2. Media Selection

   The researcher analyzes material characteristics and learners' needs in selecting appropriate media. Media is determined based on needs, learner, concept, task, and instructional analysis. Audio-visual media in the form of an augmented reality game was chosen for this study on narrative texts. The selection of this media was also based on the learners' need for engaging learning media to learn about narrative texts. Implementing augmented reality in education provided the potential for portable and accessible media. The students could access the media and the materials anytime and anywhere. Therefore, with augmented reality, education has become more accessible and mobile.

3. Media Selection

   After selecting the media, the researcher chose the format for making the augmented reality novel game. The format selection aimed to make the learning media accessible and can be used in education, especially in audio-visual-based learning. The format chosen for the visual novel was a slides-based visual novel game using the PowerPoint platform. Currently, the development of the technology and its wide availability are advantageous, so that access and use of applications via the slides are much easier and more practical. With the existence of a PowerPoint-based authoring tool, the researcher can easily create visual novels with ease and the availability of unlimited access using their computer. This graphic novel game is based on a Graphical User Interface, which does not require an editor with coding skills. Editors do not need to learn a scripting language, thus providing an opportunity for novel writers to create their visual novel works online. In addition, the players or the students can play graphic novels that can be accessed anywhere online without installing the graphic novel. Besides that, the researcher made two augmented reality books that provide QR codes that the students could scan to get the optical audio of the narrative text. The scanning process was simple. It just needed the UniteAR application to scan the barcodes.

4. Initial Design

   The researcher initiated building the augmented reality novel game during this procedure and solicited input. Before manufacturing, the Augmented Reality Novel Game material was improved using the feedback collected. The concept then advanced to the validation step, representing the first draft of the Augmented Reality Novel Game media, after adjustments based on suggestions for improvement. In this AR book, the researcher encourages students to discuss the narrative text's social function, generic structure, and language features in Figure 4.
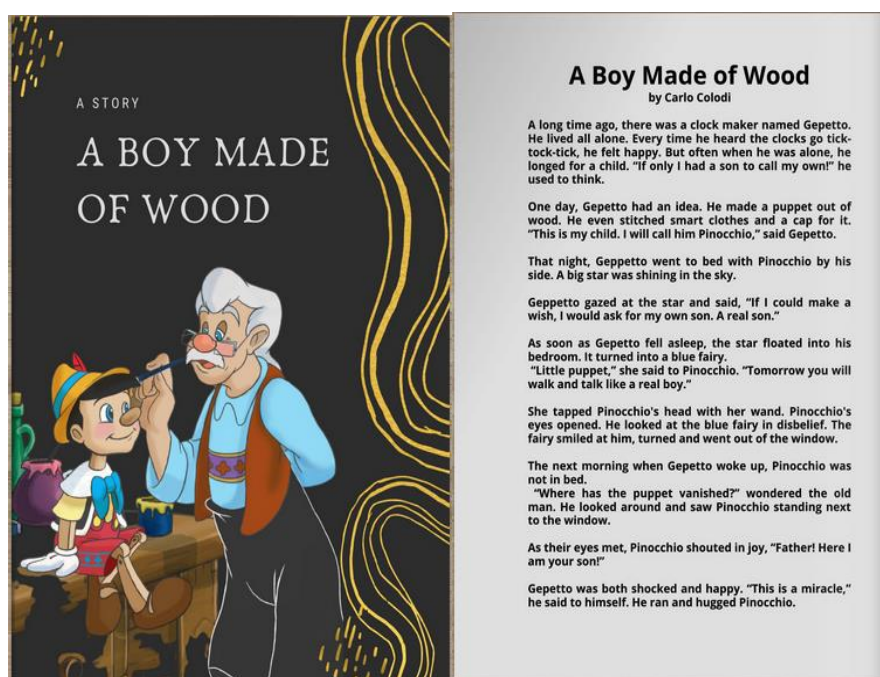
Figure 4. The Cover of "A Boy Made of Wood" AR Book

Develop

This stage aims to produce the Augmented Reality Novel Game, which the researcher has revised based on expert appraisal and development testing for the students. There are two stages:

1. Expert Judgment

    After creating the initial draft of the augmented reality novel game, the next step was to gather expert feedback on the appropriateness of the product's materials and media. The questionnaire used to assess the materials was adapted from BSNP and covered content, language, presentation, and layout. The second questionnaire uses the Likert scale to evaluate media design, audio availability, autonomous language learning, and media illustrations. An expert evaluates the interactive multimedia and offers feedback and suggestions in open-ended questions.

    a. Materials

        The questionnaire showed a mean score of 3.70, which falls under the "Very Good" category according to Suharto (2006) quantitative data conversion. This suggests that the augmented reality novel game materials are appropriate for eighth-grade students. Table 3 below presents the results of expert judgment regarding the media aspect.

Table 3. The Appropriateness of the Materials

No.	Statements	Score	Criteria
Content Appropriateness			
1	The Materials are Appropriate for Core Competence Basic Competences of Narrative Text for Grade VIII of Junior High School	4	Very Good
2	The Materials are Relevant to The Discussed Topics	4	Very Good
3	The Materials can Develop Students' Understanding About Narrative Text	4	Very Good
4	The Materials are Appropriate for The Students' Competence in Narrative Text	4	Very Good
5	The Tasks Already Follow The Steps of The Scientific Approach	3	Good
6	The tasks already follow the steps of the scientific Approach	3	Good
Presentation			
7	The Tasks Are Arranged Systematically, From The Very Easy Task To The Complicated Ones	3	Good
8	The Pictures/Figures/Sound/Tables are Interesting Enough to Motivate The Students to Learn	4	Very Good
9	The Materials Contain Opening, Main, and Closing Activities	3	Good
10	The Materials Involve Students to Participate to Complete The Tasks Actively	4	Very Good
11	The Activities of The Materials are Varied	3	Good
Language			
12	The Use of Language is Clear and Relevant to The Proficiency Level of Junior High School Students	4	Very Good
13	The Instructions of The Tasks are Clear and Easy to Understand	4	Very Good
14	The Materials are Grammatically Correct	3	Good
15	The Materials Reflect The Unity of Ideas	4	Very Good
16	The Teaching of Grammar, Vocabulary, and Pronunciation Of The Materials is Based on Curriculum 2013	4	Very Good
Layout			
17	The Use of The Font is Already Appropriate	4	Very Good
18	The Colors of Materials Support The Materials Delivery	4	Very Good
19	Sources are Available	4	Very Good
20	The Developed Materials can be Used by Teachers and Students Easily	4	Very Good
Total Score		**74**	
Mean		**3.70**	
Criteria		**Very Good**	

b. Media

Things assessed in the media include presentation design, audio and physical appearance, autonomous language learning, and media illustration. The media-related questionnaire received a mean score of 3.60, falling into the "Very Good" category according to the quantitative data conversion method proposed by (Suharto, 2006), indicating that the augmented reality novel game is a suitable learning tool for grade 8 students. The appropriateness of media is shown in Table 4.

Table 4. The Appropriateness of Media

No.	Statements	Score	Criteria
Presentation Design of the Media			
1	The Actions of Completing The Activity are Already Based on The Instructions	4	Very Good
2	The Movement of The Media is Interactive and Smooth	4	Very Good
3	The Media is Simple and Understandable	4	Very Good
Audio and Physical Appearance			
7	The Sound of Pronunciation can be Heard Clearly	3	Good
8	The Composition of The Colors is well Arranged on The Contrast and Brightness	4	Very Good
9	The Texts are Visually Clear and Easy to Read	4	Very Good
10	The Texts, Illustrations/Pictures, and The Instruction Are Good Enough to Motivate The Students to Learn	3	Good
11	The Layout is Consistent	4	Very Good
	The Layout of The Whole Materials is Interesting.		Very Good
Autonomous Language Learning			
12	It is Easy for The Students to Review Certain Parts for Which They Need More Practice	3	Good
13	The Media Allow Students to Redo any Parts of The Present Segment	3	Good
14	The Score of The Evaluation Done by The Students can be Directly Shown	3	Good
Illustration of the Media			
17	The Illustration Makes The Information is being Easier To Recall.	4	Very Good
18	The Use of Illustration Is Appropriate for The Topic of The Materials	3	Good
19	The Use of Illustration is Aesthetic and Functional	4	Very Good
Total Score		**54**	
Mean		**3.60**	
Criteria		**Very Good**	

c. The Revisions

Revision is a process of reviewing work results to make improvements or updates. With revisions, a work can show its aims and objectives more optimally. The revision process cannot be ignored; this is because revisions help make the work we create better than before. Therefore, the developed materials for teaching narrative text need more activities to explore the given texts. They should be clear when the researcher divides tasks into easy-moderate-difficult and opening-main-closing activities. The research introduced additional functions that use the provided texts, including advanced vocabulary lessons and activities to practice guessing word meanings based on context. The researcher also corrected any identified grammar mistakes. According to the expert judgment questionnaire, the overall media unit is good, but certain media activities need improvement to optimize students' reading learning through media. The expert found that the developed media is less practical; it would create an unnecessary problem when used in schools with minimum facilities/students with gadget problems. The revision can be seen in Table 5 below.

Table 5. The Revisions

No.	Point to Revise	Revisions
1	The developed materials for teaching narrative text need more activities to explore the given texts. They should be clear when the researcher divides tasks into easy, moderate, challenging, and opening-main closing activities. The following parts of the display that need to be revised are presented below: Figure 6, Figure 8, and Figure 10.	The researcher gave more tasks for maximizing students' learning. The research added more functions that can be created using the texts. There are some advanced vocabulary lessons, such as making one's sentences using the newly learned vocabulary and activities to introduce the skill of guessing the meaning of a word based on the available information/context in the text. The following part of the revised display is presented below in Figure 7, Figure 9, and Figure 11.

Parts of The Unit
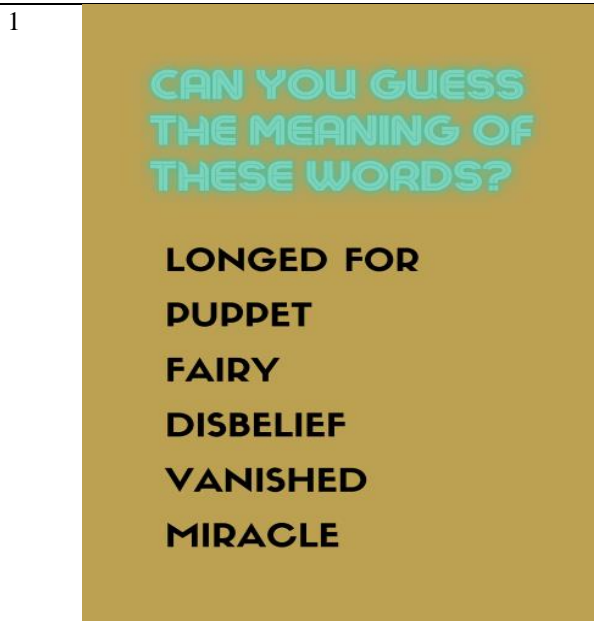
No.	Before	After
1	Figure 6. Vocabulary Task	Figure 7. Let's Review
2	Figure 8. Trivia Game	Figure 9. Matching Words
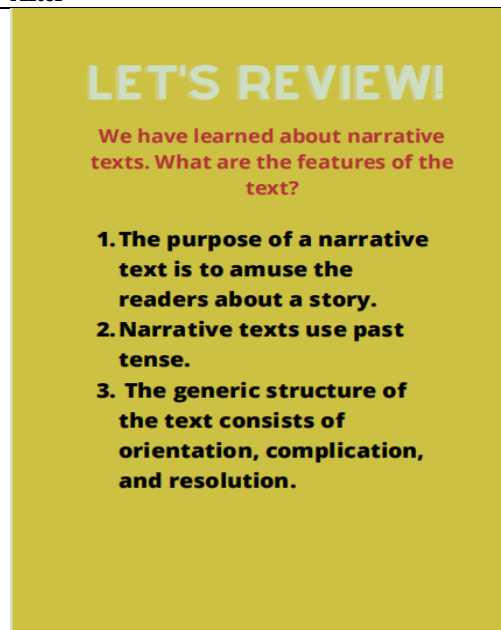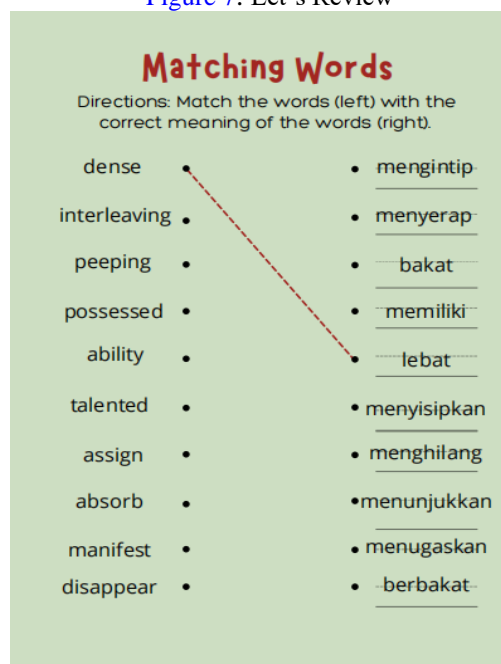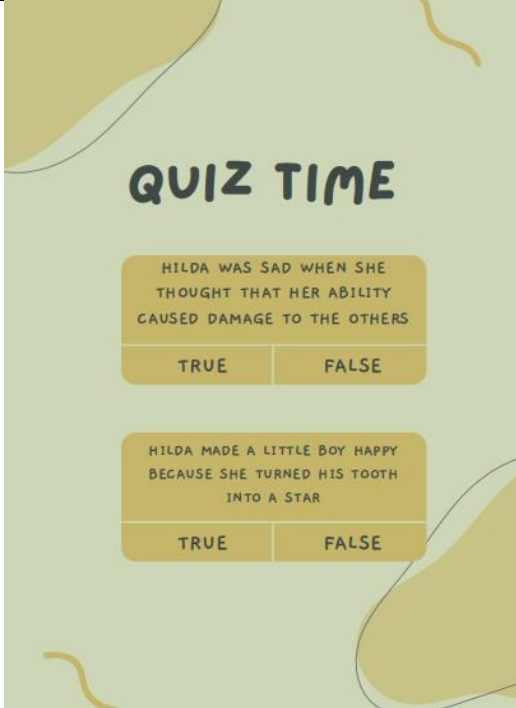
No.	Point to Revise	Revisions
Parts of The Unit		
No.	**Before**	**After**
3.	Figure 10. Quiz Time	Figure 11. Quiz Time

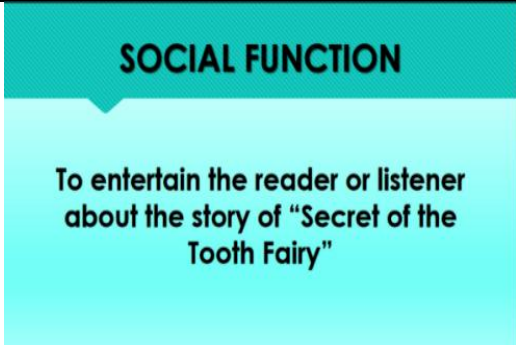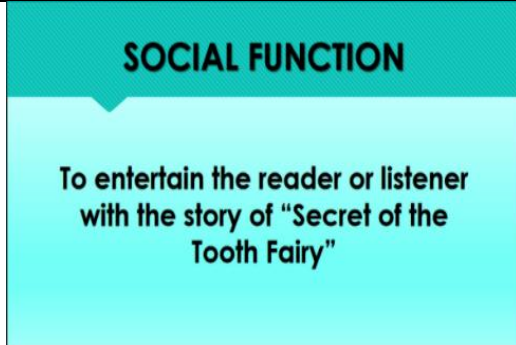| No.	Point to Revise	Revisions
1	There are grammar mistakes in some parts below Figure 12 and Figure 14.	The researcher corrected the mistaken grammar in Figure 13 and Figure 15.
No	**Before**	**After**
1	Figure 12. Social Function	Figure 13. Social Function
2	Figure 14. Language Features	Figure 15. Language Features

Development Testing

After being validated by the expert, the researcher does a small-scale field test to know the result of the learning media application and the review from the students. The result from this stage is the final revised augmented reality novel game. The researcher achieved feedback from the students by giving a questionnaire to them. The results of the questionnaires are described in Table 6 below.

Table 6. The Results of Students' View

No.	Items of Questionnaire	Frequency and Percentage				
		1	2	3	4	5
1	The Materials are Presented Clearly	15	12	3	2	0
		46.9 %	37.5 %	9.4 %	6.3 %	0 %
2	The Materials in The Media are Presented Systematically	14	8	10	0	0
		43.8%	25%	31.3 %	0%	0%
3	The Discussion of The Materials is Easy to Understand	14	10	5	1	2
		43.8 %	31.3 %	15.6 %	3.1 %	6.3 %
4	The Tasks are Presented Clearly	7	18	5	2	0
		21.9 %	56 %	15.6 %	6.3 %	0 %
5	The Language is Easy to Understand	13	11	7	0	1
		40.6%	34.4 %	21.9 %	0 %	3.1 %
6	The Materials and Media are Quite Interactive	14	7	10	1	0
		43.8 %	21.9 %	31.3 %	3.1 %	0 %
7	The Media Motivate Students' To Learn.	15	11	4	1	1
		46.9 %	34.4 %	12.5 %	3.1%	3.1%
8	The Materials Help Students to Understand The Lesson	13	9	8	2	0
		40.6%	28.1%	25%	6.3%	0%
9	The Learning Media can Encourage Students to Learn Independently	11	12	5	2	2
		34.4 %	37.5 %	15.6 %	6.3 %	6.3 %
10	The Learning Media does Not Hang (Stop) During The Operation	13	10	9	0	0
		40.6 %	31.3 %	28.1 %	0 %	0 %
11	The Media Installation Process is Easy	14	11	6	1	0
		43.8 %	34.4 %	18.8 %	3.1%	0 %
12	The Augmented Reality Learning Media has Clear Instructions	14	10	6	2	1
		43.8 %	31.3 %	18.8 %	3.1%	3.1%
13	The Audio Is Clear and does not Disturb The Process	13	15	3	1	0
		40.6 %	46.9 %	9.4 %	3.1%	0 %
14	The Appearance is Interesting	17	9	5	0	1
		53.1%	28.1%	15.6 %	0 %	3.1%
15	The Color Selection and Composition is Appropriate	10	13	8	0	1
		31.3 %	40.6 %	25 %	0 %	3.1%
16	The Layout Setting is Appropriate	12	12	5	2	1
		37.5%	37.5 %	15.6 %	6.3%	3.1%
17	The Navigation (Menu Icons) in The Media is Easy to Use	13	12	4	1	2
		40.6 %	37.5 %	12.5 %	3.1 %	6.3 %

Based on the data above, more than half of the respondents (more than 50% votes) agree and strongly agree that the augmented reality novel game is good and acceptable. The survey results show that the materials and the media are appropriate for the learning process of grade 8 students.

Disseminate

After the product's development, testing, and revising, the next stage is disseminating the product. The purpose of this stage is to spread the augmented reality novel game. In this study, the researcher conducted small-scale dissemination. The developed media is only being shared and limited to the English teachers through telegram.

Discussion

In this study, the researcher investigated the learning needs of Grade 8 students of Junior High School to create suitable learning media. The needs analysis involved distributing questionnaires and interviewing English teachers using the Four-D model approach: Define, Design, Development, and Disseminate. In the define stage, the researcher conducted a need analysis by distributing questionnaires to the grade 8 students and interviewing with an English teacher. The participants were 32 students of grade 8 and an English teacher of grade 8. Regarding target needs, the students mostly wanted to read fluently, enrich their vocabulary, comprehend texts, and answer questions correctly. Reading activities help with vocabulary, grammar, and text structure. They also wanted to learn about the English language and culture to communicate well. Students prefer media and technology to aid reading. They use pictures, illustrations, audio-visuals, and printed materials in large or individual groups. Their smartphones support the learning process, and they comfortably ask their teacher for help. The augmented reality game was developed using data from a needs analysis. The course grid outlined competencies, topics, materials, activities, and language focus.

The next step was developing the media and materials. The developed media was an augmented reality novel game that could be scanned using the UniteAR application. The product is a visual-audio learning media. According to the course grid, two parts of English learning materials were being developed. The first part is the explanations of narrative text in general. The second part is the analysis of the narrative text aspects, such as the social function, the generic structure, and the language features. Each part consists of a random number of tasks. Various tasks are arranged to achieve the objectives of the narrative text's core and essential competencies. The title and learning objective were presented on each part's first page. The expert evaluated the media and materials via a questionnaire based on BSNP 2011 criteria. Results validated their appropriateness, including content, language, methodology, layout, design, audio quality, physical appearance, and effectiveness in promoting autonomous language learning.

From the expert judgment, the value of the developed product is in the range of $3.25 \leq X \leq 4$. It means the media and the materials can be categorized as very good and considered appropriate for students in grade 8. Based on expert judgment, the materials are feasible with revisions. After the modification, the product was tested on the students and got their reviews. The students' reviews showed that the augmented reality novel game was excellent and suitable for Grade 8 students of Junior High School. There were a few revisions before the final product. The last step was to disseminate the products to English teachers.

CONCLUSION

The students' need analysis showed that their main goals were to read fluently, comprehend texts, answer questions based on provided texts, and enrich their vocabulary. Additionally, they wanted to overcome vocabulary, grammar, and text structure comprehension difficulties. The students must have exciting and interactive materials involving pictures and illustrations to motivate them to learn reading. They also chose audio-visual and printed media to support learning reading.

The UniteAR application offers an augmented reality game as a visual-audio learning tool for English students. The game's English learning materials are divided into two parts. The first part provides a general explanation of narrative text, while the second part analyzes narrative text aspects, including social function, generic structure, and language features. Each piece includes various tasks to achieve core and essential competencies' objectives. The title and learning objectives are presented on each part's first page. Based on expert judgment and development testing results, the media and materials are appropriate for grade 8 students. The learning media includes sounds, illustrations, pictures, and exciting activities to attract and motivate students to learn narrative texts. The aesthetic function and suitability to the learning process goals are considered in the presented elements. So, it can be concluded that the augmented reality game is a suitable English learning media for grade 8 students in narrative text learning. Various learning resources are available to support students while doing independent learning.

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